

PA.051.MPC Ventricular Assist Devices

Maryland Physicians Care considers **Ventricular Assist Devices (VADs)** medically necessary for the following indications:

1. The VAD must be FDA-approved for that specific indication of use.
2. The procedure must be performed in a facility that is a member of the Interagency Registry for Mechanically Assisted Circulatory Support (INTERMACS) and credentialed by the Joint Commission on Accreditation of Healthcare Organizations under the Disease Specific Certification Program for VADs.
3. The facility must have at least one member of the VAD team with experience implanting at least 10 VADs over the course of the previous 36 months.

Specific Criteria for each indication of use:

1. **Bridge-to-Transplant (All of the following criteria must be met) (AUC Score 8):**
 - a) Patients must have severe reductions in cardiac output or non-cardiac co-morbidities for which survival and successful cardiac transplantation are not likely without mechanical support
 - b) Device must be FDA-approved for bridge-to-transplant use and used according to labeling instructions.
 - c) Member is approved and listed as a candidate for heart transplantation or undergoing evaluation based on a decision for patient's candidacy by an interdisciplinary patient selection committee (including but not limited to medical doctors, nursing coordinators, social workers, nutritionists, etc.)
 - d) Impending cardiogenic shock despite inotropic support \pm IABP in presence of acute renal dysfunction (creatinine level greater than 2.0) that is deemed secondary to insufficient renal blood flow
 - e) Response to inotropic support is poor and,
 - f) Pulmonary hypertension (PA systolic pressure greater than 60) that persists despite optimal medical and inotropic therapy (AUC Score 5)

NOTE: BMI greater than or equal to 35 is a relative contraindication to bridge-to-transplantation.

PA.051.MPC Ventricular Assist Devices

Policy Number: PA.051.MPC

Last Review Date: 09/14/2023

Effective Date: 10/01/2023

2. Bridge to Recovery (AUC Score 5):

- a) Patients must have a fatal low cardiac output but where recovery is possible
- b) Acute myocardial infarction complicated by cardiogenic shock
- c) Acute myocarditis with shock
- d) Acute cardiac failure following cardiac surgery

3. Destination Therapy (All of the following criteria must be met) (AUC Score 8):

- a) Patient must be less than 80 years old
- b) Device must be FDA-approved for destination therapy use and used according to labeling instructions.
- c) Patients who have chronic end-stage heart failure (New York Heart Association Class IV end-stage left ventricular failure) who are not candidates for heart transplantation, and meet all of the following conditions:
 - 1. Have failed to respond to optimal medical management (including beta-blockers and ACE inhibitors if tolerated) for at least 45 of the last 60 days, or have been balloon pump-dependent for 7 days, or IV inotrope-dependent for 14 days; and,
 - 2. Have a left ventricular ejection fraction (LVEF) < 25%, and,
 - 3. Have demonstrated functional limitation with a peak oxygen consumption of ≤ 14 ml/kg/min unless balloon pump- or inotrope-dependent or physically unable to perform the test.

4. Post-cardiotomy ventricular dysfunction (Both of the following criteria must be met):

- a) Device is FDA-approved for this purpose and used according to labeling instructions.
- b) All appropriate measures have been attempted to wean patient from the heart bypass such as pharmacologic agents, intra-aortic balloon pump (if applicable).

5. Pediatric VADs (either of the following criteria must be met):

- a) Device is FDA approved for bridge-to-transplant and used according to labeling instructions.
- b) Used in the context of Category B IDE /HDE clinical trial or as a routine cost in a clinical trial (refer to PA-078- Clinical Trials-Coverage of Routine Care Costs and/or PA-079- Experimental and Investigational Services):
 - HeartAssist 5 VAD (MicroMed DeBakey VAD Child) – HDE device used for children ages 5 to 16 years with NYHA Class IV end-stage heart failure, who have been listed as a candidate for heart transplant,

PA.051.MPC Ventricular Assist Devices

Policy Number: PA.051.MPC

Last Review Date: 09/14/2023

Effective Date: 10/01/2023

with Body Surface Area (BSA) $\geq 0.7 \text{ m}^2$ and $< 1.5 \text{ m}^2$ and are refractory to medical therapy.

- Berlin Heart EXCOR Pediatric VAD – HDE device used for infants up to teenagers (0 to 16 years) suffering from NYHA Class IV end-stage heart failure who are refractory to medical therapy and have been listed as a candidate for heart transplantation.

Limitations

- A. Use of a non-FDA-approved device except in the context of Category B IDE exemption clinical trial
- B. Patients, parents, or legal guardians who will be unable to follow the guidelines provided by their VAD health care team for use of the device.
- C. Patients who demonstrate an inability to comply with medical recommendations on multiple occasions.
- D. Prior authorization is required unless the VAD is implanted emergently and then notification is still required after implantation so that Case Management may assist these patients.
- E. Irreversible multiple organ dysfunction.
- F. Irreversible neurological disease
- G. Irreversible hepatic disease
- H. Irreversible renal disease
- I. Active systemic infection.
- J. Active substance abuse
- K. Severely restricted pulmonary function.
- L. Severe psychosocial limitations
- M. Severe peripheral vascular disease
- N. Active malignancy (can be reviewed on a case-by-case basis when supported by documentation from an oncologist that expected survival with their cancer is at least 70% at 2 years).
- O. Blood clotting disorders (can be reviewed on a case-by-case basis as this can be frequently present in patients with heart failure and patients who cannot be adequately anticoagulated).
- P. Musculoskeletal disease that impairs rehabilitation
- Q. Impaired cognitive function

Background

A ventricular assist device (VAD) or left ventricular assist device (LVAD) is surgically attached to one or both intact ventricles and is used to assist a damaged or weakened native heart in pumping blood. Improvement in the performance of the native heart may allow the device to be removed.

PA.051.MPC Ventricular Assist Devices

Policy Number: PA.051.MPC

Last Review Date: 09/14/2023

Effective Date: 10/01/2023

A VAD differs from an artificial heart. An artificial heart is a biventricular replacement device which requires removal of a substantial part of the native heart, including both ventricles. Removal of this device is not compatible with life, unless the patient has a heart transplant.

Destination therapy is for patients that require permanent mechanical cardiac support.

Post-cardiotomy is the period following open-heart surgery.

Codes

CPT Codes

Code	Description
33975	Insertion of ventricular assist device; extracorporeal, single ventricle
33976	Insertion of ventricular assist device; extracorporeal, biventricular
33979	Insertion of ventricular assist device, implantable intracorporeal, single ventricle
33981	Replacement of extracorporeal ventricular assist device, single or biventricular, pump(s), single or each pump
33982	Replacement of ventricular assist device pump(s); implantable intracorporeal, single ventricle, without cardiopulmonary bypass
33983	Replacement of ventricular assist device pump(s); implantable intracorporeal, single ventricle, with cardiopulmonary bypass
33991	Insertion of ventricular assist devices, percutaneous including radiological supervision and interpretation; arterial and venous access, with transseptal puncture
33995	Insertion of ventricular assist device, percutaneous, including radiological supervision and interpretation; right heart, venous access only
33997	Removal of percutaneous right heart ventricular assist device, venous cannula, at separate and distinct session from insertion

References

1. Centers for Medicare and Medicaid Services (CMS): Medicare Learning Network (MLN) Matters-MM No.7888. New healthcare common procedure coding system (HCPCS) code for external ventricular assist devices or any ventricular assist device (VAD) for which payment was not made under Medicare Part A. Effective April 4, 2013.

<https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/Downloads/R1159OTN.pdf>

PA.051.MPC Ventricular Assist Devices

Policy Number: PA.051.MPC

Last Review Date: 09/14/2023

Effective Date: 10/01/2023

2. Centers for Medicare and Medicaid Services (CMS): National Coverage Determination (NCD) No. 20.9.1. Ventricular Assist Devices. Effective Date of this Version: 12/01/2020.
<https://www.cms.gov/medicare-coverage-database/view/ncd.aspx?ncdid=360&ncdver=2&=>
3. Centers for Medicare and Medicaid Services (CMS): Medicare Learning Network (MLN) Matters MM7220- Ventricular assist devices (VADs) as destination therapy. Effective date: November 9, 2010. Updated September 18, 2014.
<https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/Downloads/R129NCD.pdf>
4. Feldman D, Pamboukian SV, Teuteberg JJ, et al. The 2013 International Society for Heart and Lung Transplantation Guidelines for mechanical circulatory support: Executive summary. The Journal of Heart and Lung Transplantation. September 2013; 32: 157-187.
<https://www.ncbi.nlm.nih.gov/pubmed/23352391>
5. Gregoric ID, Loyalka P, Radovancevic R, et al. Tandem Heart as a rescue therapy for patients with critical aortic valve stenosis. Ann Thorac Surg. 2009 Dec; 88(6):1822-1827.
<http://www.ncbi.nlm.nih.gov/pubmed/19932242>
6. National Heart, Lung, and Blood Institute: What is a ventricular assist device? Last Updated Date: March 4, 2022.
<http://www.nhlbi.nih.gov/health/health-topics/topics/vad/>
7. U.S. Food and Drug Administration (FDA) Consumer Updates. Devices that keep the heart beating. Last updated: Feb. 9, 2021.
<http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm048705.htm>
8. U.S. Food and Drug Administration (FDA). Medical Devices. Device Approvals and Clearances. Berlin Heart EXCOR® Pediatric Ventricular Assist Device (VAD) - H100004. Approval Date: Dec. 16, 2011. Page Last Updated: 04/24/2023.
<https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfhde/hde.cfm?id=h100004>
9. Yancy CW, Jessup M, Bozkurt B, et al. 2013 American College of Cardiology Foundation/ American Heart Association (ACCF/AHA) Guideline for the Management of Heart Failure. Circulation. 2013; 128: e240-e327.
<https://circ.ahajournals.org/content/128/16/e240.extract>
10. Rihal et al. 2015 SCAI/ACC/HFSA/STS Clinical Expert Consensus Statement on the Use of Percutaneous Mechanical Circulatory Support Devices in Cardiovascular Care. JACC VOL. 65, NO. 19, 2015.
<https://www.jacc.org/doi/10.1016/j.jacc.2015.03.036>
11. Peura JL, Colvin-Adams M, Francis GS, et al. Recommendations for the Use of Mechanical Circulatory Support: Device Strategies and Patient Selection. A Scientific Statement from the American Heart Association. Circulation. 2012;

PA.051.MPC Ventricular Assist Devices

Policy Number: PA.051.MPC

Last Review Date: 09/14/2023

Effective Date: 10/01/2023

126:2648-2667.).

<https://www.ahajournals.org/doi/10.1161/cir.0b013e3182769a54?cookieSet=1>

12. Mehra, Mandeep R., et al. The 2016 International Society for Heart Lung Transplantation listing criteria for heart transplantation: A 10 year update. Vol 35, Issue 1, P1-23: Date: January 01, 2016.

<https://www.jhltonline.org/article/S1053-2498%2815%2901484-9/fulltext>

Archived References

1. Hayes. Health Technology Brief. HeartMate II (Thoratec Corp.) Left Ventricular Assist Device for Destination Therapy in Adult Patients with Chronic Heart Failure. April 14, 2011. Archived Date: October 28, 2011.
2. Hayes. Search & Summary. Ventricular Assist Devices (VADs) in Children and Adolescents with Chronic, End-Stage Heart Failure. September 24, 2015. Archived Date: November 19, 2015.
3. Centers for Medicare and Medicaid Services (CMS): National Coverage Determination (NCD) No. 20.9- Artificial hearts and related devices. Effective Date of this Version: 10/30/2013.
<https://www.cms.gov/medicare-coverage-database/view/ncd.aspx?ncdid=246&ncdver=8&NCAId=211&ver=20&NcaName=Artificial+Hearts&bc=ACAAAAAIAAAA&=>

Disclaimer

Maryland Physicians Care medical payment and prior authorization policies do not constitute medical advice and are not intended to govern or otherwise influence the practice of medicine. The policies constitute only the reimbursement and coverage guidelines of Maryland Physicians Care and its affiliated managed care entities. Coverage for services varies for individual members in accordance with the terms and conditions of applicable Certificates of Coverage, Summary Plan Descriptions, or contracts with governing regulatory agencies.

Maryland Physicians Care reserves the right to review and update the medical payment and prior authorization guidelines in its sole discretion. Notice of such changes, if necessary, shall be provided in accordance with the terms and conditions of provider agreements and any applicable laws or regulations.

These policies are the proprietary information of Maryland Physicians Care. Any sale, copying, or dissemination of said policies is prohibited.