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## OVERVIEW

This policy documents coverage guidelines for Medicare Advantage Plans and Commercial Products for enhanced external counterpulsation (EECP) used in outpatient treatment. EECP is a noninvasive treatment used to augment diastolic pressure, decrease left ventricular afterload, and increase venous return. It has been studied primarily as a treatment for patients with refractory angina and heart failure.

## MEDICAL CRITERIA

### Medicare Advantage Plans

Not applicable

### Commercial Products

A single\* course of enhanced external counterpulsation (EECP) may be considered medically necessary for individuals when the criteria below are met:

1. Disabling, chronic, stable angina, (defined as Class III or Class IV Canadian Cardiovascular Society Classification [see definition section] angina or equivalent); **AND**
2. Individuals refractive to optimal medical therapy and not readily amenable to surgical intervention such as percutaneous transluminal coronary angioplasty (PTCA) or cardiac bypass due to any of the following:
  - a. Condition is inoperable; or
  - b. High risk of operative complications or postoperative failure; or
  - c. Coronary anatomy is not readily amenable to such procedures; **AND**
3. None of the following comorbid conditions or contraindications that would result in excessive risk are present, including but not limited to the following:
  - a. Aortic insufficiency (regurgitation might prevent diastolic augmentation); **OR**,
  - b. Arrhythmias such as atrial fibrillation, atrial flutter, ventricular tachycardia, and frequent premature ventricular beats (might interfere with the device's triggering mechanism); **OR**
  - c. Uncontrolled bleeding diatheses; **OR**
  - d. Severe heart failure; **OR**
  - e. Deep vein thrombosis, varicosities, or stasis ulcers; **OR**
  - f. Peripheral vascular disease, phlebitis (increased risk of thromboembolus); **OR**
  - g. Severe hypertension (treatment could produce diastolic blood pressure above acceptable limits); **OR**
  - h. Stroke; **AND**
4. Procedure to be performed under direct physician supervision

**Note:**\*A single course of treatment consists of a total of 35 hours of EECP; treatment is administered for one to two hours daily, 5 days a week, for approximately 3½ to 7 weeks.

A repeat course of EECP therapy is considered medically necessary in individuals who met the criteria in the above section, have chronic stable angina and who have objectively demonstrated a response to EECP. This would include those individuals who demonstrate one or more of the following:

1. Early improvement in radionuclide stress perfusion imaging compared to a pre-EECP baseline; **OR**
2. Reduction in antianginal medication use; **OR**
3. Improvement in exercise tolerance.

The use of ECP is considered not medically necessary for all other cardiac indications not otherwise specified.

The use of EECP is considered not medically necessary for all other indications not listed above.

## **PRIOR AUTHORIZATION** **Medicare Advantage Plans**

Not applicable

## **Commercial Products**

Prior authorization is recommended for Commercial Products.

## **POLICY STATEMENT**

### **Medicare Advantage Plans**

Enhanced External Counterpulsation (EECP) is covered for Medicare Advantage Plan members.

**Note:** Blue Cross & Blue Shield of Rhode Island (BCBSRI) must follow Centers for Medicare and Medicaid Services (CMS) guidelines, such as national coverage determinations or local coverage determinations for all Medicare Advantage Plan policies. Therefore, Medicare Advantage Plan policies may differ from Commercial products. In some instances, benefits for Medicare Advantage Plans may be greater than what is allowed by the CMS.

## **Commercial Products**

The use of EECP may be considered medically necessary when the above medical criteria has been met.

The use of EECP is considered not medically necessary when the criteria above are not met and for all other indications.

## **COVERAGE**

Benefits may vary between groups/contracts. Please refer to the appropriate section of the Benefit Booklet, Evidence of Coverage or Subscriber Agreement for services not medically necessary.

## **BACKGROUND**

Enhanced external counterpulsation (EECP) uses timed, sequential inflation of pressure cuffs on the calves, thighs, and buttocks to augment diastolic pressure, decrease left ventricular afterload, and increase venous return. The proposed mechanism of action is the augmentation of diastolic pressure by displacement of a volume of blood backward into the coronary arteries during diastole when the heart is in a state of relaxation and resistance in the coronary arteries is at a minimum. The resulting increase in coronary artery perfusion pressure may enhance coronary collateral development or increase flow through existing collaterals. Also, when the left ventricular contracts, it faces reduced aortic counterpressure, because the counterpulsation has somewhat emptied the aorta. EECP has been primarily investigated as a treatment for chronic stable angina.

Intra-aortic balloon counterpulsation is a more familiar, invasive form of counterpulsation that is used as a method of temporary circulatory assistance for the ischemic heart, often after acute myocardial infarction. In contrast, EECP is thought to provide a permanent effect on the heart by enhancing the coronary collateral development. A full course of therapy usually consists of 35 one-hour treatments, which may be offered once or twice daily, usually 5 days a week. The multiple components of the procedure include the use of the device itself, finger plethysmography to follow the blood flow, continuous electrocardiograms to trigger inflation and deflation, and optional use of pulse oximetry to measure oxygen saturation before and after treatment.

A variety of enhanced external counterpulsation (EECP) devices have been cleared for marketing by the Food and Drug Administration (FDA) through the 510(k) process.

Examples of EECP devices with FDA clearance and the manufacturers are:

- External Counterpulsation System (Vamed Medical Instrument)
- Pure Flow External Counter-Pulsation Device (Xtreem Pulse)

- Renew® NCP-5 External Counterpulsation System (Renew Group)
- ECP Health System Model (ECP Health)
- CardiAssist™ Counter Pulsation System (Cardiomedics)
- ACS Model NCP-2 External Counterpulsation Device (Applied Cardiac Systems)
- EECP® Therapy System (Vasomedical)

Medicare has published a national coverage decision on EECP that allows coverage for the following indications:

“Coverage is provided for the use of ECP [external counterpulsation] for patients who have been diagnosed with disabling angina (Class III or Class IV, Canadian Cardiovascular Society Classification or equivalent classification) who, in the opinion of a cardiologist or cardiothoracic surgeon, are not readily amenable to surgical intervention, such as percutaneous transluminal coronary angioplasty or cardiac bypass because:

- 1) Their condition is inoperable, or at high risk of operative complications or post-operative failure;
- 2) Their coronary anatomy is not readily amendable to such procedures; or
- 3) They have co-morbid states which create excessive risk.”

Medicare's coverage decision also noted that while the U.S. Food and Drug Administration has cleared EECP "for use in treating a variety of cardiac conditions, including stable or unstable angina pectoris, acute myocardial infarction and cardiogenic shock, the use of this device to treat cardiac conditions other than stable angina pectoris is not covered.”

The augmented diastolic pressure and retrograde aortic flow appear to improve myocardial perfusion, while systolic unloading appears to reduce cardiac workload and oxygen requirements. The increased venous return coupled with enhanced systolic flow appears to increase cardiac output. As a result of this treatment, most patients experience increased time until onset of ischemia, increased exercise tolerance, and a reduction in the number and severity of anginal episodes. Evidence was presented that this effect lasted well beyond the immediate post-treatment phase, with patients’ symptom-free for several months to two years. This procedure must be done under direct supervision of a physician.

## **CODING**

### **Medicare Advantage Plans**

The following HCPCS code is covered for Medicare Advantage Plans:

**G0166** External counterpulsation, per treatment session

### **Commercial Products**

The following HCPCS code may be considered medically necessary for Commercial Products when the above medical criteria is met:

**G0166** External counterpulsation, per treatment session

## **RELATED POLICIES**

None

## **PUBLISHED**

Provider Update, August 2026

Provider Update, May 2025

Provider Update, September 2024

Provider Update, July 2023

Provider Update, September 2022

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