Pneumatic Compressors and Appliances - Single Service

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

Specialty Area: Cardiovascular Disease
Guideline Name: Pneumatic Compressors and Appliances (Single Service)

Literature review current through: 12/1/2023
Document last updated: 12/1/2023
Type: [**X**] Adult (18+ yo) | [_] Pediatric (0-17yo)

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Medical Necessity Criteria

Service: Pneumatic Compressors and Appliances

General Guidelines

- **Units, Frequency, & Duration:** None.
- **Criteria for Subsequent Requests:** None.
- **Recommended Clinical Approach:** None.
- **Exclusions:** Arterial insufficiency, potential compression of existing lower extremity arterial bypasses, severe cardiac insufficiency, severe diabetic neuropathy with sensory loss or microangiopathy with an increased risk of skin necrosis and/or allergy to compression material.[1]

Medical Necessity Criteria

Indications

➔ **Pneumatic Compressors and Appliances** are considered appropriate if **ALL** of the following are **TRUE**:[2]

- ◆ The patient has **ANY** of the following clinical conditions:
  - Deep venous thrombosis (DVT) risk reduction for patients who have risk factors for DVT including immobility[3-5]; **OR**
  - Lymphedema with participation in a decongestive therapy program and **ANY** of the following:[6-7]
    - For initial reductive phase as indicated by **ALL** of the following:
      - ◆ Symptomatic lymphedema and **ANY** of the following:
        - Discomfort; **OR**
        - Heaviness; **OR**
        - Pain; **OR**
        - Recurrent skin infections or skin ulceration; **OR**
        - Refractory lymphatic drainage; **OR**
        - Reduced function; **AND**
      - ◆ Failure of compression intervention (e.g., compression garment, bandage, manual lymph drainage) as evidenced by failure to relieve signs or symptoms after at least four weeks of treatment; **OR**

        - For maintenance phase as indicated by a failure of prior compression therapy (e.g., compression garment, bandage, manual lymph drainage) as evidenced by failure to relieve symptoms after at least four weeks of treatment; **OR**
    - Symptomatic superficial or deep venous insufficiency (e.g. CEAP class 1 through 6); **OR**
    - Venous leg ulcers and **ANY** of the following:[8-9]
        - Failure of compression interventions (e.g., stockings, bandages) after six months or more and **ALL** of the following:
            - Non-healing venous ulcers; **AND**
            - Other interventions (e.g., saphenous vein ablation, sclerotherapy) are not suitable/effective [10-11]; **OR**
        - Use of other compression interventions is not possible[12]; **AND**
- Ankle brachial pressure index (ABPI) greater than 0.6, ankle pressure greater than 60 mm Hg, toe pressure greater than 30 mm Hg, or transcutaneous oxygen pressure greater than 20 mm Hg; **AND**
- Absence of acute DVT; **AND**
- Absence of recurrent cancer in the affected extremity[6,13]; **AND**
- Absence of untreated cellulitis in the affected extremity.[6,13]

Non-Indications

➔ **Pneumatic Compressors and Appliances** are **NOT** considered appropriate if **ANY** of the following is **TRUE**:[1]

- Arterial insufficiency of the lower extremities (ankle brachial pressure index (ABPI) less than 0.6, ankle pressure less than 60 mm Hg, toe pressure less than 30 mm Hg, or transcutaneous oxygen pressure less than 20 mm Hg); **OR**
- Potential compression of an existing lower extremity arterial bypasses; **OR**
- Severe diabetic neuropathy; **OR**
- Severe cardiac insufficiency; **OR**
- Allergy to compression material.

Level of Care Criteria

Inpatient or Outpatient.

Procedure Codes (HCPCS/CPT)

HCPCS/CPT Code	Code Description
E0650	Pneumatic compressor, nonsegmental home model
E0651	Pneumatic compressor, segmental home model without calibrated gradient pressure
E0652	Pneumatic compressor, segmental home model with calibrated gradient pressure
E0655	Nonsegmental pneumatic appliance for use with pneumatic compressor, half arm
E0660	Nonsegmental pneumatic appliance for use with pneumatic compressor, full leg
E0665	Nonsegmental pneumatic appliance for use with pneumatic compressor, full arm
E0666	Nonsegmental pneumatic appliance for use with pneumatic compressor, half leg
E0667	Segmental pneumatic appliance for use with pneumatic compressor, full leg
E0668	Segmental pneumatic appliance for use with pneumatic compressor, full arm
E0669	Segmental pneumatic appliance for use with pneumatic compressor, half leg
E0671	Segmental gradient pressure pneumatic appliance, full leg
E0672	Segmental gradient pressure pneumatic appliance, full arm
E0673	Segmental gradient pressure pneumatic appliance, half leg

Medical Evidence

The American Academy of Neurology (AAN) published a practice guideline on the treatment of restless legs syndrome (RLS) in adults. Pneumatic compression shows positive outcomes for patients with moderate to severe RLS. It is most effective before the usual onset of symptoms when non-pharmacologic approaches are indicated.[14]

The American Academy of Orthopaedic Surgeons (AAOS) published a guideline on *Preventing Venous Thromboembolic Disease in Patients Undergoing Elective Hip and Knee Arthroplasty.* Recommendations include the use of mechanical compressive devices in combination with pharmacologic agents to prevent venous thromboembolism in patients who are not at elevated risk for bleeding (in addition to expected loss during surgery). The AAOS notes the lack of evidence for the following:[15]

- Duration of use;
- Use of pharmacologic prophylaxis and mechanical compressive devices in patients who have had previous venous thromboembolism; and
- Outcomes of using mechanical compressive devices for reducing the risk of venous thromboembolism in patients with a known bleeding disorder (e.g., hemophilia) or active liver disease.

The American Society of Hematology (AHS) guideline on the *Management of Venous Thromboembolism* discusses prevention measures for hospitalized patients following surgery. Pneumatic compression DVT prophylaxis is recommended for patients instead of graduated compression stockings.[16]

The American Venous Forum (AVF), the American Vein and Lymphatic Society (AVLS), and the Society for Vascular Medicine (SVM) published the *Expert Opinion Consensus on Lymphedema Diagnosis and Treatment.* Sequential pneumatic compression is recommended for patients, especially those with early-stage lymphedema. Patients with edema due to chronic venous insufficiency may also benefit.[17]

The **International Society of Lymphology (ISL)** updated a consensus document on *The Diagnosis and Treatment of Peripheral Lymphedema.* Intermittent pneumatic compression is recommended as a standard treatment for lymphedema. Compression stockings or sleeves may be effective following treatment with external compression to maintain edema reduction.[6]

The Society for Vascular Surgery (SVS) and the American Venous Forum (AVF) published guidelines for managing venous leg ulcers. Intermittent pneumatic compression is recommended when other options are unavailable or not unsuccessful.[18]

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