SURGICAL CORRECTION OF CHEST WALL DEFORMITIES (PECTUS EXCAVATUM AND PECTUS CARINATUM)

Surgical Correction of Chest Wall Deformities (Pectus Excavatum and Pectus Carinatum)

Policy Number: HS-177

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APPLICATION STATEMENT

The application of the Clinical Coverage Guideline is subject to the benefit determinations set forth by the Centers for Medicare and Medicaid Services (CMS) National and Local Coverage Determinations and state-specific Medicaid mandates, if any.

DISCLAIMER

The Clinical Coverage Guideline (CCG) is intended to supplement certain standard WellCare benefit plans and aid in administering benefits. Federal and state law, contract language, etc., take precedence over the CCG (e.g., Centers for Medicare and Medicaid Services [CMS] National Coverage Determinations [NCDs], Local Coverage Determinations [LCDs] or other published documents). The terms of a member’s particular Benefit Plan, Evidence of Coverage, Certificate of Coverage, etc., may differ significantly from this Coverage Position. For example, a member’s benefit plan may contain specific exclusions related to the topic addressed in this Coverage Position. The application of the CCG is subject to the benefit determinations set forth by the Centers for Medicare and Medicaid Services (CMS) National and Local Coverage Determinations and state-specific Medicaid mandates, if any. All links are current at time of approval by the Medical Policy Committee (MPC) and are subject to change prior to the annual review date. Lines of business (LOB) are subject to change without notice; current LOBs can be found at www.wellcare.com. All guidelines can be found at this site as well but selecting the Provider tab, then “Tools” and “Clinical Guidelines”.

BACKGROUND

Pectus excavatum is a chest wall deformity in which a depression of the sternum (funnel chest) occurs. When severe, pectus excavatum deformity can cause cardiopulmonary insufficiency from the compression of the right atrium and right ventricle and diminished vital capacity of the lungs. A variety of techniques are available to repair pectus excavatum deformity. The standard surgical correction of pectus excavatum involves an open surgical repair (the Ravitch repair) and involves an incision to lift the pectoral muscles so that the deformed cartilage can be resected and the sternum rotated. This is often combined with metal retrosternal support bars to insure proper...
positioning as the wound heals. Three other pectus excavatum repair techniques include sternal turnover, unilateral costoplasty, and silicone implant reconstruction.

In 1987, Dr. Donald Nuss developed a minimally invasive technique for treatment of Pectus excavatum using a convex steel bar placed beneath the pectus deformity and turned to correct the defect. The procedure may be performed using videothoracoscopy or with a third incision to guide the bar manually. The bar is then fixed to the ribs on either side. A small grooved steel plate may also be inserted at the end of the bar to stabilize it and fix the bar to the rib. The Haller index, or pectus severity index, is the most commonly used scale for determining the severity of chest wall deformities. Computerized tomography (CT) is used to determine the index, which is obtained by dividing the inner width of the chest at its widest point by the distance between the posterior surface of the sternum and the anterior surface of the spine. This measurement uses the deepest level of the inner sternal depression to the anterior aspect of the vertebral body. A normal chest has a Haller index of about 2.56.

Pectus carinatum, or pigeon breast, is another chest wall deformity characterized by an anterior protrusion of the sternum and costal cartilages. This deformity often produces a rigid chest and, while symptoms are uncommon, it may include exertional dyspnea or cardiac arrhythmias. Pulmonary function tests, chest x-rays and echocardiographies are useful for determining the extent of cardiopulmonary compromise. Patients with mild degrees of Pectus carinatum may be treated with bracing or casting to apply continuous pressure on the protruding breastbone pushing it into a normal position. Surgical correction of pectus carinatum involves mobilizing the skin and pectorial muscle flaps. The sternum can be straightened by performing an osteotomy, a subperichondrial resection of the involved costal cartilages, or a wedge-shaped osteotomy in the anterior sternal plate.

**POSITION STATEMENT**

**Applicable To:**
- Medicaid
- Medicare

Surgical correction of the chest wall deformities Pectus Excavatum, Pectus Carinatum and Poland syndrome by any technique (see background section) **is considered medically necessary** if the following criteria are met:

**A. Pectus Excavatum**
- Imaging study (e.g., computerized tomography [CT] scan, radiograph) that confirms a Haller index greater than 3.2 **AND ONE OF THE FOLLOWING:**
  - Restrictive lung disease as demonstrated by a total lung capacity less than 80% of predicted value; **OR,**
  - Cardiac compression as demonstrated by CT, MRI, or ultrasound of the chest.

**NOTE:** These studies may be useful in identifying comorbidities related to Pectus Excavatum such as: atelectasis or cardiac compression, reduced pulmonary function as demonstrated on pulmonary function studies, or reduced cardiac output as demonstrated on cardiac studies.

**B. Pectus Carinatum**
- Cardiopulmonary compromise (frequently associated with another deformity; e.g., scoliosis), in severe forms of Pectus Carinatum, as demonstrated by:
  - Pulmonary function tests to document obstructive abnormalities (**NOTE:** Pectus Carinatum is generally not associated with restrictive abnormalities); **AND,**
  - Chest x-ray demonstrating an increased anteroposterior diameter of the chest wall, emphysematous-appearing lungs, and a narrow cardiac shadow; **OR,**
  - Echocardiography demonstrating deformity of the cardiac silhouette. **NOTE:** Malposition of the cardiac silhouette in the absence of study demonstrating reduced cardiac function is not, in itself, a functional deficit.

**CODING**

**Covered CPT® Codes**
- 21740 Reconstructive repair of pectus excavatum or carinatum; open
- 21742 Reconstructive repair of pectus excavatum or carinatum; minimally invasive approach (Nuss procedure), without thoracoscopy
21743    Reconstructive repair of pectus excavatum or carinatum; minimally invasive approach (Nuss procedure), with thoracoscopy

**HCPCS® Codes** – No applicable codes.

**Covered ICD-10-CM Diagnosis Codes**

- Q67.6    Pectus excavatum
- Q67.7    Pectus carinatum
- Q79.8    Other congenital malformations of musculoskeletal system, Poland Syndrome


**REFERENCES**


**MEDICAL POLICY COMMITTEE HISTORY AND REVISIONS**

<table>
<thead>
<tr>
<th>Date</th>
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<tr>
<td>4/6/2017</td>
<td>Approved by MPC. No changes.</td>
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<tr>
<td>4/7/2016</td>
<td>Approved by MPC. No changes.</td>
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<tr>
<td>4/2/2015</td>
<td>Approved by MPC. Added two Hayes (2010) references to support pediatric patients.</td>
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<tr>
<td>4/3/2014</td>
<td>New template design approved by MPC.</td>
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<tr>
<td>4/11/2013</td>
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