



**SURGICAL CORRECTION OF CHEST WALL
DEFORMITIES (PECTUS EXCAVATUM AND
PECTIS CARINATUM)
HS-177**



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

Policy Number: HS-177

Original Effective Date: 7/1/2010

Revised Date(s): 8/2/2011; 4/5/2012

DISCLAIMER

The Clinical Coverage Guideline is intended to supplement certain standard WellCare benefit plans. 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 Clinical Coverage Guideline. When a conflict exists between the two documents, the Member's Benefit Plan always supersedes the information contained in the Clinical Coverage Guideline. Additionally, Clinical Coverage Guidelines relate exclusively to the administration of health benefit plans and are NOT recommendations for treatment, nor should they be used as treatment guidelines. 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.

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.

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 pectoral 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.

For pediatric patients, pectus excavatum was issued a rating of B (¹Hayes Directory, 2010) and is supported by the National Institute for Clinical Excellence.

POSITION STATEMENT

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

Covered ICD-9-CM Procedure Codes

- 34.74** Repair of pectus deformity with implant; pectus carinatum and pectus excavatum

HCPCS® Codes - Not applicable

Covered ICD-9-CM Diagnosis Codes

- 754.81** Pectus excavatum
754.82 Pectus carinatum

*Current Procedural Terminology (CPT) 2012 American Medical Association: Chicago, IL.®©

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Peer Reviewed

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Government Agencies, Professional and Medical Organizations - N/A

HISTORY AND REVISIONS

Date	Action
4/5/2012	<ul style="list-style-type: none">• Approved by MPC. Added two Hayes (2010) references which include support for pediatric patients and rating of B for pediatrics.
12/1/2011	<ul style="list-style-type: none">• New template design approved by MPC.
8/2/2011	<ul style="list-style-type: none">• Approved by MPC. No changes.