



## Pectus Deformity Repair

<b>LOB(s):</b> <input checked="" type="checkbox"/> Commercial  <input checked="" type="checkbox"/> Medicare  <input checked="" type="checkbox"/> Medicaid	<b>State(s):</b> <input checked="" type="checkbox"/> Idaho <input checked="" type="checkbox"/> Montana <input checked="" type="checkbox"/> Oregon <input checked="" type="checkbox"/> Washington <input type="checkbox"/> Other:  <input checked="" type="checkbox"/> Oregon <input type="checkbox"/> Washington
--	---

### Enterprise Policy

Clinical Guidelines are written when necessary to provide guidance to providers and members in order to outline and clarify coverage criteria in accordance with the terms of the Member's policy. This Clinical Guideline only applies to PacificSource Health Plans, PacificSource Community Health Plans, and PacificSource Community Solutions in Idaho, Montana, Oregon, and Washington. Because of the changing nature of medicine, this list is subject to revision and update without notice. This document is designed for informational purposes only and is not an authorization or contract. Coverage determinations are made on a case-by-case basis and subject to the terms, conditions, limitations, and exclusions of the Member's policy. Member policies differ in benefits and to the extent a conflict exists between the Clinical Guideline and the Member's policy, the Member's policy language shall control. Clinical Guidelines do not constitute medical advice nor guarantee coverage.

### Background

The two most common types of chest wall deformity are Pectus Excavatum (PE) and Pectus Carinatum (PC). These deformities can lead to cardiac and/or respiratory impairment, associated functional limitations, frequent respiratory infections, asthma, pain, cosmetic and related psychological symptoms issues/ concerns.

**Pectus Excavatum (PE)** is the most common type of chest deformity in which several ribs and the sternum grow abnormally, producing a concave or caved-in appearance of the anterior chest wall. Severe cases can cause cardiopulmonary impairment and physiologic limitations.

**Pectus Carinatum (PC)** is characterized by an anterior protrusion deformity of the sternum and costal cartilages. Pectus Carinatum is typically not confirmed until after the growth spurts of early adolescence. There are two different types of Pectus Carinatum:

- **Chondrogladiolar prominence:** also called "chicken breast," in which the middle and lower sections of the breastbone push forward. This is the most common form of the condition.
- **Chondromanubrial prominence:** also called "Pouter pigeon breast," in which the breastbone develops in a Z-shape, with the top section pushing forward. This is more rare and complex form of the condition.

**Haller Index** (also known as pectus index): The Haller Index is used to calculate the degree of deformity using measurements obtained by CT scan. A Haller Index of at least 3.25 is generally recognized to indicate pectus excavatum of sufficient severity to consider surgical repair.

## Criteria

---

### Commercial

#### Prior authorization is required

##### I. Pectus Excavatum

- A. PacificSource considers surgical repair of Pectus Excavatum medically necessary when **ALL** of the following criteria is met:
1. Documented functional impairment with associated physical symptoms (e.g., asthma, atypical chest pain, frequent lower respiratory infections, and exercise limitation/intolerance per objective testing)
  2. Documentation of degree of deformity by **ONE** of the following:
    - a. Confirm Haller index greater than 3.25
    - b. Cardiac compression, displacement or conduction abnormalities demonstrated by cardiac testing, such as echocardiography or stress echocardiography
    - c. Restrictive lung disease as demonstrated by a total lung capacity (TLC) less than or equal to 80% of predictive value per pulmonary function testing

##### II. Pectus Carinatum

- A. PacificSource considers surgical repair of Pectus Carinatum medically necessary when **ALL** of the following is met:
1. Documented functional impairment with associated physical symptoms. (e.g., cardiac, or respiratory insufficiency)
  2. Haller index (pectus severity index) of less than or equal to 2.0
- B. PacificSource considers non-surgical orthotic compressive bracing for the treatment of Pectus Carinatum medically necessary when **ALL** of the following is met:
1. Brace is custom-made for the individual (L1499)
  2. Documented cardiac or pulmonary impairment
  3. Skeletal growth is incomplete

##### III. Not Covered (Contract Exclusion)

PacificSource does not cover surgical repair of a chest wall deformity performed solely to improve appearance to treat psychological symptomatology. This is considered cosmetic and not a covered benefit.

PacificSource does not cover breast reconstruction procedures performed in association with surgical repair of a chest wall deformity for Pectus Excavatum, or Pectus Carinatum. This is considered cosmetic and not a covered benefit. Such reconstruction procedures include, but are not limited to the following:

- Breast reconstruction with latissimus dorsi flap or other technique
- Mastopexy
- Mammoplasty with or without prosthetic implant

- Nipple/areolar reconstruction
- Breast reconstruction with tissue expander
- Revision of reconstructed breast
- Insertion of breast prosthesis.

## Medicaid

PacificSource Community Solutions follows Guideline Note 94 of the OHP Prioritized List of Health Services and Oregon Administrative Rules 410-141--3820 to 3830 for coverage of Pectus Deformity Repair.

## Medicare

PacificSource Medicare follows CMS guidelines and criteria. In the absence of CMS criteria and guidelines, PacificSource Medicare will follow internal policy for determination of coverage and medical necessity.

## Experimental/Investigational/Unproven

---

PacificSource considers Dynamic Compression System for the treatment of Pectus Excavatum to be experimental, investigational, or unproven.

## Definitions

---

**Congenital Anomaly** - A physical developmental defect that is present at the time of birth or identified within the first twelve months of birth.

**Cosmetic Procedures** - Procedures or services performed to alter or reshape normal structures of the body in order to improve a member's appearance.

**Functional/Physical Impairment**- An impairment which causes deviation from the normal function of a tissue or organ resulting in a significantly limited, impaired, or delayed capacity to move, coordinate actions, or perform physical activities.

**Haller Index** - 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 2.5.

- For pectus excavatum the Haller index is calculated by measuring the transverse diameter of the thorax between the internal rib margins, divided by the minimal antero-posterior depth as measured from the internal aspect of the sternum to the anterior cortex of the subjacent vertebral body.
- For pectus carinatum the index is calculated by measuring the transverse diameter of the thorax between the internal rib margins, divided by the antero-posterior depth as measured from the most anterior level of the sternum to the anterior cortex of the subjacent vertebral body.

**Pectus Carinatum-** A protrusion of the chest over the sternum. It is extremely uncommon that Pectus Carinatum will cause a functional/physiological deficit. Pectus Carinatum is not a congenital anomaly; it is a developmental condition of the cartilage that generally occurs during an adolescent's growth spurt.

**Pectus Excavatum-** Posterior depression of the sternum and adjacent costal with variable severity that may be mild, moderate, or severe. The depth and extent of the depression determine the degree of cardiac and pulmonary compression, which in turn determines the degree of incapacitation.

**Reconstructive Procedures** - Procedures used to correct or repair abnormal structures of the body caused by congenital defects, developmental abnormalities, trauma, infection, tumors, or disease. Reconstructive procedures include surgery or other procedures which are associated with an injury, illness, or Congenital Anomaly.

**Restrictive lung disease** - A respiratory disease characterized by a loss of lung compliance, causing incomplete lung expansion and increased stiffness.

## Coding Information

---

The following list of codes are for informational purposes only and may not be all-inclusive. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement.

- 21740 Reconstructive repair of pectus excavatum or carinatum; open
- 21742 Reconstructive repair of pectus excavatum or carinatum; minimally invasive approach (nuss procedure), w/o thoracoscopy
- 21743 Reconstructive repair of pectus excavatum or carinatum; minimally invasive approach (nuss procedure), w/thoracoscopy
- L1499 Spinal orthosis, not otherwise specified

## References

---

Jaroszewski, D., Notrica, D., McMahon, L., Steidley, D. E., & Deschamps, C. (2010). Current management of pectus excavatum: a review and update of therapy and treatment recommendations. *Journal of the American Board of Family Medicine: JABFM*, 23(2), 230–239. <https://doi.org/10.3122/abfm.2010.02.090234>

Kravarusic, D., Dicken, B. J., Dewar, R., Harder, J., Poncet, P., Schneider, M., & Sigalet, D. L. (2006). The Calgary protocol for bracing of pectus carinatum: a preliminary report. *Journal of pediatric surgery*, 41(5), 923–926. <https://doi.org/10.1016/j.jpedsurg.2006.01.058>

Lee, S. Y., Lee, S. J., Jeon, C. W., Lee, C. S., & Lee, K. R. (2008). Effect of the compressive brace in pectus carinatum. *European journal of cardio-thoracic surgery : official journal of the European Association for Cardio-thoracic Surgery*, 34(1), 146–149. <https://doi.org/10.1016/j.ejcts.2008.04.012>

National Institute for Clinical Excellence (NICE). (August 2009). Placement of pectus bar for pectus excavatum (also known as MIRPE or the Nuss procedure). NICE interventional procedure guidance [IPG310]. <https://www.nice.org.uk/guidance/ipg310/resources/placement-of-pectus-bar-for-pectus-excavatum-also-known-as-mirpe-or-the-nuss-procedure-1899867385111237>

Mayer, O.H., et al. (November 24, 2021). Pectus excavatum: Etiology and evaluation. UpToDate. <http://www.uptodate.com/contents/pectus-excavatum-etiology-and-evaluation?source=machineLearning&search=Pectus+excavatum&selectedTitle=1%7E41&sectionRank=2&anchor=H15#H15>

Mayer, O.H., et al. (October 25, 2022). Pectus excavatum: Treatment. UpToDate. [https://www.uptodate.com/contents/pectus-excavatum-treatment?search=Pectus%20excavatum&source=search\\_result&selectedTitle=2~45&usage\\_type=default&display\\_rank=2](https://www.uptodate.com/contents/pectus-excavatum-treatment?search=Pectus%20excavatum&source=search_result&selectedTitle=2~45&usage_type=default&display_rank=2)

## Appendix

---

**Policy Number:**

**Effective:** 7/1/2020

**Next review:** 9/1/2024

**Author(s):** [Authors]

**Depts:** Health Services

**Applicable regulation(s):**

**Commercial OPs:** 5/2024

**Government OPs:** 5/2024