

Medical Policy

Policy:	200905	Effective Date:	02/11/2025
SUBJECT:	Surgical Repair of Pectus Deformities - Pectus Excavatum - Pectus Carinatum	Annual Review Date:	01/13/2025
		Last Revised Date:	01/13/2025

Prior approval is required for some or all procedure codes listed in this Corporate Medical Policy.

Definition: Surgical repair of pectus deformities such as pectus excavatum (funnel chest) or carinatum (pigeon chest, chicken breast) is performed to correct an associated functional impairment and/or the restoration of a normal appearance.

Pectus excavatum is a chest wall deformity consisting of a central depression overlying the sternum. Severe deformity of the chest wall due to pectus excavatum is associated with cardiopulmonary insufficiency and diminished lung capacity resulting from compression of the right atrium and right ventricle.

Pectus carinatum is a chest wall deformity characterized by an anterior protrusion of the sternum or costal cartilage. Pectus carinatum may occur as a solitary abnormality or in association with other genetic disorders or syndromes.

Medical Necessity:

I. Pectus excavatum: The Company considers surgical repair of pectus excavatum [**CPT Codes 21740, 21742, 21743 and applicable ICD-10-PCS Code(s)**] **medically necessary** and eligible for reimbursement providing that **all** of the following medical criteria are met:

- Medical complications due to pectus excavatum including, but not limited to, **at least one** of the following:
 1. Cardiopulmonary impairment documented by pulmonary and/or cardiac function tests; or
 2. Frequent lower respiratory tract infections; or
 3. Exercise limitations; or
- Haller index (pectus severity index) ≥ 3.25 .
- Surgical procedure is expected to correct the impairment.

AND

At least one of the following clinical conditions is present:

- Acquired deformity of chest and rib

Medical Policy

- Pectus excavatum

II. Pectus carinatum: The Company considers surgical repair of pectus carinatum [CPT Codes 21740, 21742, 21743 and applicable ICD-10-PCS Code(s)] **medically necessary** and eligible for reimbursement providing that **all** of the following medical criteria are met:

- Medical complications due to pectus carinatum including, but not limited to, **at least one** of the following:
 1. Cardiopulmonary impairment documented by pulmonary and/or cardiac function tests; or
 2. Frequent lower respiratory tract infections; or
 3. Exercise limitations; or
- Haller index (pectus severity index) ≤ 2.0
- Surgical procedure is expected to correct the impairment.

AND

At least one of the following clinical conditions is present:

- Acquired deformity of chest and rib
- Pectus carinatum

NOTE: The Company considers external pressure bracing **cosmetic** and **non-covered**.

The Company considers surgical repair of pectus excavatum or pectus carinatum for **all** other clinical conditions **cosmetic** and **non-covered**.

Documentation Requirements:

The Company reserves the right to request additional documentation as part of its coverage determination process. The Company may deny reimbursement when it has determined that the services performed were not medically necessary, investigational or experimental, not within the scope of benefits afforded to the member, and/or a pattern of billing or other practice has been found to be either inappropriate or excessive. Additional documentation supporting medical necessity for the services provided must be made available upon request to the Company. Documentation requested may include patient records, test results, and/or credentials of the provider ordering or performing a service. The Company also reserves the right to modify, revise, change, apply, and interpret this policy at its sole discretion, and the exercise of this discretion shall be final and binding.

NOTE: After reviewing the relevant documentation, the Company reserves the right to apply this policy to the service, or procedure, supply, product, or accommodation performed or furnished regardless of how the service, or procedure, supply, product, or accommodation was coded by the Provider.

This document is subject to the disclaimer found at <https://www.medmutual.com/For-Providers/Policies-and-Standards/CorporateMedicalDisclaimer.aspx>. If printed, this document is subject to change. Always verify with the most current version of the official document at <https://www.medmutual.com/For-Providers/Policies-and-Standards/CorporateMedicalDisclaimer.aspx>.

Medical Policy

Approval or clearance by the U.S. Food and Drug Administration alone is not a basis for coverage.

Coverage may differ for Medicare Advantage plan members; please see any applicable national and/or local coverage determinations for details. This information may be available at the Centers for Medicare & Medicaid Services (CMS) website.

Prior approval is required for CPT Codes 21740, 21742, 21743 and applicable ICD-10-PCS Code(s).

Sources of Information:

- Akhtar M, Razick DI, Saeed A, et al. (2023). Complications and Outcomes of the Nuss Procedure in Adult Patients: A Systematic Review. *Cureus*. 15(2):e35204.
- Aly MR, Farina JM, Botros MM, et.al. (2023). Minimally invasive repair of pectus excavatum in adults: a review article of presentation, workup, and surgical treatment. *J Thorac Dis*. 15(9):5150-5173.
- Coughlin AC, Ahsanuddin S, Inglesby D, et al. (2022). "When to Nuss? patient age as a risk factor for complications of minimally invasive repair of pectus excavatum: a systematic review and meta-analysis". *Pediatr Surg Int*. 38(3):365-375.
- Del Frari B, Blank C, Sigl S, et al. (2021). The questionable benefit of pectus excavatum repair on cardiopulmonary function: a prospective study. *Eur J Cardiothorac Surg*. 61(1):75-82.
- Dionyssiou D, Demiri E, Batsis G, Pavlidis L. (2015). Revision breast and chest wall reconstruction in Poland and pectus excavatum following implant complication using free deep inferior epigastric perforator flap. *Indian J Plast Surg*. 48(1):85-8.
- Felts, E., Jouve, J.L., Blondel, B., Launay, F., Lacroix, F., & Bolini, G. (2009). Child pectus excavatum: correction by minimally invasive surgery. *Orthop Traumatol Surg Res*. 95(3), 190-195.
- Forlino A, Marini JC. (2016). Osteogenesis imperfecta. *Lancet*. 387(10028):1657-71.
- Kazunori, Masahata, Chizu, Yoneyama, et.al. (2017). Nuss procedure for a case of asymmetric pectus excavatum associated with Ehlers-Danlos syndrome. *Journal of Pediatric Surg*. Vol.22, pgs. 20-24.
- Haecker FM, Sesia S. (2016). Vacuum bell therapy. *Ann Cardiothorac Surg*. 5(5):440-449.
- Hu, T.Z., Li, Y., Lui, W.Y., & Feng, J.X. (2008). Surgical treatment of pectus excavatum: 30 years 398 patients of experiences. *J Pediatr Surg*, 43(7), 1270-1274.
- Kelly, R.E. (2008). Pectus excavatum: historical background, clinical picture, preoperative evaluation and criteria for operation. *Semin Pediatr Surg*, 17(3), 181-193.
- Kelly RE Jr, Obermeyer RJ, Nuss D. (2016). Diminished pulmonary function in pectus excavatum: from denying the problem to finding the mechanism. *Ann Cardiothorac Surg*. 5(5):466-475.
- Koumbourlis, A.C. (2009). Pectus excavatum: pathophysiology and clinical characteristics. *Paediatr Respir Rev*. 10(1), 3-6.
- Kuenzler, K.A., & Stolar, C.J. (2009). Surgical correction of pectus excavatum. *Paediatr Respir Rev*, 10 (1), 7-11.
- Mohamed JS, Tan JW, Tam JKC. (2023). Quality of life with minimally invasive repair of pectus excavatum: a systematic review and meta-analysis. *Ann Transl Med*. 11(12):407.

Medical Policy

- Nuss, D. (2008). Minimally invasive surgical repair of pectus excavatum. *Semin Pediatr Surg*, 17(3), 209-217.
- Nuss D, Obermeyer RJ, Kelly RE. (2016). Nuss bar procedure: past, present and future. *Ann Cardiothorac Surg*. 5(5):422-433.
- Sacco Casamassima MG, Goldstein SD, Salazar JH, et al. (2014). Operative management of acquired Jeune's syndrome. *J Pediatr Surg*. 49(1):55-60.
- Tocchioni F, Ghionzoli M, Messineo A, Romagnoli P. (2013). Pectus excavatum and heritable disorders of the connective tissue. *Pediatr Rep*. 5(3):e15.
- Mayer OH. (2023, October 9). Pectus excavatum: Etiology and evaluation. In: UpToDate. Available at: <https://www.uptodate.com/contents/pectus-excavatum-etiology-and-evaluation>. Accessed January 9, 2025.
- Nuss D, Obermeyer RJ, Kelly RE. (2016). Nuss bar procedure: past, present and future. *Ann Cardiothorac Surg*. 5(5):422-433.
- Sacco Casamassima MG, Goldstein SD, Salazar JH, et al. (2014). Operative management of acquired Jeune's syndrome. *J Pediatr Surg*. 49(1):55-60.

Applicable Code(s):	
CPT:	21740, 21742, 21743
HCPCS:	L1320
ICD10 Procedure Codes:	0WU80JZ, 0WU84JZ