Medical Policy: **Pectus Excavatum Surgery**

The *Plan* refers to **Boston Medical Center HealthNet Plan in Massachusetts** and **Well Sense Health Plan in New Hampshire**. Boston Medical Center HealthNet Plan and Well Sense Health Plan are trade names used by Boston Medical Center Health Plan, Inc.

### Policy Applicability

**BMC HealthNet Plan**
- MassHealth
- Commonwealth Care
- Commercial

**Well Sense Health Plan**
- New Hampshire Medicaid

**Current Effective Date:** 09/01/13  
**Original Effective Date:** 11/01/09*  
**Policy Number:** OCA: 3.718

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**Summary:**
The Plan considers surgical correction of pectus excavatum, a congenital chest wall deformity, a medically necessary reconstructive and restorative procedure when Plan criteria are met. Plan prior authorization is required.

It will be determined during the Plan’s prior authorization process if the procedure is considered medically necessary for the requested indication. See the Plan policy, *Medically Necessary* (policy number OCA: 3.14), for the product-specific definitions of medically necessary treatment.

**Description of Item or Service:**
**Pectus Excavatum Surgery:** Several surgical procedures, including but not limited to the Nuss procedure or the Ravitch technique (original or modified), typically requiring the removal of a portion of damaged cartilage and repositioning the breastbone.

**Medical Policy Statement:**
The Plan considers the surgical correction of pectus excavatum a medically necessary reconstructive and restorative procedure when the following criteria are met and documented in the member’s medical record:

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1. Imaging studies (CT scan or radiographs) confirm a Haller index of greater than 3.25; AND

2. The member has documented any ONE of the following physical functional impairments:
   a. Pulmonary impairment by pulmonary function test results that are consistent with a moderate to severe restrictive or obstructive lung disease; OR
   b. Cardiac impairment by cardiac test results (e.g., CT scan) that are consistent with external compression (e.g., murmurs, mitral valve prolapse, cardiac displacement, or conduction abnormalities); OR
   c. Exercise limitations; OR
   d. Frequent lower respiratory tract infections

**Limitations:**
The Plan considers the surgical correction of pectus excavatum cosmetic when Plan criteria are not met. See the Plan’s policy, *Cosmetic, Reconstructive, and Restorative Services* (policy number OCA. 3.69), for the product-specific definitions of cosmetic services, cosmetic surgery, and/or reconstructive surgery and procedures.

**Definitions:**

**Cosmetic Services:** Those services that are performed for the primary purpose of altering or improving physical appearance and that do not constitute reconstructive and restorative services as defined below. Services that meet the definition of reconstructive and restorative services are not considered cosmetic. See Plan policy, *Cosmetic, Reconstructive, and Restorative Services* (policy number OCA: 3.69), for the product-specific definitions of cosmetic services. (Note: Coverage for certain cosmetic services is defined by the Plan’s product-specific contract and/or evidence of coverage, as applicable, in effect at the time of the review.)

**Haller Index/Pectus Index:** A reference scale frequently used to determine severity of the pectus excavatum deformity. The Haller index is the ratio between the horizontal distance of the inside of the ribcage and the shortest distance between the vertebrae and sternum. A normal chest has an index of 2.5 is and an index greater than 3.25 is considered severe.

**Pectus Excavatum:** Also known as funnel chest, this is a congenital abnormality of the chest wall where the distance from the sternum to the vertebrae is decreased giving the chest a caved in or sunken appearance. Typically this defect is diagnosed within the first
year of life. During periods of rapid bone growth, such as puberty, the appearance of the defect may worsen and symptoms may develop such as fatigue, shortness of breath on exertion, decreased physical endurance, anterior wall pain, and tachycardia. Moderate to severe defects can displace the heart to the left causing decrease in stroke volume and cardiac output. Chest defects may also compress the lungs causing decreased airflow. Pulmonary expansion is confined, resulting in a restrictive defect. Other conditions that may be associated with pectus excavatum include frequent lower respiratory infections and asthma.

**Physical Functional Impairment:** A physical condition in which the normal or proper action of a body part or organ is damaged. This includes, but is not limited to, problems with ambulation, speech and communication, respiration and control of secretions, protection of airway, swallowing, nutrition, vision, or the alteration of skin function (e.g., some dermatologic conditions such as pemphigus that impair the fluid balance of the skin). A physical functional impairment does not include an individual’s emotional well-being or mental health.

**Reconstructive and Restorative:** Those services that are performed for (a) the primary purpose of improving, repairing, restoring or correcting a physical functional impairment, or relieving pain, resulting from any of the following: accidental traumatic injury, post-therapeutic intervention (e.g., radiation or chemotherapy), birth abnormality, congenital defect, disease process, or anatomic variants or (b) post-mastectomy services for eligible members. See Plan policy, *Cosmetic, Reconstructive, and Restorative Services* (policy number OCA: 3.69), for the product-specific definitions of reconstructive and restorative services.

**Applicable Coding:**
Applicable coding is listed below, subject to codes being active on the date of service. Because the American Medical Association (AMA), Centers for Medicare & Medicaid Services (CMS), and the U.S. Department of Health and Human Services may update codes more frequently or at different intervals than Plan policy updates, the list of applicable codes may not be all inclusive. These codes are not intended to be used for coverage determinations.

<table>
<thead>
<tr>
<th>CPT Codes</th>
<th>Description: Codes Covered When Medically Necessary</th>
</tr>
</thead>
<tbody>
<tr>
<td>21740</td>
<td>Reconstructive repair of pectus excavatum or carinatum; open</td>
</tr>
<tr>
<td>21742</td>
<td>Reconstructive repair of pectus excavatum or carinatum; minimally invasive approach (Nuss procedure), without thoracoscopy</td>
</tr>
<tr>
<td>21743</td>
<td>Reconstructive repair of pectus excavatum or carinatum; minimally invasive approach (Nuss procedure), with thoracoscopy</td>
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</table>

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Clinical Background Information:
Pectus excavatum also known as funnel chest, is one of the most common major congenital anomalies, occurring in approximately 1 in every 400 births. One of the standard surgical treatments for pectus excavatum is using the open Ravitch approach, placing a sternal bar behind the sternum after mobilizing the deformed cartilages around the sternum; a second operation follows to remove the bar approximately 12 months after the initial repair. The Nuss Procedure, a minimally invasive approach, involves the placement of a large curved bar through small incisions on the chest wall; the bar is rotated into position and kept in place for 2 to 3 years. A sternal osteotomy or modified osteotomy can be preformed; this technique involves removing and repositioning the sternum or implantation of a silastic mold to fill the defect without altering the thoracic cage. Other techniques for correction are under development. Surgical repair is usually recommended for patients who are symptomatic, have a functional impairment, and who demonstrate an increased pectus severity index greater than 3.25 calculated from the chest measurements of a CT scan of the area of the chest with the greatest depression.

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Policy History:
Original Effective Date: 11/01/09
*Effective Date for Commercial: 01/01/12
*Effective Date for Well Sense Heath Plan: 01/01/13

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Date of Review/Revision:
07/01/10: Annual review, no changes to criteria, updated references
07/01/11: Annual review, no changes, updated references
07/01/12: Annual review, updated references, revised language in Applicable Code section and Description of Service section, referenced the Plan’s Cosmetic, Reconstructive, and Restorative Services policy. No changes to codes or clinical criteria.
07/29/12: Off cycle review for Well Sense Health Plan, revised Description of Item or Service and Summary sections, reformatted Medical Policy Statement and Limitations sections.
07/01/13: Annual review for effective date 09/01/13. Revised Summary section. Referenced Plan’s Cosmetic, Reconstructive, and Restorative Services policy in the Definitions section and revised section. Updated references. Deleted duplicate text in Clinical Background Information section.

Last Review Date:
07/01/13

Next Review Date:
07/01/14

Approval Dates:
Regulatory Approval:
Internal Approval:
07/28/09: MPCTAC & UMC
08/26/09: QIC
08/18/10: MPCTAC
09/22/10: QIC
08/17/11: MPCTAC
09/28/11: QIC
07/18/12: MPCTAC
08/03/12: MPCTAC (Off cycle review for Well Sense Health Plan)
08/22/12: QIC
09/05/12: QIC (Off cycle review for Well Sense Health Plan)
07/17/13: MPCTAC
08/15/13: QIC

Authorizing Entity:
QIC

IMPORTANT NOTE: Not all services are covered for all products or employer groups. This medical policy expresses the Plan’s determination of whether certain services or supplies are medically necessary, experimental or investigational, or cosmetic. The Plan has reached these conclusions based upon the regulatory status of the technology and a review of clinical studies published in peer-reviewed medical journals.
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