



MASSACHUSETTS

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Medical Policy

Vertical Expandable Prosthetic Titanium Rib

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Policy Number: 305

BCBSA Number: 7.01.110 (For Plan internal use only)

NCD/LCD: N/A

Related Policies

- Orthotics for Progressive Scoliosis, #[550](#)

Policy

Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO BlueSM and Medicare PPO BlueSM Members

Vertical expandable prosthetic titanium rib in the treatment of progressive thoracic insufficiency syndrome due to rib and/or chest wall abnormalities in infants/children between 6 months of age and skeletal maturity (about age 14 for girls and age 16 for boys) may be considered [MEDICALLY NECESSARY](#).

Notes:

- Implantation of this device should be performed in specialized centers, given the complexity of these procedures and patients.
- Preoperative evaluation requires input from a pediatric orthopedist, pulmonologist, and thoracic surgeon. In addition, preoperative evaluation of nutritional, cardiac, and pulmonary function (when possible) is required.

Vertical expandable prosthetic titanium rib for all other conditions, including but not limited to the treatment of scoliosis in patients without thoracic insufficiency, is considered [INVESTIGATIONAL](#).

Prior Authorization Information

Inpatient

- For services described in this policy, precertification/preauthorization **IS REQUIRED** for all products if the procedure is performed **inpatient**.

Outpatient

- For services described in this policy, see below for products where prior authorization **might be required** if the procedure is performed **outpatient**.

| | Outpatient |
|--|--|
| Commercial Managed Care (HMO and POS) | Prior authorization is not required . |
| Commercial PPO and Indemnity | Prior authorization is not required . |
| Medicare HMO BlueSM | Prior authorization is not required . |
| Medicare PPO BlueSM | Prior authorization is not required . |

CPT Codes / HCPCS Codes / ICD Codes

Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.

Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.

CPT Codes

There is no specific CPT code for this service.

Description

Treatment of Thoracic Insufficiency Syndrome

While spinal fusion is an approach to treatment, it may not be successful and may limit growth (lengthening) of the spine.

The vertical expandable prosthetic titanium rib device is a curved rod placed vertically in the chest that helps to stabilize and shape the thoracic cavity. It is positioned either between ribs or between the ribs and either the spine or pelvis. The vertical expandable prosthetic titanium rib may be described as "rib-based" growth-sparing instrumentation, which is compared with "spine-based" growing rods for Cobb angle correction. The vertical expandable prosthetic titanium rib device is designed to be expanded every 4 to 6 months as growth occurs and to be replaced if necessary. Some patients require multiple devices.

Summary

The vertical expandable prosthetic titanium rib is a curved rod placed vertically in the chest to help shape the thoracic cavity. It is being evaluated in skeletally immature patients with thoracic insufficiency syndrome to support thorax and lung development and in pediatric patients with scoliosis without thoracic insufficiency syndrome to slow or correct curve progression.

For individuals who have progressive thoracic insufficiency syndrome due to rib and/or chest wall defects in childhood who receive vertical expandable prosthetic titanium rib thoracoplasty, the evidence includes a few case series. Relevant outcomes are symptoms, morbid events, functional outcomes, and treatment-related mortality and morbidity. Thoracic insufficiency syndrome occurs in a limited patient population. For example, the Boston Center reported results on 31 children treated from 1999 to 2005. The natural history of progressive thoracic insufficiency syndrome is worsening pulmonary function and pulmonary insufficiency. Results from case series reported at different specialty centers have demonstrated improvement and/or stabilization in key measures with use of the vertical expandable prosthetic titanium rib in progressive thoracic insufficiency syndrome. This improvement has been noted in measures related to thoracic structure (eg, Cobb angle for those with scoliosis), growth of the thoracic spine and lung volumes, and stable or improved ventilatory status. While pulmonary function testing is difficult to track in patients suffering with thoracic insufficiency syndrome, a study has demonstrated an age-specific increase in forced vital capacity; further still, that same study reported a final forced vital capacity in the range of 50% to 70% of predicted value. Given the usual disease course of worsening thoracic volume and ventilatory status, the stabilization and/or improvement in the clinical measures outlined above would be highly unlikely if not for the intervention. Taken together, these outcomes demonstrate the positive impact of using the vertical expandable prosthetic titanium rib technology. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals with early-onset scoliosis without thoracic insufficiency syndrome who receive vertical expandable prosthetic titanium rib thoracoplasty, the evidence includes a few case series. Relevant outcomes are symptoms, morbid events, functional outcomes, and treatment-related mortality and morbidity. The vertical expandable prosthetic titanium rib is being evaluated for curves greater than 45° in infants and juveniles without thoracic insufficiency. Similar to thoracic insufficiency syndrome, very limited data are available on the use of the vertical expandable prosthetic titanium rib for early-onset scoliosis without thoracic insufficiency; additionally, little is known about the disease progression of early-onset scoliosis, and therefore little is known regarding the risk-benefit trade-off of the vertical expandable prosthetic titanium rib surgery. The evidence is insufficient to determine the effects of the technology on health outcomes.

Policy History

| Date | Action |
|----------------|--|
| 6/2022 | Annual policy review. Description, summary, and references updated. Policy statements unchanged. |
| 5/2021 | Annual policy review. Description, summary, and references updated. Policy statements unchanged. |
| 6/2020 | Annual policy review. Description, summary, and references updated. Policy statements unchanged. |
| 5/2019 | Annual policy review. Description, summary, and references updated. Policy statements unchanged. |
| 12/2016 | Annual policy review. New references added. |
| 7/2015 | Annual policy review. New references added. |
| 1/2014 | Removed ICD-9 procedure code 78.51 as it does not meet the intent of the policy. |
| 6/2013 | Annual policy review. New references added. |
| 11/2011-4/2012 | Medical policy ICD 10 remediation: Formatting, editing and coding updates. No changes to policy statements. |
| 6/1/2011 | New policy effective 6/1/2011 describing covered and non-covered indications. |
| 6/2011 | Reviewed - Medical Policy Group – Orthopedics, Rehabilitation and Rheumatology. No changes to policy statement. |

Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

[Medical Policy Terms of Use](#)

[Managed Care Guidelines](#)

[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

References

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