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Review Criteria
Georgia Region

Title:	**Scoliosis Back Brace- Pediatric**		
Department:	QUALITY RESOURCE MANAGEMENT	**Page:**	1 of 5
Section:	UTILIZATION MANAGEMENT	**Policy Number:**	03-43
Type:	( ) New	**Effective Date:**	4/19/2011
	(X) Reviewed / Revised	**Date:**	2/23/2018 2/6/2019 1/27/2020 1/25/2021 1/19/2022 2/28/2023

Purpose
This policy provides the indications and contraindications necessary for the Quality Resource Management staff to make the most appropriate decision related to the medical necessity of the procedure listed.

DIAGNOSIS/CONDITION: ICD-10 M41.9, M41.20, M41.34-35, M41.42, M41.35, M41.40, M41.00, M41.129 / Scoliosis
CPT-4/ HCPCS CODE AND DESCRIPTION: INDICATORS: L1000; L1230

1.0 INDICATIONS

- Prevent curvature progression
- Usually recommended for scoliosis curves whose Cobb angle is 20-40 degrees at time of presentation
- Skeletally immature patients whose curve progresses ≥5º over any six- to nine-month period of observation
- Less than Risser 4--bracing can be used in high magnitude curves in young -patients. The goal is to try to modulate curve progression but allow longitudinal spinal growth.
- Here is the referral algorithm:

Risser Grade 0-2 females, Risser Grade 0-3 males Substantial Growth Remaining	Bracing may become indicated
Cobb angle **10 degrees** or less	Does not meet definition of scoliosis. Repeat imaging is **not** indicated unless there is clinical progression of the curve or significant pain (pain that limits activities or requires frequent analgesia

Cobb angle **11 to 19 degrees**	Follow patients clinically every 6 months. Obtain X ray if clinical evidence for progression.
Cobb angle **greater than 20 degrees** or progression greater than 5 degrees in 6-9 months	Refer to Peds ortho—may be candidate for bracing
Risser Grade 3 females, Risser Grade 4 males -- Little Growth Remaining	Not a candidate for bracing, surgery may become indicated
Cobb angle **less than 40 degrees**	Follow every 6 months until 1 year after skeletal maturity (Risser 4 for females and Risser 5 for males)
Cobb angle **40-49 degrees**	Refer to Peds ortho – nearing threshold for surgery
Cobb angle **50+ degrees**	Refer to Peds ortho for surgery
Risser Grade 4 females, Risser Grade 5 males -- Skeletally Mature – No Growth Remaining	
Cobb angle **less than 40 degrees**	No further follow up, not likely to progress
Cobb angle **40-49 degrees**	Refer to Peds ortho for surgery consideration / shared decision making

2.0 Contraindications

- Skeletal maturity (Risser 4 in girls, Risser 5 in boys) with Cobb angle < 40 degrees

3.0 Clinical Summary:

Scoliosis may be classified as functional or structural. Functional scoliosis may be transient or persistent but is not associated with any structural alterations. Structural scoliosis involves a fixed lateral curve with rotation, and is associated with many conditions including neuropathic diseases/disorders such as cerebral palsy, poliomyelitis, and muscular dystrophy; congenital causes such as failure of formation or segmentation, and myelomeningocele; traumatic causes such as fracture or dislocation (non-paralytic) and post-radiation; soft tissue contractures such as post-empyema and burns; osteochondrodystrophies such as achondroplasia and spondyloepiphyseal dysplasia; tumor; and rheumatoid disease. However, the most common type of structural scoliosis is idiopathic scoliosis. Although idiopathic scoliosis is thought to have a genetic predisposition, its exact cause is still unknown.

Idiopathic scoliosis can be further divided into 3 categories: (i) infantile (0 to 3 years of age), (ii) juvenile (3 to 10 years of age), and (iii) adolescent (over 10 years of age but before maturity).

Idiopathic scoliosis most frequently affects young girls. The spinal curvature that persists after skeletal maturity is termed adult scoliosis.

The traditional treatment for adolescent idiopathic scoliosis is the use of a supportive brace, (e.g., the Milwaukee brace, the Boston brace). Torso exercises to increase muscle strength should be used in conjunction with braces. Since bracing is dose-dependent, restrictive and must be worn 12-23 hours a day for up to several years, non-compliance has been estimated to be 20 to 50 % (Moe and Kettelson, 1970). Additionally, this method is associated with side effects such as anxiety, depression, and sleep disturbance.

4.0: Views of the Southeast Permanente Medical Group:

Scoliosis braces are considered medically necessary if prescribed by a pediatric orthopedic surgeon for symptomatic or worsening curvature. Age of patient, skeletal maturity, degree of curvature, and progression are factors used to determine whether bracing or surgery is indicated.
Request for back brace for conditions other than scoliosis must be referred to QRMMD for review

5.0 Review of Literature/Reference

Up to Date: Treatment and Prognosis of Adolescent Scoliosis updated March, 2021

- **Bracing**

- **Indications and contraindications**

- **Indications** – In skeletally immature patients with AIS, bracing reduces the risk of curve progression to ≥50° (the usual threshold for surgery) at skeletal maturity [33,44,45]. The efficacy of bracing is directly related to the number of hours per day that the brace is worn [46].

- We suggest bracing for skeletally immature patients (Risser sign 0 to 2) whose Cobb angle is 30 to 39° at the time of presentation and skeletally immature patients whose Cobb angle is between 20 and 29° and progresses ≥5° over any six- to nine-month period during observation.

- Bracing also is an option for skeletally immature patients with Cobb angle between 20 to 29° or 40 to 49° who choose bracing over observation or surgery, respectively.

- In the multicenter Bracing in Adolescent Idiopathic Scoliosis Trial (BrAIST), which compared thoraco-lumbar-sacral orthosis and observation in skeletally immature adolescents (10 to 15 years) with Cobb angle 20 to 40°, more adolescents treated with bracing had Cobb angle <50° at skeletal maturity (72 versus 48 percent, odds ratio [OR], adjusted for nonrandom assignment 1.9, 95% CI 1.1-3.5) [33]. The proportion of patients who had Cobb angle <50° at skeletal maturity increased with increasing duration of brace wear (93 percent among those averaging ≥12.9 hours/day versus 41 percent among those averaging ≤6 hours/day).

- The rate of brace failure appears to be increased in patients at Risser stage 0 (particularly those with open triradiate cartilage) and in patients with thoracic curves [47,48]. In an observational study of 168 patients who were treated with braces for AIS with Cobb angles of

- 25 to 45°, the rate of brace failure (ie, surgery or curve progression to ≥50°) was 44 percent in 120 patients at Risser stage 0, 7 percent in 29 patients at Risser stage 1, and 0 percent in 19 patients at Risser stage 2 [48]. The rate of brace failure was 34 percent in patients with thoracic curves and 15 percent in those with lumbar curves [47].

- ●**Contraindications** – Contraindications to bracing include:

- •Little growth remaining or skeletal maturity (Risser grade 3 to 5 and fusion of the vertebral ring apophyses)
- •Cobb angle ≥50°
- •Cobb angle <20°

- Thoracic lordosis is a relative contraindication [49]. Some authors maintain that thoracic lordosis is a component of all structural scolioses [50].

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- **Aetna CPB: Idiopathic Scoliosis Treatment 7/20/2012, 2/2014,2/2015, 6/2016, 11/2017**

Approval

2.13.23

Luke Beno, MD
Physician Program Director, Quality Resource Management **Date**

Christopher Jones, MD **Date**
AMD, Outside Medical