

Abstract

Background and Purpose: Bracing is the first line treatment for many types of scoliosis, helping to minimize curve progression and the need for surgery. However, adherence to bracing is sub-par, with rates ranging between 27%-45%. Placing sensors in braces and incorporating sensor generated wear time data in counseling can help increase adherence rates and decrease the need for surgery. Only about 20% of patients at our site have sensors in their braces, and it is not clear if sensor data is being used during clinic visits. The purpose of our quality improvement project was to enhance physician and nurse awareness and knowledge about the importance of having sensors in braces.

Methods: This project took place in a high volume Pediatric Orthopedic Spine Department that sees about 500 scoliosis patients a year. This project implemented a brace sensor program into a busy pediatric spine clinic, with the goal of improving rates of sensors in braces and clinic visits informed by sensor data. A two-month pre and post intervention chart review was done for all scoliosis patients appropriate for counseling.

Results: Pre-intervention, there was no counseling being done on sensor placement. Post intervention, 36.8% of patients were counseling on sensor placement. The rate at which sensor data was used during clinic visits increased from 0.02% to 76.9%.

Conclusions: Educating families on the importance of getting a sensor placed and compliance counseling based on individualized sensor data should be made a standard practice for all pediatric orthopedic institutions.

Implications: In the long-term future, we hope to monitor brace wear times once a sensor is placed and hope to see wear time towards the goal of 22 hours/day. The findings from our evidence-based intervention project will hopefully allow other pediatric orthopedic institutions to adapt similar protocols – standardizing treatment for all AIS patients.

Keywords: Pediatric, scoliosis, braces, sensors, compliance