Introduction
Progressive scoliosis is common in patients with cerebral palsy (CP) and can significantly impact patients’ quality of life.

Surgery is generally indicated when curves reach 50 degrees or more.

Patients with neuromuscular scoliosis are prone to increased rates of perioperative morbidity and complications compared to adolescent idiopathic scoliosis (AIS) patients.

The goal of this study was to explore the spectrum of perioperative protocols used by pediatric spine surgeons to optimize care of patients with cerebral palsy undergoing scoliosis surgery. Our hypothesis is that there is significant variation in surgeon practices.

Methods
A questionnaire survey was distributed electronically to 181 members POSNA, AACPDM, and SRS with established interest in pediatric spinal deformity surgery in children with cerebral palsy.

The survey included 33 questions targeting surgeons’ current practices and approaches to scoliosis surgery in children with cerebral palsy. Each question was in multiple choice format and was followed by 2 to 8 possible responses. When appropriate, an open-ended response was included.

The questionnaire survey was reviewed and approved by the complex care committee of the AACPDM to ensure quality and clarity of the questions.

81 responses were obtained, representing a 45% response rate. On average, each center treated 149 patients with cerebral palsy and scoliosis per year; however, there was a large variance.

The measurements used to evaluate the assessment of nutritional status varied. Albumin / prealbumin is used to assess nutritional status by 44% of surgeons, 16% use absolute lymphocyte count and 14% use intake assessment.

Only 34% percent of respondents altered seizure medications preoperatively.

5% use a specific pain scale to assess postoperative pain.

20% use an intraoperative epidural injection.

59% use IV morphine and valium.

61% use a nurse or family controlled PCA for pain.

42% assess dental health preoperatively.

53% use a surgical site infection protocol.

Only 28% report having a dedicated multidisciplinary team or hospitalists to co-manage patients perioperatively.

75% of surveyed surgeons reported having either preoperative or postoperative management protocols in place for the treatment of patients with CP undergoing scoliosis surgery. However, the wide distribution of responses regarding specific interventions reveals that protocols vary substantially.

The information gathered by this study may be used as a starting point for future discussion in the development of best practice guidelines and to design multicenter collaborative studies to optimize outcomes, reduce complications and healthcare costs in patients with cerebral palsy undergoing spine deformity correction surgery.

Conclusion
Currently, there are no consensus guidelines in place to optimize outcomes in patients with cerebral palsy undergoing scoliosis surgery. 75% of surveyed surgeons reported having either preoperative or postoperative management protocols in place for the treatment of patients with CP undergoing scoliosis surgery. However, the wide distribution of responses regarding specific interventions reveals that protocols vary substantially.

There was responder consensus on 15 out of 33 questions. (Figure 1)