

## RESEARCH ABSTRACT PRESENTATIONS AT NATIONAL & INTERNATIONAL MEETINGS

1. \*Bess S, Line B, Ames C, Eastlack R, Mundis G, Gum J, Lafage V, Lafage R, Klineberg E, Daniels A, Gupta M, Kelly M, Passias P, Protosaltis T, Burton D, Kebaish K, Kim HJ, Shaffrey C, **Smith JS**, ISSG. Predictive models identify patient and surgical variable that synergistically produce an optimal outcome following adult spine deformity (ASD) surgery. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
2. \*Bess S, Line B, Ames C, Burton D, Eastlack R, Mundis G, Gum J, Lafage V, Lafage R, Klineberg E, Daniels A, Gupta M, Hamilton DK, Kelly M, Passias P, Protosaltis T, Hart R, Kim HJ, Schwab F, Shaffrey C, **Smith JS**, ISSG. Bone morphogenetic protein (BMP) use in adult spinal deformity surgery is associated with reduced implant failures and lower cost/QALY at mean 4 years postoperative. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
3. \***Smith JS**, Elias E, Line B, Lafage V, Lafage R, Klineberg E, Kim HJ, Passias P, Gum JL, Kebaish K, Eastlack R, Daniels A, Mundis G, Hostin R, Protosaltis T, Hamilton DK, Kelly MP, Gupta M, Hart R, Schwab F, Burton D, Ames CP, Lenke LG, Shaffrey CI, Bess S, ISSG. How good are surgeons at achieving their goal sagittal alignment following adult deformity surgery? North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
4. \*Scheer J, Yeramenei S, Lafage R, Gupta M, Kim HJ, Klineberg E, Schwab F, Burton D, Hart R, Gum J, Kelly M, Passias P, Kebaish K, Line B, Protosaltis T, Shaffrey C, **Smith JS**, Bess S, Ames C, ISSG. The pre-operative inflammatory state is an independent risk factor for short-term post-operative complications in adult spinal deformity patients. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
5. \*Lazaro B, Sardi JP, **Smith JS**, Kelly MP, Dial B, Hills J, Baldus CR, Yanik EL, Yen CP, Gupta M, Ames CP, Lafage V, Bess S, Schwab F, Shaffrey CI, Bridwell KH. Proximal junctional failure (PJF) in primary thoracolumbar fusion/fixation to the sacrum/pelvis for adult symptomatic lumbar scoliosis (ASLS): long-term follow-up of a prospective multicenter cohort of 160 patients. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
6. \*Scheer J, Lafage V, **Smith JS**, Lafage R, Passias P, Klineberg E, Hart R, Burton D, Line B, Bess S, Shaffrey C, Schwab F, Gupta M, Ames C, ISSG. The impact of sagittal alignment on disability decreases after surgery as other factors become more influential: series of 925 patients with 2-yr follow-up. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
7. \*Mo K, Neuman B, Yeramenei S, Raad M, Hostin R, Passias P, Gum J, Lafage R, Protosaltis T, Gupta M, Ames C, Klineberg E, Hamilton DK, Schwab F, Kelly M, Burton D, Daniels A, Kim HJ, Hart R, Line B, Lafage V, **Smith JS**, Bess S, Lenke L. High surgical invasiveness combined with frailty is associated with greater improvement throughout long-term recovery after ASD surgery with minimum 5-year follow-up. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
8. \*Mo K, **Smith JS**, Passias P, Tretiakov P, Bess S, Wang K, Yeramenei S, Neuman B, Hostin R, Gum J, Lafage R, Protosaltis T, Gupta M, Ames C, Klineberg E, Hamilton DK, Schwab F, Daniels A, Soroceanu A, Kim HJ, Hart R, Line B, Lafage V, Shaffrey C. All-cause mortality following cervical and thoracolumbar adult deformity surgery: incidence and causes. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
9. \*Mo K, Raad M, Gum J, Soroceanu A, Kim HJ, Hostin R, Passias P, Lafage R, Protosaltis T, Gupta M, Ames C, Klineberg E, Hamilton DK, Schwab F, Daniels A, Hart R, Line B, Shaffrey C, **Smith JS**, Bess S, Lenke L, Burton D, Kebaish K, ISSG. Hounsfield units thresholds are associated with major intraoperative blood loss and implant complications within 90 days of ASD surgery. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.

10. \*Gum J, Mo K, Burton D, Neuman B, Kim HJ, Hostin R, Passias P, Lafage R, Protosaltis T, Gupta M, Ames C, Klineberg E, Hamilton DK, Schwab F, Daniels A, Soroceanu A, Hart R, Lafage V, Shaffrey C, **Smith JS**, Bess S, Kebaish K, ISSG. A Hounsfield unit (HU) value below 125 on preoperative CT at UIV is predictive of PJK after ASD surgery. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
11. \*Lafage R, Elysee J, Bess S, Burton D, Daniels A, Diebo B, Gupta M, Hostin R, Kebaish K, Kelly M, Kim HJ, Klineberg E, Lenke L, Lewis S, Ames C, Passias P, Protosaltis T, **Smith JS**, Schwab F, Lafage V, ISSG. Lower limb compensation in the setting of adult spinal deformity. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
12. \*Lafage R, Elysee J, Bess S, Burton D, Daniels A, Diebo B, Gupta M, Hostin R, Kebaish K, Kelly M, Kim HJ, Klineberg E, Lenke L, Lewis S, Ames C, Passias P, Protosaltis T, **Smith JS**, Schwab F, Lafage V, ISSG. Quantifying the contribution of lower limb compensation to upright posture: what happens if ASD patients do not compensate? North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
13. \*Hassan F, Lenke L, Burton D, Daniels A, Gupta M, Hostin R, Kebaish K, Kelly M, Kim HJ, Klineberg E, Lewis S, Passias P, Protosaltis T, Schwab F, Shaffrey C, **Smith JS**, Line B, Lafage V, Bess S, ISSG. Neurologic outcomes of adult spinal deformity patients with baseline preoperative lower extremity weakness: will they improve following surgery? North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
14. \*Diebo B, Altschiff D, Lafage R, Passias P, Ames C, Shaffrey C, Burton D, Deviren V, Line B, Soroceanu A, Hamilton DK, Klineberg E, Mundis G, Kim HJ, Gum J, **Smith JS**, Lewis S, Kelly M, Kebaish K, Gupta M, Nunley P, Eastlack R, Hostin R, Protosaltis T. Impact of self-reported loss of balance and gait disturbance on adult spinal deformity surgery outcomes. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
15. \*Buell T, **Smith JS**, Shaffrey C, Bess S, Line B, Kim HJ, Klineberg E, Lafage V, Lafage R, Protosaltis T, Passias P, Mundis G, Eastlack R, Scheer J, Kelly M, Daniels A, Gum J, Gupta M, Burton D, Hostin R, Kebaish K, Hart R, Schwab F, Ames C. Survival analysis using fusion status after adult spinal deformity surgery with minimum 4-year follow-up. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
16. \*Lovecchio F, Lafage R, Kim HJ, Hamilton DK, Gum J, Soroceanu A, Passias P, Protosaltis T, Mundis G, Shaffrey C, Ames C, Klineberg E, Gupta M, Burton D, Bess S, **Smith JS**, Schwab F, ISSG. Loss of sagittal correction >3 years after adult spinal deformity surgery. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
17. \*Ani F, Protosaltis T, Parekh Y, Walia A, Lafage R, **Smith JS**, Eastlack R, Lenke L, Schwab F, Mundis G, Gupta M, Klineberg E, Lafage V, Hart R, Burton D, Ames C, Shaffrey C, Bess S, ISSG. Determining the best vertebra for measuring pelvic incidence and spinopelvic parameters in transitional anatomy. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
18. \*Passias P, Krol O, Lafage R, **Smith JS**, Line B, Joujon-Roche R, Tretiakov P, Williamson T, Imbo B, Yeramaneni S, Daniels A, Gum J, Protosaltis T, Hamilton DK, Soroceanu A, Scheer J, Eastlack R, Kelly M, Nunley P, Alan N, Klineberg E, Kebaish K, Hostin R, Gupta M. Prophylactic proximal junctional measures improve cost efficacy of adult spinal deformity surgery, with optimal cost utility seen in those with concurrent optimal realignment. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
19. \*Joujon R, Passias P, **Smith JS**, Lafage R, Line B, Williamson T, Tretiakov P, Krol O, Imbo B, Protosaltis T, Scheer J, Eastlack R, Mundis G, Kelly M, Klineberg E, Kebaish K, Hostin R, Kim HJ,

- Hart R, Burton D, Shaffrey C, Schwab F, Bess S, Lafage V. Expectations of clinical improvement following corrective surgery for adult cervical deformity based on functional disability at presentation. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
20. Elias E, Bess S, Line B, Lafage V, Lafage R, Klineberg E, Kim HJ, Passias P, Nasser Z, Gum J, Kebaish K, Eastlack R, Daniels A, Mundis G, Hostin R, Protosaltis T, Hamilton DK, Gupta M, Hart R, Schwab F, Burton D, Ames C, Shaffrey C, **Smith JS**. Outcomes of operative treatment for adult cervical deformity: a prospective, multicenter assessment with minimum 2-yr follow-up. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
  21. Mo K, Harris A, Lafage R, Neuman B, Hostin R, Yeramane S, Soroceanu A, Kim HJ, Klineberg E, Gum J, Gupta M, Hamilton DK, Schwab F, Burton D, Daniels A, Passias P, Protosaltis P, Kelly M, Line B, Ames C, Lafage V, Shaffrey C, **Smith JS**, Bess S. Complex ASD patients receiving high-dose TXA have significantly lower blood loss compared to low-dose TXA without increased thromboembolic complications. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
  22. Lafage R, Fourman M, Bess S, Burton D, Daniels A, Gupta M, Hostin R, Kebaish K, Ames C, Kelly M, Kim HJ, Klineberg E, Lenke L, Lewis S, Passias P, Protosaltis T, Shaffrey C, Schwab F, Lafage V, **Smith JS**, Lafage V, ISSG. Can AI identify patterns of complex adult spinal deformity with distinct perioperative outcomes? North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
  23. \*Mo K, Kebaish K, Passias P, Williamson T, Deviren V, Roles K, Acselrod S, Sides B, Hostin R, Gum J, Protosaltis T, Daniels A, Samrat Y, Lafage R, Ames C, Klineberg E, Hamilton K, Schwab F, Burton D, Soroceanu A, Kim HJ, Hart R, Kelly M, Line B, Lafage V, Shaffrey C, Smith JS, Bess S, Lenke L, Gupta M, ISSG. A comparative analysis of racial disparities in nationally derived hospital data and two prospective multicenter surgical databases of adult spinal deformity surgery. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
  24. Lafage R, Elysee J, Protosaltis T, Passias P, Kim HJ, Soroceanu A, Line B, Mundis G, Shaffrey C, Ames C, Klineberg E, Gupta M, Burton D, Lenke L, Bess S, **Smith JS**, Schwab F, Lafage V, ISSG. Mechanisms of lumbar spine “flattening” in adult spinal deformity: defining changes in shape that occur relative to a normative population. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
  25. Lafage R, Elysee J, Klineberg E, **Smith JS**, Bess S, Shaffrey C, Burton D, Kim HJ, Eastlack R, Mundis G, Ames C, Passias P, Gupta M, Hostin R, Hamilton DK, Schwab F, Lafage V, ISSG. Complication rates following adult spinal deformity (ASD) surgery: the category of complication dictates timing. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
  26. Passias P, Williamson T, **Smith JS**, Lafage R, Lafage V, Line B, Tretiakov P, Krol O, Imbo B, Joujon-Roche R, Park P, Daniels A, Gum J, Protosaltis T, Hamilton DK, Soroceanu S, Scheer J, Mundis G, Kelly M, Neuman B, Mo K, Kebaish K, Hostin R, Gupta M. Are we focused on the wrong early post-operative quality metrics? Optimal realignment outweighs perioperative risk in adult spinal deformity surgery. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
  27. Line B, Bess S, Ames C, Burton D, Eastlack R, Mundis G, Gum J, Lafage V, Lafage R, Daniels A, Gupta M, Hamilton DK, Kelly M, Passias P, Protosaltis T, Hart R, Kebaish K, Schwab F, Shaffrey C, **Smith JS**, Klineberg E, Kim HJ, ISSG. A rough road to recovery: the impact of complications after adult spinal deformity surgery on specific health related quality of life domains. North American Spine Society 37<sup>th</sup> Annual Meeting. Chicago, IL. October 12-15, 2022.
  28. \*Lazaro B, Sardi JP, **Smith JS**, Kelly MP, Dial B, Hills J, Baldus CR, Yanik EL, Yen CP, Gupta M, Ames CP, Lafage V, Bess S, Schwab F, Shaffrey CI, Bridwell KH. Proximal junctional failure (PJF) in

- primary thoracolumbar fusion/fixation to the sacrum/pelvis for adult symptomatic lumbar scoliosis (ASLS): long-term follow-up of a prospective multicenter cohort of 160 patients. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
29. \*Wondra J, Kelly M, Yanik L, Serra M, Ames C, Pellise F, Vila A, Shaffrey C, **Smith JS**, Greenberg J, Lenke L, Bridwell K. Evaluation of abbreviated adult spinal deformity surgical adverse event prediction tools in adult symptomatic lumbar scoliosis. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  30. Scheer J, Gupta M, Kim HJ, Lafage V, Klineberg E, Schwab F, Burton D, Hart R, Gum J, Kelly M, Passias P, Kebaish K, Line B, Protosaltis T, Shaffrey C, **Smith JS**, Lenke L, Bess S, Ames C, ISSG. Objective physical frailty variables and their relationship to short-term complications in adult spinal deformity surgery. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  31. \*Mo K, Harris A, Lafage R, Neuman B, Hostin R, Yermaneni S, Soroceanu A, Kim HJ, Klineberg E, Gum J, Gupta M, Hamilton DK, Schwab F, Burton D, Daniels A, Passias P, Protosaltis P, Kelly M, Line B, Ames C, Lafage V, Shaffrey C, **Smith JS**, Bess S. Complex ASD patients receiving high-dose TXA have significantly lower blood loss compared to low-dose TXA without increased thromboembolic complications. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  32. \*Lafage R, Fourman M, Bess S, Burton D, Daniels A, Gupta M, Hostin R, Kebaish K, Ames C, Kelly M, Kim HJ, Klineberg E, Lenke L, Lewis S, Passias P, Protosaltis T, Shaffrey C, Schwab F, Lafage V, **Smith JS**, Lafage V, ISSG. Can AI identify patterns of complex adult spinal deformity with distinct perioperative outcomes? 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  33. \*Diebo B, Alsoof, Lafage R, Hart R, Passias P, Ames C, Scheer J, Lewis S, Shaffrey C, Burton D, Deviren V, Line B, Soroceanu A, Hamilton DK, Klineberg E, Mundis G, Kim HJ, Gum J, **Smith JS**, Uribe J, Kelly M, Kebaish K, Gupta M, Nunley P, Eastlack R, Hostin R, Protosaltis T, Lenke L, Schwab F, Bess S, Lafage V, Daniels A. Leg length discrepancy and adult spinal deformity: prevalence by coronal deformity type and impact on surgical treatment. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  34. \*Lafage R, Elysee J, Bess S, Burton D, Daniels A, Diebo B, Gupta M, Hostin R, Kebaish K, Kelly M, Kim HJ, Klineberg E, Lenke L, Lewis S, Ames C, Passias P, Protosaltis T, **Smith JS**, Schwab F, Lafage V, ISSG. Quantifying the contribution of lower limb compensation to upright posture: what happens if ASD patients do not compensate? 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  35. Mo K, Kebaish K, Passias P, Williamson T, Deviren V, Roles K, Acselrod S, Sides B, Hostin R, Gum J, Protosaltis T, Daniels A, Samrat Y, Lafage R, Ames C, Klineberg E, Hamilton K, Schwab F, Burton D, Soroceanu A, Kim HJ, Hart R, Kelly M, Line B, Lafage V, Shaffrey C, **Smith JS**, Bess S, Lenke L, Gupta M, ISSG. A comparative analysis of racial disparities in nationally derived hospital data and two prospective multicenter surgical databases of adult spinal deformity surgery. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  36. Forum MS, Bess S, Kelly M, Klineberg E, Hamilton K, Ames C, burton D, Daniels A, Lafage R, Lenke L, Passias P, Protosaltis T, Lewis S, Kebaish K, Kim HJ, Hostin R, Gum J, Gupta M, Schwab F, Shaffrey C, **Smith J**, Lafage V, ISSG. Social and economic deprivation does not negatively impact pre-operative PROMIS scores for adult spinal deformity. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  37. \*Elias E, Bess S, Line B, Lafage V, Lafage R, Klineberg E, Kim HJ, Passias P, Nasser Z, Gum J, Kebaish K, Eastlack R, Daniels A, Mundis G, Hostin R, Protosaltis T, Hamilton DK, Gupta M, Hart

- R, Schwab F, Burton D, Ames C, Shaffrey C, **Smith JS**. Outcomes of operative treatment for adult cervical deformity: a prospective, multicenter assessment with minimum 2-yr follow-up. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
38. \*Bess S, Line B, Ames C, Eastlack R, Mundis G, Gum J, Lafage V, Lafage R, Klineberg E, Daniels A, Gupta M, Kelly M, Passias P, Protosaltis T, Burton D, Kebaish K, Kim HJ, Shaffrey C, **Smith JS**, ISSG. Predictive models identify patient and surgical variable that synergistically produce an optimal outcome following adult spine deformity (ASD) surgery. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
39. \*Bess S, Line B, Ames C, Burton D, Eastlack R, Mundis G, Gum J, Lafage V, Lafage R, Klineberg E, Daniels A, Gupta M, Hamilton DK, Kelly M, Passias P, Protosaltis T, Hart R, Kim HJ, Schwab F, Shaffrey C, **Smith JS**, ISSG. Bone morphogenetic protein (BMP) use in adult spinal deformity surgery is associated with reduced implant failures and lower cost/QALY at mean 4 years postoperative. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022. (1 of 10 abstracts nominated for the Hibbs Award for Best Clinical Abstract)
40. \*Lovecchio F, Lafage R, Kim HJ, Hamilton DK, Gum J, Soroceanu A, Passias P, Protosaltis T, Mundis G, Shaffrey C, Ames C, Klineberg E, Gupta M, Burton D, Bess S, **Smith JS**, Schwab F, ISSG. Loss of sagittal correction >3 years after adult spinal deformity surgery. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
41. Diebo B, Alsofar, Lafage R, Passias P, Ames C, Shaffrey C, Burton D, Deviren V, Line B, Soroceanu A, Hamilton D, Klineberg E, Mundis G, Kim HJ, Gum J, **Smith JS**, Uribe J, Kelly M, Kebaish K, Gupta M, Nunley P, Eastlack R, Hostin R, Protosaltis T, Lenke L, Hart R, Schwab F, Bess S, Lafage V, Daniels A, ISSG. Global alignment and surgical outcomes of adult spinal deformity patients with total hip arthroplasty. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
42. \*Hills J, Lenke L, Ames C, Bess S, Lafage V, Lafage R, Protosaltis T, **Smith JS**, Shaffrey C, Mundis G, Klineberg E, Gupta M, Kim HJ, Kelly M, ISSG. Normalizing lumbopelvic and thoracolumbar alignment reduces mechanical complications in adult spinal deformity. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
43. Ani F, Protosaltis TS, Walia A, Lafage R, Soroceanu A, Smith JS, Kelly M, Hamilton K, Lenke L, Ames C, Klineberg E, Hart R, Burton D, Schwab F, Shaffrey C, Bess S, Lafage V, ISSG. Using normative pelvic tilt to determine pelvic compensation, overcorrection/undercorrection, and their effect on outcomes and PJF after ASD surgery. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
44. Ani F, Protosaltis T, Parekh Y, Walia A, Lafage R, **Smith JS**, Eastlack R, Lenke L, Schwab F, Mundis G, Gupta M, Klineberg E, Lafage V, Hart R, Burton D, Ames C, Shaffrey C, Bess S, ISSG. Determining the best vertebra for measuring pelvic incidence and spinopelvic parameters in transitional anatomy. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
45. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
46. \*Mo K, **Smith JS**, Passias P, Tretiakov P, Bess S, Wang K, Yeramaneeni S, Neuman B, Hostin R, Gum J, Lafage R, Protosaltis T, Gupta M, Ames C, Klineberg E, Hamilton DK, Schwab F, Daniels A, Soroceanu A, Kim HJ, Hart R, Line B, Lafage V, Shaffrey C. All-cause mortality following cervical and thoracolumbar adult deformity surgery: incidence and causes. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
47. \*Mo K, Raad M, Gum J, Soroceanu A, Kim HJ, Hostin R, Passias P, Lafage R, Protosaltis T, Gupta M, Ames C, Klineberg E, Hamilton DK, Schwab F, Daniels A, Hart R, Line B, Shaffrey C, **Smith JS**,

- Bess S, Lenke L, Burton D, Kebaish K, ISSG. Houndsfield units thresholds are associated with major intraoperative blood loss and implant complications within 90 days of ASD surgery. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
48. \*Gum J, Mo K, Burton D, Neuman B, Kim HJ, Hostin R, Passias P, Lafage R, Protosaltis T, Gupta M, Ames C, Klineberg E, Hamilton DK, Schwab F, Daniels A, Soroceanu A, Hart R, Lafage V, Shaffrey C, **Smith JS**, Bess S, Kebaish K, ISSG. A Houndsfield unit (HU) value below 125 on preoperative CT at UIV is predictive of PJK after ASD surgery. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  49. Wick J, Blandino A, Smith JS, Line B, Lafage V, Lafage R, Kim HJ, Passias P, Gum JL, Kebaish K, Eastlack R, Daniels A, Mundis G, Hostin R, Protosaltis T, Hamilton K, Kelly MP, Gupta M, Hart R, Schwab F, Burton D, Ames C, Lenke L, Shaffrey C, Bess S, Klineberg E, ISSG. The ISSG-AO complications intervention score, but not major/minor designation, is correlated with length of stay. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  50. \*Lafage R, Elysee J, Klineberg E, **Smith JS**, Bess S, Shaffrey C, Burton D, Kim HJ, Eastlack R, Mundis G, Ames C, Passias P, Gupta M, Hostin R, Hamilton DK, Schwab F, Lafage V, ISSG. Complication rates following adult spinal deformity (ASD) surgery: the category of complication dictates timing. North American Spine Society 37<sup>th</sup> Annual Meeting. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022. (1 of 10 abstracts nominated for the Hibbs Award for Best Clinical Abstract)
  51. \*Line B, Bess S, Ames C, Burton D, Eastlack R, Mundis G, Gum J, Lafage V, Lafage R, Daniels A, Gupta M, Hamilton DK, Kelly M, Passias P, Protosaltis T, Hart R, Kebaish K, Schwab F, Shaffrey C, **Smith JS**, Klineberg E, Kim HJ, ISSG. A rough road to recovery: the impact of complications after adult spinal deformity surgery on specific health related quality of life domains. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  52. \*Elias E, Bess S, Line B, Lafage V, Lafage R, Klineberg E, Kim HJ, Passias P, Nasser Z, Gum J, Kebaish K, Eastlack R, Daniels A, Mundis G, Hostin R, Protosaltis T, Hamilton DK, Gupta M, Hart R, Schwab F, Burton D, Ames C, Shaffrey C, **Smith JS**. Outcomes of operative treatment for adult spinal deformity: a prospective, multicenter assessment with minimum 3-year follow-up. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  53. \*Hosogane N, Yagi M, Ames C, Lafage V, Schwab F, Shaffrey C, **Smith JS**, Bess S, ISSG. Differences in impact of spinal fusion on activity of daily living between US and Japanese adult spinal deformity patients. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  54. \*Passias P, Tretiakov, Joujon-Roche, Williamson T, Kroll, Imbo, Nima, Nunley P, Wang M, Park P, Kanter A, Okonkwo D, Eastlack R, Mundis G, Chou D, Agarwal N, Chan A, Fessler R, Uribe J, Anand N, Than K, Brusko, Shabani, Shah, Fu K, Line B, Ames C, **Smith JS**, Shaffrey C, Hart R, Burton D, Lafage R, Lafage V, Schwab F, Bess S, Mummaneni P, ISSG. Circumferential minimally-invasive adult spinal deformity surgery provides incremental benefit for increasingly frail patients. 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  55. \*Gum JL, Elysee J, Lafage R, Smith JS, Line B, Yeramaneeni S, Mo K, Lafage V, Sheer J, Soroceanu A, Buell T, Klineberg E, Kim HJ, Passias P, Kebaish K, Eastlack R, Daniels A, Mundis G, Hostin R, Protosaltis T, Hamilton K, Kelly M, Gupta M, Hart R, Schwab F, Burton D, Ames C, Lenke L, Shaffrey C, Bess S, ISSG. Are supplemental-rod constructs (SRCs) associated with increase rates of PJK/PJF? 57<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Stockholm, Sweden. September 14-17, 2022.
  56. \*Sardi J, Lazaro B, **Smith JS**, Kelly MP, Dial BL, Hills JM, Baldus C, Yanik EL, Yen CP, Lafage V, Bess S, Schwab FJ, Shaffrey CI, Bridwell KH. Rod fracture in thoracolumbar fusions to the

- sacrum/pelvis for adult symptomatic lumbar scoliosis: long-term follow-up of a prospective multicenter cohort of 160 patients. Global Spine Congress. Las Vegas, NV. June 1-4, 2022.
57. \*Passias PG, Krol O, Passfall L, Lafage V, Lafage R, **Smith JS**, Line BG, Vira S, Daniels AH, Diebo BG, Gum JL, Schoenfeld AJ, Than KD, Kim HJ, Hostin R, Gupta MC, Eastlack RK, Burton DC, Schwab FJ, Shaffrey CI, Klineberg E, Bess S, ISSG. Are we getting better at 3-column osteotomy in terms of achieving optimal realignment, minimizing complications, and clinical outcomes in adult deformity surgery? Global Spine Congress. Las Vegas, NV. June 1-4, 2022.
  58. Passias PG, Passfall L, Tretiakov P, Lafage V, **Smith JS**, Lafage R, Line B, Diebo B, Daniels A, Protopsaltis T, Vira S, Klineberg EO, Hostin R, Eastlack R, Mundis G, Kebaish K, Gum J, Uribe J, Hart R, Burton D, Ames CP, Shaffrey C, Bess S, Gupta M, Schwab F, ISSG. Should length of construct influence our alignment goals in adult spinal deformity corrective surgery? Global Spine Congress. Las Vegas, NV. June 1-4, 2022.
  59. \*Elias E, Bess S, Line B, Lafage V, Lafage R, Klineberg E, Kim HJ, Passias P, Nasser Z, Gum J, Kebaish K, Eastlack R, Daniels A, Mundis G, Hostin R, Protopsaltis T, Hamilton DK, Gupta M, Hart R, Schwab F, Burton D, Ames C, Shaffrey C, **Smith JS**. Outcomes of operative treatment for adult spinal deformity: a prospective, multicenter assessment with minimum 3-year follow-up. Global Spine Congress. Las Vegas, NV. June 1-4, 2022.
  60. \*Passias PG, Krol O, Passfall L, Lafage V, Lafage R, **Smith JS**, Line BG, Vira S, Daniels AH, Diebo BG, Gum JL, Schoenfeld AJ, Than KD, Kim HJ, Hostin R, Gupta MC, Eastlack RK, Burton DC, Schwab FJ, Shaffrey CI, Klineberg E, Bess S, ISSG. Are we getting better at 3-column osteotomy in terms of achieving optimal realignment, minimizing complications, and clinical outcomes in adult deformity surgery? 29<sup>th</sup> Annual Meeting on International Meeting for Advanced Spine Techniques. Miami, FL. April 6-9, 2022.
  61. \*Sardi J, Lazaro B, **Smith JS**, Kelly MP, Dial BL, Hills JM, Baldus C, Yanik EL, Yen CP, Lafage V, Bess S, Schwab FJ, Shaffrey CI, Bridwell KH. Rod fracture in thoracolumbar fusions to the sacrum/pelvis for adult symptomatic lumbar scoliosis: long-term follow-up of a prospective multicenter cohort of 160 patients. 29<sup>th</sup> Annual Meeting on International Meeting for Advanced Spine Techniques. Miami, FL. April 6-9, 2022.
  62. \*Passias PG, Naessig S, Sagoo N, Passfall L, Ahmad W, Pierce KE, Tretiakov P, Krol O, Joujon-Roche R, Williamson TK, Imbo B, Lafage V, Vira A, Schoenfeld AJ, Protopsaltis TS, Kim HJ, Daniels AH, Hart RA, Burton DC, Klineberg E, Bess S, Schwab FJ, Shaffrey CI, Ames CP, **Smith JS**, Diebo BG, ISSG. Establishment of an individualized distal junctional kyphosis risk index taking into account radiographic surgical and patient related components. 29<sup>th</sup> Annual Meeting on International Meeting for Advanced Spine Techniques. Miami, FL. April 6-9, 2022.
  63. \*Lafage R, **Smith JS**, Protopsaltis TS, Klineberg E, Mundis GM, Passias PG, Elysee J, Gupta MC, Shaffrey CI, Kim HJ, Bess S, Schwab FJ, Lafage V, Ames CP, ISSG. Proximal and distal reciprocal alignment changes following cervical deformity correction. 29<sup>th</sup> Annual Meeting on International Meeting for Advanced Spine Techniques. Miami, FL. April 6-9, 2022.
  64. \*Krol O, Passias PG, Lafage V, Lafage R, **Smith JS**, Line BG, Vira S, Daniels AH, Diebo BG, Schoenfeld AJ, Gum JL, Than KD, Kim HJ, Hostin R, Gupta MC, Eastlack RK, Burton DC, Schwab FJ, Shaffrey CI, Klineberg E, Bess S, ISSG. Which components of the global alignment proportionality score have the greatest impact on outcomes in adult deformity corrective surgery? 29<sup>th</sup> Annual Meeting on International Meeting for Advanced Spine Techniques. Miami, FL. April 6-9, 2022.
  65. \*Passias PG, Pierce KE, Imbo B, Tretiakov P, Joujon-Roche R, Williamson TK, Krol O, Lafage R, Lafage V, Mundis GM, Gum JL, Kebaish KNM, Eastlack RK, **Smith JS**, Ames CP, Shaffrey CI, Burton DC, Hart RA, Bess S, Schwab FJ, Gupta MC. The incremental benefit of adding layers of

- complexity to the planning and execution of adult deformity corrective surgery. 29<sup>th</sup> Annual Meeting on International Meeting for Advanced Spine Techniques. Miami, FL. April 6-9, 2022.
66. \*Passias PG, Passfall L, Tretiakov P, Lafage V, Lafage R, Line BG, Vira S, Gum JL, Kebaish KM, Than KD, Mundis GM, Hostin R, Gupta MC, Eastlack RK, Schoenfeld AJ, Chou D, Daniels AH, Protosaltis TS, Hamilton DK, Soroceanu A, Pinteric R, Mummaneni PV, Kelly MP, Kim HJ, Anand N, Ames CP, Hart RA, Burton DC, Schwab FJ, Shaffrey CI, **Smith JS**, Klineberg E, Bess S, ISSG. 29<sup>th</sup> Annual Meeting on International Meeting for Advanced Spine Techniques. Miami, FL. April 6-9, 2022.
  67. Lovecchio FC, Lafage R, Kim HJ, Bess S, Ames CP, Gupta MC, Passias PG, Klineberg E, Mundis GM, Burton DC, **Smith JS**, Shaffrey CI, Schwab FJ, Lafage V, ISSG. Revision free loss of sagittal correction >3 years after adult deformity surgery: who and why? 29<sup>th</sup> Annual Meeting on International Meeting for Advanced Spine Techniques. Miami, FL. April 6-9, 2022.
  68. Kelly M, Lenke L, Line B, **Smith JS**, Shaffrey CI, Kebaish K, Klineberg EO, Kim HJ, Schwab F, Gupta M, Lafage V, Lafage R, Daniels A, Passias P, Protosaltis TP, Burton D, Bess S, ISSG. Preoperative opioid use poorly correlates with mental health in adult spinal deformity: time to rethink foregone conclusions. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  69. \*Cerpa M, Lenke L, Zuckerman S, Kelly M, Line B, **Smith JS**, Shaffrey CI, Kebaish K, Klineberg E, Kim HJ, Schwab FJ, Gupta M, Protosaltis TP, Passias P, Daniels A, Lafage V, Lafage R, Burton D, Bess S, ISSG. Prospective analysis of adult spinal deformity patients demonstrates radically different preop demographic, radiographic and quality of life parameters for primary vs revision patients. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  70. Norris Z, Protosaltis TP, Balouch E, Ayers E, Soroceanu A, Lafage R, **Smith JS**, Hamilton DK, Klineberg E, Passias P, Hart R, Bess S, Shaffrey CI, Schwab FJ, Lafage V, Ames CP, ISSG. Surgical and radiographic outcomes in patients with high T1 and C2 slopes. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  71. \*Scheer J, Protosaltis T, **Smith JS**, Lafage V, Lafage R, Passias P, Kim HJ, Hart R, Burton D, Line B, Bess S, Shaffrey C, Ames CP, ISSG. How the back affects the neck: preoperative sagittal vertical axis is correlated with cervical myelopathy scores. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  72. \*Balouch E, Protosaltis T, Norris Z, Eastlack R, **Smith JS**, Hamilton K, Daniels A, Klineberg E, Passias P, Hart R, Bess S, Shaffrey C, Schwab FJ, Lafage V, Ames C, ISSG. Durability and failure mechanisms of cervical deformity correction surgery. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  73. Passias P, Kummer N, Krol O, Lafage V, Lafage R, Kim, HJ, Daniels A, Diebo B, Lebovic J, Mundis GM, Eastlack R, Soroceanu A, Scheer JK, Hamilton K, Klineberg EO, Line B, Schoenfeld A, Hart R, Burton D, Schwab F, Shaffrey CI, Bess S, **Smith JS**, Ames CP, ISSG. Improvements in cost effectiveness of adult cervical deformity corrective surgery over time: analysis of a prospective adult cervical deformity database. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  74. \*Lafage R, **Smith JS**, Protosaltis T, Klineberg E, Mundis G, Passias P, Elysee J, Gupta M, Shaffrey C, Kim HJ, Bess S, Schwab FJ, Lafage V, Ames C, ISSG. Proximal and distal reciprocal alignment changes following cervical deformity correction. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  75. \*Elysee J, Lafage R, **Smith JS**, Klineberg EO, Passias P, Mundis G, Protosaltis T, Gupta M, Shaffrey C, Kim HJ, Bess S, Ames CP, Schwab FJ, Lafage V, ISSG. Cervical deformity score: a composite



- alignment tool to optimize outcomes while mitigating complications. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
76. \*Passias P, Krol O, Lafage V, Lafage R, Kim HJ, Daniels A, Diebo B, Protosaltis T, Mundis G, Kebaish K, Soroceanu A, Scheer JK, Hamilton DK, Klineberg EO, Line B, Hart R, Burton D, Schwab F, Shaffrey C, Bess S, **Smith JS**, Ames CP, ISSG. Evolution of adult cervical deformity (ACD) surgery clinical and radiographic outcomes based on a multicenter prospective study: are behaviors and outcome changing with experience? North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  77. \*Lafage R, Soroceanu A, **Smith JS**, Passias P, Kim HJ, Mundis G, Shaffrey C, Ames C, Klineberg E, Gupta M, Burton D, Bess S, Schwab F, Lafage V, ISSG. Lumbar lordosis is primarily lost in the upper lumbar spine ASD patients with sagittal deformities. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  78. \*Protosaltis T, Soroceanu A, Lafage R, Kim HJ, Balouch E, Norris Z, **Smith JS**, Daniels A, Klineberg EO, Ames C, Hart R, Bess S, Shaffrey CI, Schwab FJ, Lenke L, Lafage V, Gupta M, ISSG. Correcting ASD patients to normative alignment results in no functional benefit but more PJK and PJF. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  79. \*Kim HJ, Elysee J, **Smith JS**, Mundis G, Shaffrey CI, Ames CP, Burton D, Klineberg E, Bess S, Schwab F, Lafage V, Gupta M, ISSG. Upper versus lower lumbar lordosis correction in relation to pelvic tilt: an essential element in surgical planning for sagittal plane deformity. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  80. \**Buell TJ*, Shaffrey CI, Bess S, Kim HJ, Klineberg E, Lafage V, Lafage R, Protosaltis TP, Passias P, Mundis G, Eastlack R, Deviren V, Kelly MP, Daniels A, Gum JL, Soroceanu A, Hamilton DK, Gupta M, Burton D, Hostin R, Kebaish K, Hart RA, Schwab F, Ames CP, **Smith JS**, ISSG. Segmental lordosis restoration using ALIF vs TLIF in adults with flatback deformity. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  81. \*Bess S, Line B, Lafage R, Nunley P, Ames C, Eastlack R, Mundis G, Lafage V, Klineberg E, Gupta M, Kelly M, Hart R, Passias P, Protosaltis T, Burton D, Kebaish K, Kim HJ, Schwab FJ, Shaffrey C, **Smith JS**, ISSG. Matched analysis demonstrates acute rehabilitation or skilled nursing facility care does not reduce readmissions, return to surgery or improves outcomes compared to home discharges following adult spinal deformity surgery. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  82. \*Durand W, Babu J, Hamilton D, Passias P, Kim HJ, Protosaltis T, Lafage V, Lafage R, **Smith JS**, Shaffrey CI, Gupta M, Kelly MP, Klineberg EO, Schwab F, Gum JL, Mundis G, Eastlack R, Kebaish K, Soroceanu A, Hostin R, Burton D, Bess S, Ames CP, Hart R, Daniels A, ISSG. Adult spinal deformity surgery is associated with increased productivity and decreased absenteeism from work and school. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  83. *Buell TJ*, Shaffrey CI, Bess S, Kim HJ, Klineberg E, Lafage V, Lafage R, Protosaltis TP, Passias P, Mundis G, Eastlack R, Deviren V, Kelly MP, Daniels A, Gum JL, Soroceanu A, Hamilton DK, Gupta M, Burton D, Hostin R, Kebaish K, Hart RA, Schwab F, Ames CP, **Smith JS**, ISSG. Fractional curve correction using TLIF vs ALIF in adult scoliosis. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  84. \**Buell TJ*, Shaffrey CI, Kim HJ, Klineberg E, Lafage V, Lafage R, Protosaltis TP, Passias P, Mundis G, Eastlack R, Deviren V, Kelly MP, Daniels A, Gum JL, Soroceanu A, Hamilton DK, Gupta M, Burton D, Hostin R, Kebaish K, Hart RA, Schwab F, Bess S, Ames CP, **Smith JS**, ISSG. Global coronal decompensation after adult scoliosis deformity surgery: comparison of upper- vs lower-

- thoracic proximal fixation. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
85. Krol O, Passias P, Lafage V, **Smith JS**, Line B, Diebo B, Daniels A, Protopsaltis T, Vira S, Klineberg E, Hostin R, Eastlack R, Mundis G, Kebaish K, Gum J, Yagi M, Hart R, Burton D, Ames C, Shaffrey C, Bess S, Gupta M, Schwab F, ISSG. Which components of the global alignment proportionality score have the greatest impact on outcomes in adult spinal deformity corrective surgery? North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  86. \*Gupta M, Lafage R, Gupta S, Daniels A, Soroceanu A, Eastlack R, Kebaish K, Shaffrey C, Kim HJ, Klineberg E, Lafage V, Protopsaltis T, Passias P, Mundis G, Hamilton DK, Kelly M, Burton DC, Hostin RA, Hart R, Schwab F, Bess S, Ames CP, **Smith JS**, ISSG. Rod failures continue to plague the surgical treatment of adult spinal deformity. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  87. \*Bess S, Line B, Lafage R, Ames C, Eastlack R, Mundis G, Lafage V, Klineberg E, Gupta M, Kelly M, Passias P, Protopsaltis T, Burton D, Kebaish K, Kim HJ, Schwab F, Shaffrey C, **Smith JS**, ISSG. Matched analysis demonstrates fusion to upper thoracic spine does not improve correction or outcomes compared to thoracolumbar upper instrumented vertebra for select adult spinal deformities. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  88. \*Bess S, Line B, Lafage R, Ames C, Eastlack R, Mundis G, Lafage V, Klineberg E, Gupta M, Kelly M, Passias P, Protopsaltis T, Burton D, Kebaish K, Kim HJ, Schwab F, Shaffrey C, **Smith JS**, ISSG. Upper thoracic spine does not impact physical function greater for younger vs older ASD patients undergoing long fusion to the pelvis. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  89. Neuman B, Wang K, McNeely E, Klineberg E, **Smith JS**, Bess S, Lafage V, Passias P, Protopsaltis T, Gum J, Ames C, Shaffrey C, Kebaish K, ISSG. Delayed staging during same hospitalization increases complication risk following adult spinal deformity surgery. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  90. \*Lafage R, Klineberg E, **Smith JS**, Bess S, Shaffrey C, Burton D, Kim HJ, Elysee J, Mundis G, Passias P, Gupta M, Hostin R, Schwab F, Lafage V, ISSG. Complication rate evolution across 10-year enrollment period of a prospective multicenter database. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  91. Neuman B, Wang K, McNeely E, Klineberg E, **Smith JS**, Bess S, Lafage V, Passias P, Protopsaltis T, Gum J, Ames C, Shaffrey C, Kebaish K, ISSG. Establishing safety thresholds for surgical invasiveness based on frailty status in ASD surgery. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  92. \*Passias P, Krol O, Lafage V, Lafage R, **Smith JS**, Line B, Vira S, Daniels A, Diebo B, Gum J, Kebaish K, Than K, Kim HJ, Hostin R, Gupta M, Eastlack R, Anand N, Ames C, Hart R, Burton D, Schwab F, Shaffrey C, Klineberg E, Bess S, ISSG. Are we getting better at 3-column osteotomy in terms of achieving optimal realignment and minimizing complications in adult spinal deformity surgery? North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
  93. \*Passias P, Krol O, Lafage V, Lafage R, **Smith JS**, Line B, Vira S, Daniels A, Diebo B, Gum J, Kebaish K, Than K, Kim HJ, Hostin R, Gupta M, Eastlack R, Anand N, Ames C, Hart R, Burton D, Schwab F, Shaffrey C, Klineberg E, Bess S, ISSG. Radiographic malalignment has a far greater impact on clinical outcomes than perioperative and postoperative complications in ASD surgery. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.

94. \*Gum JL, Yeramaneni S, Wang K, Hostin R, Kebaish K, Neuman B, Jain A, Kelly M, Burton D, Ames C, Shaffrey C, Klineberg E, Kim HJ, Protosaltis T, Passias P, Mundis G, Eastlack R, Schwab F, Hart R, Gupta M, Daniels A, **Smith JS**, Lafage V, Line B, Bess S, ISSG. Comparison of patient factors (frailty) vs surgical factors (invasiveness) for optimization of 2-year cost-utility: We should focus on the patient factors. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
95. \*Passias P, Kummer N, Lafage V, Lafage R, Smith JS, Line B, Diebo B, Gum J, Daniels A, Klineberg E, Gupta M, Kebaish K, Jain A, Neuman B, Chou D, Carreon L, Kelly M, Hart R, Burton D, Shaffrey C, Ames C, Schwab F, Hostin R, Bess S, ISSG. Improvements in outcomes and cost after adult spinal deformity corrective surgery between 2008 and 2019. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
96. \*Kummer N, Passias P, Pellise F, Lafage V, Lafage R, Serra-Burriel M, **Smith JS**, Line B, Gum J, Haddad S, Perez-Grueso FJS, Daniels A, Klineberg E, Gupta M, Kebaish K, Kelly M, Hart R, Burton D, Kleinstruck F, Obeid I, Shaffrey C, Alanay A, Ames C, Schwab F, Hostin R, Bess S, ISSG. Cost benefit of implementation of risk stratification models for adult spinal deformity surgery. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
97. Yeramaneni S, Wang K, Line B, Jain A, Neuman B, Kebaish K, Harris A, Gum J, Kelly M, Burton D, Ames C, Shaffrey C, Klineberg E, Protosaltis T, Passias P, Mundis G, Eastlack R, Schwab F, Hart R, Gupta M, Daniels A, **Smith JS**, Lafage V, Bess S, Hostin R, ISSG. Impact of reoperation on cost of care in adult spinal deformity surgery. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
98. \*Bess S, Line B, Lafage R, Ames C, Eastlack R, Mundis G, Lafage V, Klineberg E, Daniels A, Gupta M, Kelly M, Lenke L, Passias P, Protosaltis T, Burton D, Kebaish K, Kim HJ, Schwab F, Shaffrey C, **Smith JS**, ISSG. Would you do it again? Discrepancies between patient and surgeon willingness for adult spine deformity surgery. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
99. \*Mundis G, Gum J, Lafage R, Soroceanu A, Kim HJ, Bess S, Line B, Gupta M, Eastlack R, Okonkwo D, Lafage V, Passias P, Hart R, **Smith JS**, Burton D, ISSG. Identifying the utility of Hounsfield units to predict proximal junctional kyphosis in adult spinal deformity. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
100. \*Passias P, Krol O, Lafage V, Lafage R, **Smith JS**, Line B, Lipa, Protosaltis T, Daniels A, Diebo B, Vira S, Eastlack R, Mundis G, Hostin R, Gupta M, Anand N, Ames C, Hart R, Burton D, Schwab F, Shaffrey C, Klineberg E, Kim HJ, Bess S, ISSG. The clinical benefit of addressing the malalignment in revision surgery for proximal junctional kyphosis following ASD surgery. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
101. \*Sheikh B, Lafage R, **Smith JS**, Kim HJ, Mundis G, Klineberg E, Shaffrey C, Daniels A, Ames C, Gupta M, Burton D, Hostin R, Bess S, Schwab F, Lafage V, ISSG. Evolution of proximal junctional kyphosis and proximal junctional failure rates over 10 years of enrollment in a prospective multicenter adult spinal deformity database. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.
102. Gum J, Soroceanu A, Lafage R, Mundis G, Yeramaneni S, Wang K, Hostin R, Kebaish K, Neuman B, Jain A, Kelly M, Burton D, Ames C, Shaffrey C, Klineberg E, Kim HJ, Protosaltis T, Passias P, Eastlack R, Schwab F, Hart R, Gupta M, Daniels A, **Smith JS**, Lafage V, Line B, Bess S, ISSG. Utilization of Hounsfield units at L1 for bone quality assessment in ASD surgery is reliable and correlates with history of osteoporosis. North American Spine Society 36<sup>th</sup> Annual Meeting. Boston, MA. September 29-October 2, 2021.

- 103.\*Lafage R, **Smith JS**, Bess S, Shaffrey CI, Kim HJ, Kebaish K, Burton DC, Hostin R, Passias P, Protosaltis TP, Daniels A, Klineberg EO, Gupta M, Kelly MP, Lenke L, Schwab F, Lafage V, ISSG. Cluster analysis to identify deformity and disability patterns in ASD patients: a step toward a clinically relevant ASD classification. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
- 104.\*Kelly M, Lenke L, Line B, **Smith JS**, Shaffrey CI, Kebaish K, Klineberg EO, Kim HJ, Schwab F, Gupta M, Lafage V, Lafage R, Daniels A, Passias P, Protosaltis TP, Burton D, Bess S, ISSG. Preoperative opioid use poorly correlates with mental health in adult spinal deformity: time to rethink foregone conclusions. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
- 105.\*Norris Z, Protosaltis TP, Balouch E, Ayers E, Soroceanu A, Lafage R, **Smith SJ**, Hamilton DK, Klineberg E, Passias P, Hart R, Bess S, Shaffrey CI, Schwab FJ, Lafage V, Ames CP, ISSG. Surgical and radiographic outcomes in patients with high T1 and C2 slopes. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
- 106.\*Passias P, Krol O, Lafage V, Lafage R, Kim HJ, Daniels A, Diebo B, Protosaltis T, Mundis G, Kebaish K, Soroceanu A, Scheer JK, Hamilton DK, Klineberg EO, Line B, Hart R, Burton D, Schwab F, Shaffrey C, Bess S, **Smith JS**, Ames CP, ISSG. Evolution of adult cervical deformity (ACD) surgery clinical and radiographic outcomes based on a multicenter prospective study: are behaviors and outcome changing with experience? Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
- 107.\*Protosaltis T, Soroceanu A, Lafage R, Kim HJ, Balouch E, Norris Z, **Smith JS**, Daniels A, Klineberg EO, Ames C, Hart R, Bess S, Shaffrey CI, Schwab FJ, Lenke L, Lafage V, Gupta M, ISSG. Correcting ASD patients to normative alignment results in no functional benefit but more PJK and PJF. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
- 108.\*Bess S, Line B, Lafage R, Nunley P, Ames C, Eastlack R, Mundis G, Lafage V, Klineberg E, Gupta M, Kelly M, Hart R, Passias P, Protosaltis T, Burton D, Kebaish K, Kim HJ, Schwab FJ, Shaffrey C, **Smith JS**, ISSG. Matched analysis demonstrates acute rehabilitation or skilled nursing facility care does not reduce readmissions, return to surgery or improves outcomes compared to home discharges following adult spinal deformity surgery. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
- 109.\*Durand W, Babu J, Hamilton D, Passias P, Kim HJ, Protosaltis T, Lafage V, Lafage R, **Smith JS**, Shaffrey CI, Gupta M, Kelly MP, Klineberg EO, Schwab F, Gum JL, Mundis G, Eastlack R, Kebaish K, Soroceanu A, Hostin R, Burton D, Bess S, Ames CP, Hart R, Daniels A, ISSG. Adult spinal deformity surgery is associated with increased productivity and decreased absenteeism from work and school. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
- 110.\**Buell TJ*, Shaffrey CI, Bess S, Kim HJ, Klineberg E, Lafage V, Lafage R, Protosaltis TP, Passias P, Mundis G, Eastlack R, Deviren V, Kelly MP, Daniels A, Gum JL, Soroceanu A, Hamilton DK, Gupta M, Burton D, Hostin R, Kebaish K, Hart RA, Schwab F, Ames CP, **Smith JS**, ISSG. Fractional curve correction using TLIF vs ALIF in adult scoliosis. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
- 111.\*Gupta M, Lafage R, Gupta S, Daniels A, Soroceanu A, Eastlack R, Kebaish K, Shaffrey C, Kim HJ, Klineberg E, Lafage V, Protosaltis T, Passias P, Mundis G, Hamilton DK, Kelly M, Burton DC, Hostin RA, Hart R, Schwab F, Bess S, Ames CP, **Smith JS**, ISSG. Rod failures continue to plague the surgical treatment of adult spinal deformity. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
- 112.\*Neuman B, Wang K, McNeely E, Klineberg E, **Smith JS**, Bess S, Lafage V, Passias P, Protosaltis T, Gum J, Ames C, Shaffrey C, Kebaish K, ISSG. Delayed staging during same hospitalization

- increases complication risk following adult spinal deformity surgery. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
113. \*Passias P, Krol O, Lafage V, Lafage R, **Smith JS**, Line B, Vira S, Daniels A, Diebo B, Gum J, Kebaish K, Than K, Kim HJ, Hostin R, Gupta M, Eastlack R, Anand N, Ames C, Hart R, Burton D, Schwab F, Shaffrey C, Klineberg E, Bess S, ISSG. Radiographic malalignment has a far greater impact on clinical outcomes than perioperative and postoperative complications in ASD surgery. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
114. \*Gum JL, Yeramane S, Wang K, Hostin R, Kebaish K, Neuman B, Jain A, Kelly M, Burton D, Ames C, Shaffrey C, Klineberg E, Kim HJ, Protosaltis T, Passias P, Mundis G, Eastlack R, Schwab F, Hart R, Gupta M, Daniels A, **Smith JS**, Lafage V, Line B, Bess S, ISSG. Comparison of patient factors (frailty) vs surgical factors (invasiveness) for optimization of 2-year cost-utility: We should focus on the patient factors. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021. (Abstract received Hibbs Award)
115. \*Bess S, Line B, Lafage R, Ames C, Eastlack R, Mundis G, Lafage V, Klineberg E, Daniels A, Gupta M, Kelly M, Lenke L, Passias P, Protosaltis T, Burton D, Kebaish K, Kim HJ, Schwab F, Shaffrey C, **Smith JS**, ISSG. Would you do it again? Discrepancies between patient and surgeon willingness for adult spine deformity surgery. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
116. \*Passias P, Krol O, Lafage V, Lafage R, **Smith JS**, Line B, Lipa, Protosaltis T, Daniels A, Diebo B, Vira S, Eastlack R, Mundis G, Hostin R, Gupta M, Anand N, Ames C, Hart R, Burton D, Schwab F, Shaffrey C, Klineberg E, Kim HJ, Bess S, ISSG. The clinical benefit of addressing the malalignment in revision surgery for proximal junctional kyphosis following ASD surgery. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
117. \*Uribe J, Gandhi S, Wang M, Mundis G, Kanter A, Eastlack R, Anand N, Park P, **Smith JS**, Burton D, Kelly M, Kim HJ, Bess S, Shaffrey C, Schwab F, Lenke L, Lafage V, Mummaneni P, ISSG. Complication rates with MIS deformity surgery depend more on number of posterior levels fused than number of interbody grafts. Scoliosis Research Society 56<sup>th</sup> Annual Meeting. St Louis, MO. September 22-25, 2021.
118. Dial B, Kelly M, Hills J, Bess S, **Smith JS**, *Sardi JP, Lazaro B*, Shaffrey C, Schwab F, Lafage V, Lafage R, Bridwell K. The impact of lumbar alignment targets on mechanical complications following adult lumbar scoliosis surgery. AO Spine North America Fellows Forum. May 11-June 1, 2021. Virtual Meeting due to COVID-19.
119. *Lazaro B, Sardi JP*, Buell TJ, Yen CP, Shaffrey CI, Berven S, **Smith JS**. Determining magnitude of surgery in patients with adult spinal deformity: a systematic review of the role of limited fusions. AO Spine North America Fellows Forum. May 11-June 1, 2021. Virtual Meeting due to COVID-19.
120. \**Sardi JP, Lazaro B*, **Smith JS**, Kelly MP, Dial B, Hills J, Baldus CR, Yanik EL, Yen CP, Lafage V, Bess S, Schwab F, Shaffrey CI, Bridwell KH. Rod fracture in thoracolumbar fusions to the sacrum/pelvis for adult symptomatic lumbar scoliosis: long-term follow-up of a prospective multicenter cohort of 152 patients. AO Spine North America Fellows Forum. May 11-June 1, 2021. Virtual Meeting due to COVID-19.
121. \*Pierce K, Passias P, Lafage R, Lafage V, Protosaltis T, Kim HJ, Eastlack R, Daniels A, Hamilton DK, Soroceanu A, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames C, ISSG. Does patient frailty status influence recovery patterns and ultimate outcome following spinal fusion for cervical deformity? International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. April 23-25, 2021. (Nominated for Whitecloud Award)

- 122.\*Passias PG, Ahmad W, Kebaish K, Lafage R, Lafage V, Ramen T, Diebo B, Klineberg E, Kim HJ, Ames C, **Smith JS**, Shaffrey C, Burton DC, Hart R, Bess S, Schwab F, Gupta M, ISSG. Efficacy of varying approaches on achieving optimal alignment in adult spinal deformity surgery. International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. April 23-25, 2021.
- 123.\*Elysee JC, Lafage R, Bess S, Shaffrey CI, Kim HJ, Ames CP, Burton DC, Gupta MC, **Smith JS**, Eastlack RK, Klineberg E, Mundis GM, Schwab FJ, Lafage V, ISSG. Consistent and pathognomonic modes of failure occur at the proximal junction depending upon the type of instrumentation used: a two-step cluster analysis to better understand proximal junctional failure (PJF). International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. April 23-25, 2021.
- 124.Naessig S, Passias PG, Ahmad W, Pierce K, Lafage R, Lafage V, Line B, Eastlack R, Kim HJ, Protosaltis T, Soroceanu A, Klineberg E, Hart R, Burton D, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames C, Vira S, ISSG. Treatment of cervical deformity in the presence of a secondary thoracic deformity: outcomes based on inclusion and age-adjusted normalization. International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. April 23-25, 2021.
- 125.Klineberg EO, Agatstein L, Lafage R, **Smith JS**, Shaffrey C, Mundis G, Kim HJ, Gupta M, Ames C, Passias, Protosaltis T, Burton DC, Schwab F, Bess S, Lafage V, ISSG. Neurologic complications following adult spinal deformity and impact on health-related quality of life measures. International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. April 23-25, 2021.
- 126.Klineberg EO, Lafage R, Lafage V, **Smith JS**, Shaffrey C, Mundis G, Kim HJ, Gupta M, Ames C, Passias, Protosaltis T, Burton DC, Schwab F, Bess S, ISSG. Complications following adult spinal deformity impact length of stay and are driven by intervention severity and can be predicted using a weighted score. International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. April 23-25, 2021.
- 127.Passias P, Ahmad W, Cheongeun O, Lafage V, Lafage R, Hamilton DK, Protosaltis T, Klineberg EO, Gum J, Line B, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames, ISSG. Development of risk stratification predictive models for cervical deformity surgery. International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. April 23-25, 2021.
- 128.Lafage R, **Smith JS**, Soroceanu A, Ames C, Passias P, Shaffrey C, Mundis G, Protosaltis T, Klineberg E, Elysee J, Kim HJ, Bess S, Schwab F, Lafage V, ISSG. Predicting mechanical failure following cervical deformity surgery: a composite score integrating age-adjusted cervical alignment targets. International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. April 23-25, 2021.
- 129.Ahmad W, Passias P, Lebovic J, Lafage V, Lafage R, Kebaish K, Kelly MP, Gum J, Line B, Hart R, Burton DC, **Smith JS**, Ames C, Shaffrey C, Schwab F, Hostin R, Bess S, ISSG. Cost-utility analysis of a combined approach for surgical correction of adult spinal deformity. International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. April 23-25, 2021.
- 130.\***Smith JS**, Buell TJ, Shaffrey CI, Kim HJ, Klineberg E, Protosaltis T, Passias P, Mundis GM Jr, Eastlack R, Deviren V, Kelly M, Daniels A, Gum J, Soroceanu A, Gupta M, Burton D, Hostin R, Hart R, Lafage V, Lafage R, Schwab FJ, Bess S, Ames CP, ISSG. Prospective multicenter assessment of complication rates associated with adult cervical deformity surgery in 133 patients with minimum 1-year follow-up. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
- 131.\*Passias P, Pierce K, Lafage R, Lafage V, Klineberg EO, Daniels A, Kebaish K, Protosaltis T, Hostin R, Line B, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames C, ISSG. Patient specific cervical deformity corrections with consideration of risk: establishment of risk benefit thresholds for invasiveness based on deformity and frailty severity. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.

132. Pierce K, Passias P, Lafage R, Lafage V, Kim HJ, Daniels A, Eastlack R, Klineberg EO, Line B, Mummaneni PV, Protosaltis T, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith J**, Ames C, ISSG. Disparities in etiology, clinical presentation and determinants for distal junctional kyphosis based on time of occurrence: are we treating two separate issues? Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
133. Lafage R, **Smith JS**, Soroceanu A, Ames C, Passias P, Shaffrey C, Mundis G, Protosaltis T, Klineberg E, Elysee J, Kim HJ, Bess S, Schwab F, Lafage V, ISSG. Predicting mechanical failure following cervical deformity surgery: a composite score integrating age-adjusted cervical alignment targets. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
134. Protosaltis TP, Ayres E, Eastlack R, **Smith JS**, Hamilton K, Daniels A, Klineberg E, Neuman B, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, Ames C. When are short fusions successful in cervical deformity surgery? Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
135. Protosaltis TP, Ayres E, Eastlack R, **Smith JS**, Hamilton K, Daniels A, Klineberg E, Neuman B, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, Ames C. Outcomes of surgery for cervical deformity resulting from upper thoracic PJK are comparable to de novo cervical deformity surgery. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
136. Lafage V, Kim HJ, Elysee J, Ames C, Passias P, Shaffrey C, Mundis G, Protosaltis T, Gupta M, Klineberg E, **Smith J**, Bess S, Schwab F, Lafage R, ISSG. Surgical strategy for the management of cervical deformity is based on morphology. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
137. Ye J, Gupta M, Lafage R, Protosaltis T, Passias P, **Smith J**, Lafage V, Kim HJ, Klineberg E, Kebaish K, Scheer J, Mundis G, Soroceanu A, Bess S, Ames C, Shaffrey C, Gupta M. Cervical reconstruction for treatment of cervical spinal deformity patients invokes changes in sagittal spinopelvic parameters. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
138. Lafage R, **Smith JS**, Ames CP, Passias PG, Shaffrey CI, Mundis GM, Protosaltis T, Gupta M, Klineberg EO, Elysee J, Kim HJ, Bess S, Schwab FJ, Lafage V, ISSG. When can we expect global sagittal alignment to reach a stable value following cervical deformity surgery? Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
139. Passias P, Ahmad W, Cheongeun O, Lafage V, Lafage R, Hamilton DK, Protosaltis T, Klineberg EO, Gum J, Line B, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames, ISSG. Development of risk stratification predictive models for cervical deformity surgery. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
140. Passias P, Ahmad W, Oh C, Lafage V, Lafage R, Protosaltis T, Mundis G, Klineberg E, Line B, Hart R, Burton D, Bess S, Schwab F, Shaffrey C, **Smith J**, Ames C. Predicting the achievement of optimal outcomes for surgical adult cervical deformity patients. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
141. Passias P, Pierce K, Lafage R, Lafage V, Klineberg EO, Diebo B, Protosaltis T, Hamilton DK, Vira S, Line B, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames C, ISSG. At what point should the thoracolumbar region be addressed in patients undergoing corrective cervical deformity surgery? Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
142. Passias P, Naessig S, Cheongeun O, Lafage R, Lafage V, Protosaltis T, Eastlack R, Gupta M, Klineberg E, Gum J, Hart R, Burton D, Bess S, Schwab F, Shaffrey C, **Smith J**, Ames C. Establishment of key patient, surgical, and radiographic factors predictive of reoperation following

- primary cervical deformity correction. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
143. Passias P, Ahmad W, Alas H, Lafage R, Lafage V, Line B, Daniels A, Hamilton DK, Hart R, Burton DC, Shaffrey C, Schwab F, Ames C, **Smith JS**, Bess S, Klineberg EO, Kim HJ, ISSG. Does baseline thoracolumbar shape influence patterns of cervical decompensation following surgical adult spinal deformity correction? Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
144. Passias P, Pierce K, Lafage R, Lafage V, Hamilton DK, Mundis G, Kim HJ, Hostin R, Daniels A, Hart R, Burton DC, Shaffrey C, Schwab F, Ames C, **Smith JS**, Bess S, Klineberg EO, ISSG. When not to operate in spinal deformity: identifying subsets of patients with simultaneous clinical deterioration, major complications, and reoperation. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
145. Protosaltis T, Balouch E, Schreiber-Stainthorp W, Eastlack R, **Smith JS**, Hamilton DK, Daniels A, Klineberg EO, Neuman B, Hart R, Bess S, Shaffrey CI, Schwab FJ, Lafage V, Ames CP. Failure mechanisms and revision strategies for DJK following cervical deformity correction. Cervical Spine Research Society. Virtual Meeting due to COVID-19. December 9-12, 2020.
146. \***Smith JS**, Kelly MP, Yanik EL, Baldus CR, Buell TJ, Lurie JD, Edwards C, Glassman SD, Lenke LG, Boachie-Adjei O, Buchowski JM, Carreon LY, Crawford CH III, Errico TJ, Lewis SJ, Koski T, Parent S, Lafage V, Kim HJ, Ames CP, Bess S, Schwab FJ, Shaffrey CI, Bridwell KH. Operative versus nonoperative treatment for adult symptomatic lumbar scoliosis at five-year follow-up: durability of outcomes and impact of treatment-related serious adverse events. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
147. \*Buell TJ, **Smith JS**, Shaffrey CI, Kim HJ, Klineberg E, Lafage V, Lafage R, Protosaltis T, Passias P, Mundis G, Eastlack R, Deviren V, Kelly MP, Daniels AH, Gum JL, Soroceanu A, Hamilton DK, Gupta M, Burton D, Hostin R, Kebaish K, Hart R, Schwab F, Bess S, Ames CP, ISSG. Multicenter assessment of surgical outcomes in 62 adult spinal deformity patients with severe global coronal malalignment: defining target coronal realignment threshold. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
148. \*Buell TJ, **Smith JS**, Shaffrey CI, Kim HJ, Klineberg EO, Lafage V, Lafage R, Protosaltis TS, Passias PG, Mundis GM, Eastlack RK, Deviren V, Kelly MP, Daniels AH, Gum JL, Soroceanu A, Hamilton DK, Gupta MC, Burton DC, Hostin RA, Kebaish KM, Hart RA, Schwab FJ, Bess S, Ames CP, ISSG. Operative treatment of severe scoliosis in symptomatic adults: multicenter assessment of outcomes and complications with minimum 2-year follow-up. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
149. \*Durand W, Daniels A, Lafage R, Passias P, Kim HJ, Protosaltis T, Lafage V, **Smith JS**, Shaffrey C, Gupta M, Klineberg EO, Schwab F, Gum J, Mundis G, Eastlack R, Kebaish K, Soroceanu A, Hostin R, Burton DC, Bess S, Ames C, Hart R, Hamilton DK, ISSG. Multiple revision surgeries are associated with reduced patient satisfaction in adult spinal deformity. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
150. \*Scheer J, **Smith JS**, Passias P, Kim HJ, Bess S, Protosaltis T, Burton DC, Klineberg EO, Lafage V, Schwab F, Shaffrey C, Gupta M, Ames C, ISSG. Outcomes of surgical treatment for patients with mild scoliosis and age appropriate sagittal alignment with minimum 2-year follow-up. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
151. \*Pierce K, Passias P, Lafage V, Lafage R, Mundis G, Uribe JS, Kim HJ, Protosaltis T, Daniels A, Hart R, Burton DC, Shaffrey C, Schwab F, Ames C, **Smith J**, Bess S, Klineberg EO, ISSG. Validation of the ACS-NSQIP risk index in a prospective, multicenter adult spinal deformity database. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.



- 152.\*Soroceanu A, Scheer J, Protosaltis T, Gupta M, Passias P, Gum J, **Smith JS**, Mundis G, Bess S, Lafage V, Ames C, Klineberg EO, ISSG. Predicting massive intra-operative blood loss in adult spinal deformity surgery. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 153.\*Pinteric R, Bess S, Line B, Kelly MP, Ames C, Mundis G, Eastlack R, Hostin R, Klineberg EO, Gupta M, Kebaish K, Lafage V, Lafage R, Burton DC, Schwab F, Shaffrey C, **Smith JS**, ISSG. Self-image in adult spinal deformity is most correlated with patient function and mental health and minimally correlated with spine deformity. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 154.\*Line B, Bess S, Ames C, Eastlack R, Mundis G, Lafage V, Lafage R, Klineberg EO, Gupta M, Hostin R, Burton DC, Kelly MP, Kebaish K, Schwab F, Shaffrey CI, **Smith JS**, ISSG. Opioid use prior to adult spine deformity surgery worsens postoperative outcomes and risks continued postoperative use, independent of spine deformity magnitude and type of surgery performed; a propensity matched cohort analysis. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 155.\*Gum J, Carreon L, Yagi M, Hosogane N, Matsumoto M, Watanabe K, **Smith JS**, Shaffrey C, Lafage V, Burton DC, Hostin R, Kebaish K, Schwab F, Bess S, Ames C, ISSG. Opioid use after adult spinal deformity surgery: propensity-matched comparison of Japanese versus American cohorts. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 156.\*Soroceanu A, Protosaltis T, Mundis G, **Smith JS**, Kelly MP, Daniels A, Klineberg EO, Ames C, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, Gupta M, ISSG. Low pelvic incidence patients are at high risk of over correction following ASD surgery. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 157.\*Eastlack R, Soroceanu A, Mundis G, Daniels A, **Smith JS**, Line B, Passias P, Nunley P, Okonkwo D, Than K, Uribe JS, Mummaneni PV, Chou D, Kebaish K, Shaffrey C, Bess S, ISSG. Rates of loosening, failure, and revision of iliac fixation in adult deformity surgery. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 158.\*Eastlack R, Soroceanu A, Mundis G, Daniels A, **Smith JS**, Line B, Passias P, Nunley P, Okonkwo D, Than K, Uribe JS, Mummaneni PV, Chou D, Kebaish K, Shaffrey C, Bess S, ISSG. Use of ALIF at lumbosacral junction results in less lumbopelvic fixation failure than TLIF or no interbody fusion following correction of adult spinal deformity. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
159. Buell TJ, **Smith JS**, Shaffrey CI, Kim HJ, Klineberg EO, Lafage V, Lafage R, Protosaltis TS, Passias PG, Mundis GM, Eastlack RK, Deviren V, Kelly MP, Daniels AH, Gum JL, Soroceanu A, Hamilton DK, Gupta MC, Burton DC, Hostin RA, Kebaish KM, Hart RA, Schwab FJ, Bess S, Ames CP, ISSG. Demographic differences and health impact of severe global sagittal, coronal, and mixed spinal deformity in symptomatic adults. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
160. Durand W, Lafage R, Hamilton DK, Passias P, Kim HJ, Protosaltis T, Lafage V, **Smith JS**, Shaffrey CI, Gupta M, Klineberg EO, Schwab F, Gum J, Mundis G, Eastlack R, Kebaish K, Soroceanu A, Hostin R, Burton DC, Bess S, Ames C, Hart R, Daniels A, ISSG. Artificial intelligence clustering of adult spinal deformity morphology predicts surgical characteristics, alignment, and outcomes. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 161.\*Durand W, Lafage R, Hamilton DK, Passias P, Kim HJ, Protosaltis T, Lafage V, **Smith JS**, Shaffrey CI, Gupta M, Klineberg EO, Schwab F, Gum J, Mundis G, Eastlack R, Kebaish K, Soroceanu A, Hostin R, Burton DC, Bess S, Ames C, Hart R, Daniels A, ISSG. Low-density pedicle screw

- constructs are associated with lower incidence of proximal junctional failure in adult spinal deformity surgery. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 162.\*Klineberg EO, Lafage R, Lafage V, **Smith JS**, Shaffrey C, Mundis G, Kim HJ, Gupta M, Ames C, Passias, Protosaltis T, Burton DC, Schwab F, Bess S, ISSG. Complications following adult spinal deformity impact length of stay and are driven by intervention severity and can be predicted using a weighted score. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 163.\*Klineberg EO, Agatstein L, Lafage R, **Smith JS**, Shaffrey C, Mundis G, Kim HJ, Gupta M, Ames C, Passias, Protosaltis T, Burton DC, Schwab F, Bess S, Lafage V, ISSG. Neurologic complications following adult spinal deformity and impact on health-related quality of life measures. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 164.\*Passias P, Pierce K, Lafage R, Lafage V, Mundis G Gum J, Kebaish K, Eastlack R, Diebo B, **Smith JS**, Ames C, Shaffrey C, Burton DC, Hart R, Bess S, Schwab F, Gupta M, ISSG. The incremental clinical benefit of adding layers of complexity to the planning and execution of adult spinal deformity corrective surgery. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 165.\*Passias P, Pierce K, Lafage V, Lafage R, Protosaltis T, Diebo B, Mummaneni PV, Kebaish K, Ames C, **Smith JS**, Shaffrey C, Burton DC, Kelly MP, Hart R, Bess S, Schwab F, Gupta M, ISSG. Pelvic non-responders, postoperative cervical malalignment, and proximal junctional kyphosis following treatment of adult spinal deformity: influence of realignment strategies on occurrence. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 166.\*Protosaltis T, Soroceanu A, Mundis G, **Smith JS**, Gum J, Daniels A, Ames C, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, Klineberg EO, ISSG. Complications and outcomes in small vs large surgeries for ASD. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 167.\*Passias P, Pierce K, Lafage R, Lafage V, Hamilton DK, Mundis G, Kim HJ, Hostin R, Daniels A, Hart R, Burton DC, Shaffrey C, Schwab F, Ames C, **Smith JS**, Bess S, Klineberg EO, ISSG. When not to operate in spinal deformity: identifying subsets of patients with simultaneous clinical deterioration, major complications, and reoperation. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 168.\*Passias P, Pierce K, Lafage V, Lafage R, Line B, Hamilton DK, Uribe JS, Hostin R, Daniels A, Hart R, Burton DC, Shaffrey C, Schwab F, Ames C, **Smith JS**, Bess S, Klineberg EO, ISSG. Development of a modified frailty index for adult spinal deformities independent of functional changes following surgical correction; a true baseline risk assessment tool. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 169.\*Passias P, Naessig S, Lafage R, Lafage V, Diebo B, Protosaltis T, Kim HJ, Eastlack R, Soroceanu A, Klineberg EO, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames, ISSG. Predicting severe clinically relevant distal junctional kyphosis development following adult cervical deformity surgery with further distinction from mild asymptomatic episodes. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 170.\*Passias P, Pierce K, Lafage R, Lafage V, Klineberg EO, Daniels A, Kebaish K, Protosaltis T, Hostin R, Line B, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames C, ISSG. Patient specific cervical deformity corrections with consideration of risk: establishment of risk benefit thresholds for invasiveness based on deformity and frailty severity. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.

171. \*Passias P, Pierce K, Lafage R, Lafage V, Klineberg EO, Diebo B, Protosaltis T, Hamilton DK, Vira S, Line B, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames C, ISSG. At what point should the thoracolumbar region be addressed in patients undergoing corrective cervical deformity surgery? North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
172. Mundis G, Lafage R, Lafage V, Eastlack R, Klineberg EO, Passias P, Protosaltis T, Soroceanu A, Shaffrey C, **Smith JS**, Bess S, Kebaish K, Gupta M, Hostin R, Kelly MP, Kim HJ, ISSG. Should prior cervical fusions be considered during level selection in adult deformity surgery? North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
173. Pierce K, Passias P, Lafage R, Lafage V, Kim HJ, Daniels A, Eastlack R, Klineberg EO, Line B, Mummaneni PV, Protosaltis T, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith J**, Ames C, ISSG. Disparities in etiology, clinical presentation and determinants for distal junctional kyphosis based on time of occurrence: are we treating two separate issues? North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
174. \*Pierce K, Passias P, Lafage R, Lafage V, Protosaltis T, Kim HJ, Eastlack R, Daniels A, Hamilton DK, Soroceanu A, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames C, ISSG. Does patient frailty status influence recovery patterns and ultimate outcome following spinal fusion for cervical deformity? North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
175. \*Passias P, Ahmad W, Oh C, Lafage V, Lafage R, Hamilton DK, Protosaltis T, Klineberg EO, Gum J, Line B, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames, ISSG. Development of risk stratification predictive models for cervical deformity surgery. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
176. \*Ahmad W, Passias P, Lafage R, Lafage V, Line B, Mundis G, Eastlack R, Nunley P, Hamilton DK, Hart R, Burton DC, Shaffrey C, Schwab F, Ames C, **Smith JS**, Bess S, Klineberg EO, ISSG. Critical analysis of anterior/posterior staged vs same day surgery in patients undergoing identical corrective surgery for adult spinal deformity. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
177. \*Ahmad W, Passias P, Alas H, Lafage R, Lafage V, Line B, Daniels A, Hamilton DK, Hart R, Burton DC, Shaffrey C, Schwab F, Ames C, **Smith JS**, Bess S, Klineberg EO, Kim HJ, ISSG. Does baseline thoracolumbar shape influence patterns of cervical decompensation following surgical adult spinal deformity correction? North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
178. \*Joshi R, Serra-Burriel M, Pellise F, Lau D, **Smith JS**, Kelly MP, Alanay A, Acaroglu E, Perez-Grueso FJ, Kleinstuck FS, Obeid I, Burton DC, Lafage V, Schwab F, Shaffrey C, Bess S, Ames C, ESSG, ISSG. Use of predictive machine learning models at the population level has the potential to save cost by directing economic resources to those likely to improve most: a simulation analysis stratified by risk in largest combined US/European ASD registry. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
179. \*Jain A, McNeely E, Neuman B, Gum J, Bess S, Hostin R, Lafage V, Yeramaneni S, Klineberg EO, Lafage R, Gupta M, **Smith JS**, Burton DC, Passias P, Protosaltis T, Kebaish K, ISSG. Residual coronal malalignment results in less improvement in pain and disability after ASD surgery. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
180. \*Neuman B, Sachdev R, McNeely E, Klineberg EO, Passias P, Protosaltis T, **Smith JS**, Ames C, Bess S, Kebaish K, ISSG. Assessing the impact of surgical and patient factors on recovery kinetics after ASD surgery. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.

- 181.\*Ahmad W, Passias P, Lebovic J, Lafage V, Lafage R, Kebaish K, Kelly MP, Gum J, Line B, Hart R, Burton DC, **Smith JS**, Ames C, Shaffrey C, Schwab F, Hostin R, Bess S, ISSG. Cost-utility analysis of a combined approach for surgical correction of adult spinal deformity. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 182.\*Passias P, Ahmad W, Lafage V, Lafage R, Klineberg EO, Kebaish K, Gum J, Kelly MP, Line B, Hart R, Burton DC, **Smith JS**, Ames C, Shaffrey C, Schwab F, Hostin R, Bess S, ISSG. Economic burden of non-operative treatment of adult spinal deformity. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 183.\*Passias P, Naessig S, Pierce K, Lafage R, Lafage V, Eastlack R, Daniels A, Protopsaltis T, Klineberg EO, Mundis G, Hart R, Burton DC, Bess S, Schwab F, Shaffrey C, **Smith JS**, Ames C, ISSG. Establishment of an individualized distal junctional kyphosis risk index taking into account radiographic and surgical components. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 184.\*Hostin R, Yeramaneni S, Kebaish K, McNeely E, Gum J, Burton D, Ames C, **Smith JS**, Lafage V, Line B, Bess S, ISSG. Reaching minimal clinically important difference (MCID) is not predictive of improved cost-per QALY at two years in surgically treated adult spinal deformity patients. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 185.McNeely E, Neuman B, Sachdev R, Klineberg EO, **Smith JS**, Mundis G, Soroceanu A, Hostin R, Passias P, Protopsaltis T, Hamilton DK, Ames C, Kebaish K, ISSG. Assessing methods to prevent pseudarthrosis in ASD surgery of lesser magnitude. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 186.Yagi M, Ames C, Hosogane N, **Smith JS**, Shaffrey C, Schwab F, Lafage V, Matsumoto M, Bess S, Watanabe K, ISSG. Prevalence and surgical outcomes of primary severe sagittal plane deformity in adult spinal deformity: comparison between Japan and the United States. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 187.Passias P, Pierce K, Lafage R, Lafage V, Daniels A, Soroceanu A, Mundis G, Eastlack R, Kelly M, Protopsaltis T, Carreon L, Line B, Hart R, Burton D, Bess S, Shaffrey C, **Smith JS**, Ames C, ISSG. A combined anterior-posterior approach in select cervical deformity corrections has potential for superior cost effectiveness driven by outcomes. North American Spine Society. Virtual Meeting due to COVID-19. October 7-10, 2020.
- 188.\***Smith JS**, Kelly MP, Yanik EL, Baldus CR, Buell TJ, Lurie JD, Edwards C, Glassman SD, Lenke LG, Boachie-Adjei O, Buchowski JM, Carreon LY, Crawford CH III, Errico TJ, Lewis SJ, Koski T, Parent S, Lafage V, Kim HJ, Ames CP, Bess S, Schwab FJ, Shaffrey CI, Bridwell KH. Operative versus nonoperative treatment for adult symptomatic lumbar scoliosis at five-year follow-up: durability of outcomes and impact of treatment-related serious adverse events. Eurospine. Virtual Meeting due to COVID-19. October 7-9, 2020. (Nominated for Best Presentation Award)
- 189.\***Smith JS**, Ames C, Good C, Dahl B, Kraemer P, Gum J, Devito D, Brayda-Bruno M, Lee R, Bess C, Bess S. Accuracy of rod contouring to desired angles with and without a template: implications for achieving desired spinal alignment and outcomes. Eurospine. Virtual Meeting due to COVID-19. October 7-9, 2020.
- 190.\***Smith JS**, Buell TJ, Shaffrey CI, Kim HJ, Klineberg E, Protopsaltis T, Passias P, Mundis GM Jr, Eastlack R, Deviren V, Kelly M, Daniels A, Gum J, Soroceanu A, Gupta M, Burton D, Hostin R, Hart R, Lafage V, Lafage R, Schwab FJ, Bess S, Ames CP, ISSG. Prospective multicenter assessment of complication rates associated with adult cervical deformity surgery in 133 patients with minimum 1-year follow-up. Eurospine. Virtual Meeting due to COVID-19. October 7-9, 2020.

191. \*Buell TJ, **Smith JS**, Shaffrey CI, Kim HJ, Klineberg EO, Lafage V, Lafage R, Protopsaltis TS, Passias PG, Mundis GM, Eastlack RK, Deviren V, Kelly MP, Daniels AH, Gum JL, Soroceanu A, Hamilton DK, Gupta MC, Burton DC, Hostin RA, Kebaish KM, Hart RA, Schwab FJ, Bess S, Ames CP, ISSG. Demographic differences and health impact of severe global sagittal, coronal, and mixed spinal deformity in symptomatic adults. Eurospine. Virtual Meeting due to COVID-19. October 7-9, 2020.
192. \***Smith JS**, Kelly MP, Yanik EL, Baldus CR, Buell TJ, Lurie JD, Edwards C, Glassman SD, Lenke LG, Boachie-Adjei O, Buchowski JM, Carreon LY, Crawford CH III, Errico TJ, Lewis SJ, Koski T, Parent S, Lafage V, Kim HJ, Ames CP, Bess S, Schwab FJ, Shaffrey CI, Bridwell KH. Operative versus nonoperative treatment for adult symptomatic lumbar scoliosis at five-year follow-up: durability of outcomes and impact of treatment-related serious adverse events. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020. (Nominated for Hibbs Award for Best Clinical Abstract)
193. \*Joshi R, Serra-Burriel M, Pellise F, Lau D, **Smith JS**, Kelly MP, Alanay A, Acaroglu E, Perez-Grueso FJ, Kleinstuck FS, Obeid I, Burton DC, Lafage V, Schwab F, Shaffrey C, Bess S, Ames C, ESSG, ISSG. Use of predictive machine learning models at the population level has the potential to save cost by directing economic resources to those likely to improve most: a simulation analysis stratified by risk in largest combined US/European ASD registry. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
194. \*Ahmad W, Passias P, Lafage R, Lafage V, Line B, Mundis G, Eastlack R, Nunley P, Hamilton DK, Hart R, Burton DC, Shaffrey C, Schwab F, Ames C, **Smith JS**, Bess S, Klineberg EO, ISSG. Critical analysis of anterior/posterior staged vs same day surgery in patients undergoing identical corrective surgery for adult spinal deformity. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
195. \*Passias PG, Ahmad W, Lafage R, Lafage V, Kebaish K, Daniels A, Klineberg E, Soroceanu A, Gum J, Hart R, Burton D, **Smith JS**, Ames, Shaffrey C, Schwab F, Hostin R, Bess S, ISSG. The additional economic burden of frailty in adult spinal deformity patients undergoing surgical intervention. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
196. \*Passias P, Ahmad W, Segreto F, Lafage R, Lafage V, Soroceanu A, Daniels A, Gum J, Line B, Hart R, Burton D, **Smith JS**, Ames C, Shaffrey C, Schwab F, Hostin R, Bess S, ISSG. Identifying subsets of adult spinal deformity patients that maintained a positive response to non-operative management. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
197. \*Eastlack R, Soroceanu A, Mundis G, Daniels A, **Smith JS**, Line B, Passias P, Nunley P, Okonkwo D, Than K, Uribe JS, Mummaneni PV, Chou D, Kebaish K, Shaffrey C, Bess S, ISSG. Rates of loosening, failure, and revision of iliac fixation in adult deformity surgery. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
198. \*Passias P, Pierce K, Lafage R, Lafage V, Hamilton DK, Mundis G, Kim HJ, Hostin R, Daniels A, Hart R, Burton DC, Shaffrey C, Schwab F, Ames C, **Smith JS**, Bess S, Klineberg EO, ISSG. When not to operate in spinal deformity: identifying subsets of patients with simultaneous clinical deterioration, major complications, and reoperation. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
199. \*Line B, Bess S, Ames C, Eastlack R, Mundis G, Lafage V, Lafage R, Klineberg EO, Gupta M, Hostin R, Burton DC, Kelly MP, Kebaish K, Schwab F, Shaffrey CI, **Smith JS**, ISSG. Opioid use prior to adult spine deformity surgery worsens postoperative outcomes and risks continued postoperative use, independent of spine deformity magnitude and type of surgery performed; a propensity matched cohort analysis. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.

- 200.\*Ahmad W, Passias P, Lafage R, Lafage V, Klineberg EO, Kelly MP, Gum JL, Line BG, Yagi M, Hart R, Burton DC, **Smith JS**, Ames CP, Shaffrey CI, Schwab FJ, Hostin R, Bess S, ISSG. Recovery kinetics of post-operative opiate usage in adult spinal deformity corrective surgery: is there an optimal time frame for cessation? Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
- 201.\*Durand W, Lafage R, Hamilton DK, Passias P, Kim HJ, Protopsaltis T, Lafage V, **Smith JS**, Shaffrey CI, Gupta M, Klineberg EO, Schwab F, Gum J, Mundis G, Eastlack R, Kebaish K, Soroceanu A, Hostin R, Burton DC, Bess S, Ames C, Hart R, Daniels A, ISSG. Artificial intelligence clustering of adult spinal deformity morphology predicts surgical characteristics, alignment, and outcomes. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
- 202.\*Pellise F, Serra-Burriel M, Vila-Casademunt A, **Smith JS**, Obeid I, Burton DC, Kleinstuck FS, Bess S, Pizones J, Lafage V, Perez-Grueso JS, Schwab FJ, Gum JL, Klineberg E, Shaffrey CI, Alanay A, Ames CP. Quality metrics in adult spinal deformity surgery over the last decade: a combined analysis of the largest prospective multicentric datasets. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
- 203.\*Protopsaltis T, Balouch E, Schreiber-Stainthorp W, Eastlack R, **Smith JS**, Hamilton DK, Daniels A, Klineberg EO, Neuman B, Hart R, Bess S, Shaffrey CI, Schwab FJ, Lafage V, Ames CP. Failure mechanisms and revision strategies for DJK following cervical deformity correction. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
- 204.\*Soroceanu A, Protopsaltis T, Mundis G, **Smith JS**, Kelly MP, Daniels A, Klineberg EO, Ames C, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, Gupta M, ISSG. Low pelvic incidence patients are at high risk of over correction following ASD surgery. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
- 205.\*Zuckerman S, Cerpa M, Lenke L, Sardar Z, Vulapalli M, Leung E, Kelly MP, Shaffrey C, Qiu Y, Schwab F, Carreon L, Cheung K, Boachie-Adjei O, Ames CP, Pellise F, **Smith JS**, Matsuyama Y, Kebaish K. Patient-reported outcomes after complex adult spinal deformity surgery: 5-year follow-up results of the Scolio-Risk-1 study. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
- 206.\*Jain A, McNeely E, Neuman B, Gum J, Bess S, Hostin R, Lafage V, Yeramaneni S, Klineberg EO, Lafage R, Gupta M, **Smith JS**, Burton DC, Passias P, Protopsaltis T, Kebaish K, ISSG. Residual coronal malalignment results in less improvement in pain and disability after ASD surgery. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
- 207.\*Daniels A, Durand W, Steinbaum A, Lafage R, Hamilton DK, Passias P, Kim HJ, Protopsaltis TS, Lafage V, **Smith JS**, Shaffrey CI, Gupta M, Klineberg EO, Schwab F, Gum J, Mundis G, Eastlack R, Kebaish K, Soroceanu A, Hostin R, Burton DC, Bess S, Ames C, Hart R, ISSG. Examination of adult spinal deformity patients undergoing surgery with and without implanted spinal cord stimulators and intrathecal pumps. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
- 208.\*Lafage R, **Smith JS**, Ames CP, Passias PG, Shaffrey CI, Mundis GM, Protopsaltis T, Gupta M, Klineberg EO, Elysee J, Kim HJ, Bess S, Schwab FJ, Lafage V, ISSG. When can we expect global sagittal alignment to reach a stable value following cervical deformity surgery? Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.
- 209.\*Cerpa M, Zuckerman S, Lenke LG, Sardar Z, Leung E, Vulpalli M, Lombardi J, Pellise F, Kebaish K, **Smith JS**, Shaffrey C, Matsuyama Y, Carreon LY, Qiu Y, Cheung K, Kelly M, Ames CP, Schwab F, Boachie-Adjei O. Adverse events occurring up to 5-years after complex adult spinal deformity surgery: a Scolio-Risk-1 analysis. Scoliosis Research Society. Virtual Meeting due to COVID-19. September 9-12, 2020.

210. \*Yener U, Buell TJ, Wang TR, Buchholz AL, Yen CP, Shaffrey ME, Shaffrey CI, Smith JS. Sacral insufficiency fractures after lumbosacral arthrodesis: salvage lumbopelvic fixation and a proposed management algorithm. Virtual Banff Fellows Forum. May 14, 2020. (Selected for Best Oral Presentations Session)
211. \***Smith JS**, Buell TJ, Shaffrey CI, Kim HJ, Klineberg E, Protosaltis T, Passias P, Mundis GM Jr, Eastlack R, Deviren V, Kelly M, Daniels A, Gum J, Soroceanu A, Gupta M, Burton D, Hostin R, Hart R, Lafage V, Lafage R, Schwab FJ, Bess S, Ames CP, ISSG. Prospective multicenter assessment of complication rates associated with adult cervical deformity surgery in 133 patients with minimum 1-year follow-up. International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. March 29-April 5, 2020. (Nominated for Whitecloud Award for Best Clinical Abstract)
212. \*Protosaltis T, Ayres EW, Eastlack R, **Smith JS**, Hamilton DK, Daniels A, Klineberg EO, Neuman B, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, Ames C, ISSG. Spinopelvic alignment and successful outcomes following cervical deformity correction. International Meeting for Advanced Spine Techniques. Virtual Meeting due to COVID-19. March 29-April 5, 2020.
213. \*Passias P, Brown A, Diebo B, Lafage R, Burton D, Hart R, Kim HJ, Bess S, Protosaltis T, Shaffrey C, Eastlack R, Line B, Klineberg E, **Smith JS**, Ames C, Naessig S, Ahmad W, Pierce K, ISSG. The impact of postoperative neurologic complications on recovery kinetics in cervical deformity surgery. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020. (Selected for Best Abstracts session)
214. \*Virk S, Gupta M, Klineberg E, Schwab F, Kim HJ, Burton D, Passias P, Protosaltis T, **Smith JS**, Ames CP, Lafage R, Lafage V, ISSG. Defining an algorithm for treatment of severe cervical deformity using surgeon survey and treatment patterns. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
215. \*Passias P, Brown A, Diebo B, Lafage R, Lafage V, Ames C, Burton D, Anand N, Hart R, Mundis G, Neuman B, Line B, Shaffrey C, Klineberg E, **Smith JS**, Schwab F, Bess S, ISSG. A risk benefit analysis of increasing surgical invasiveness relative to frailty status in adult spinal deformity surgery. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
216. \*Passias P, Cole, Lafage R, Diebo B, Lafage V, Ames C, Burton D, Hart R, Gupta M, Sciubba D, Bess S, Hostin R, Shaffrey C, Line B, Klineberg E, **Smith JS**, Schwab F, ISSG. Comparing and contrasting the clinical utility of sagittal spine alignment classification frameworks: Roussouly vs SRS-Schwab. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
217. \*Pierce K, Passias P, Lafage R, Lafage V, Ames C, Burton D, Hart R, Hamilton DK, Kelly M, Hostin R, Bess S, Klineberg E, Line B, Shaffrey C, **Smith JS**, Schwab F, ISSG. Does patient frailty status influence recovery following spinal fusion for adult spine deformity? ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
218. \*Bannwarth M, **Smith JS**, Bess S, Klineberg E, Ames C, Hart R, Mundis G, Kim HJ, Lafage R, Gupta M, Burton D, Shaffrey C, Schwab F, Lafage V, ISSG. Evolution of adult spine deformity surgery practice patterns over the past decade has impacted the rates and types of complications. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
219. \*Protosaltis T, Ayres E, Soroceanu A, Mundis G, **Smith JS**, Kelly M, Daniels A, Klineberg E, Ames C, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, ISSG. The pelvic tilt response to ASD correction depends on PI, age, and alignment. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
220. \*Lafage R, **Smith JS**, Jonathan, Passias P, Bess S, Klineberg E, Kim HJ, Shaffrey C, Burton D, Hostin R, Mundis G, Ames C, Schwab F, Lafage V, ISSG. Comprehensive alignment planning for adult

- spinal deformity more effectively predicts surgical outcomes and proximal junctional kyphosis than previous classifications. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
- 221.\*Lafage R., Smith J, **Smith JS**, Passias P, Klineberg E, Kim HJ, Shaffrey C, Burton D, Gupta M, Mundis G, Ames CP, Bess S, Lafage V, ISSG. Objective realignment guidelines in corrective ASD surgery accounting for reciprocal truncal and pelvic compensation. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
- 222.\*Bannwarth M, **Smith JS**, Bess S, Klineberg E, Ames C, Hart R, Mundis G, Kim HJ, Lafage R, Gupta M, Burton D, Shaffrey C, Schwab F, Lafage V, ISSG. Use of BMP for adult spinal deformity surgery: patterns of usage and changes over the past decade. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
- 223.\*Virk S, Passias P, Lafage R, Klineberg E, Mundis G, Protopsaltis T, Shaffrey C, Bess S, Kim HJ, Ames C, Schwab F, **Smith JS**, Lafage V, ISSG. Intraoperative alignment goals for severe cervical deformity to achieve optimal improvements in health-related quality of life measures. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
- 224.\*Stekas N, Protopsaltis T, Ayres E, Mundis G, **Smith JS**, Hamilton DK, Klineberg E, Sciubba D, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, Ames C, ISSG. Towards a cervical deformity-specific outcome instrument: use of the patient-generated index to capture the disability of cervical deformity. ISASS Annual Meeting. San Juan, Puerto Rico. February 26-28, 2020.
- 225.\*Pratali RR, Daher MT, Romeiro CFWE, Amaral R, Cardoso IM, Jacob C Jr, Miller EK, **Smith JS**, Ames CP, Herrero CFPS. Adaptation and validation of the adult spinal deformity frailty index to the Brazilian population. International Spinal Deformity Symposium. New York City, NY. December 6-7, 2019.
- 226.\*Passias P, Brown A, Diebo B, Lafage R, Lafage V, Ames C, Burton D, Anand N, Hart R, Mundis G, Neuman B, Line B, Shaffrey C, Klineberg E, **Smith JS**, Schwab F, Bess S, ISSG. A risk benefit analysis of increasing surgical invasiveness relative to frailty status in adult spinal deformity surgery. International Spinal Deformity Symposium. New York City, NY. December 6-7, 2019.
- 227.\*Virk S, Passias P, Lafage R, Klineberg E, Mundis G, Protopsaltis T, Shaffrey C, Bess S, Kim HJ, Ames C, Schwab F, **Smith JS**, Lafage V, ISSG. Intraoperative alignment goals for severe cervical deformity to achieve optimal improvements in health-related quality of life measures. 47<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. New York City, NY. November 21-23, 2019.
- 228.\*Klineberg E, Lafage R, Mundis G, Eastlack R, Bess S, Burton D, Ames C, **Smith JS**, Shaffrey C, Schwab F, Passias P, Protopsaltis T, Gupta M, Lafage V, ISSG. Pre-operative extension lateral cervical radiographs are associated with osteotomy type, approach and post-operative cervical alignment following cervical deformity surgery. 47<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. New York City, NY. November 21-23, 2019.
- 229.Protopsaltis T, Woo D, Segar A, Lafage R, Mundis G, **Smith JS**, Klineberg E, Passias P, Bess S, Shaffrey C, Schwab F, Lafage V, Ames CP, ISSG. Simulated correction of cervical deformity using in-construct measures demonstrate insufficient corrections result in DJK. 47<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. New York City, NY. November 21-23, 2019.
- 230.\*Walker CT, Kim HJ, Park P, Lenke L, **Smith JS**, Sciubba DM, Wang MY, Shaffrey CI, Deviren V, Mummaneni PV, Than KD, Eastlack R, Mundis GM, Kanter AS, Okonkwo DO, Shin JH, Koski TR, Glassman SD, Daniels AH, Turner JD, Uribe JS. Neuroanesthesia guidelines for optimizing transcranial motor evoked potentials neuromonitoring during deformity and complex spinal surgery: a Delphi consensus study. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2019.



231. \*Scheer JK, Lenke LG, **Smith JS**, Passias P, Kim HJ, Bess S, Protosaltis T, Burton D, Klineberg E, Lafage V, Schwab F, Shaffrey C, Ames C, ISSG. Outcomes of surgical treatment for 138 patients with severe sagittal deformity at a minimum 2-year follow-up. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2019.
232. Passias P, Brown A, Lafage R, Lafage V, Ames C, Burton D, Gum J, Hart R, Hostin R, Kebaish K, Neuman B, Bess S, Line B, Shaffrey C, **Smith JS**, Schwab F, Klineberg E, ISSG. Increasing cost efficiency in adult spinal deformity surgery: identifying predictors of lower total costs. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2019.
233. *Buell TJ, Chen CJ*, Buchholz A, Shaffrey M, Yen CP, Shaffrey C, Smith JS. Surgical correction of severe adult lumbar scoliosis (major curves >75 degrees): retrospective analysis with minimum 2-year follow-up. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2019.
234. *Buell TJ*, Yen CP, Shaffrey C, Smith JS. Coronal correction using kickstand rods for adult thoracolumbar/lumbar scoliosis: case series with analysis of early outcomes and complications. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2019.
235. \*Durand WM, Daniels AH, Hamilton DK, Passias P, Kim HJ, Protosaltis T, Lafage V, Lafage R, **Smith JS**, Shaffrey C, Gupta M, Klineberg E, Schwab F, Burton D, Bess S, Ames C, Hart RA, ISSG. A data-driven approach to assessment of sagittal alignment defining the spino-pelvic ratio's impact on clinical outcomes in adult spinal deformity patients. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
236. \*Bess S, Line B, Kelly M, Gum J, Hostin R, Kebaish K, Ames C, Burton D, Mundis G, Eastlack R, Hart R, Gupta M, Klineberg E, Kim HJ, Lafage V, Schwab F, Shaffrey C, **Smith JS**, ISSG. Preoperative opioid therapy poorly controls pain in non-revision adult spinal deformity and increases risk for chronic postoperative opioid usage. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
237. Daniels AH, Durand WM, Hamilton DK, Passias P, Kim HJ, Protosaltis T, Lafage V, **Smith JS**, Shaffrey C, Kelly M, Gupta M, Klineberg E, Schwab F, Burton D, Bess S, Ames C, Hart R, ISSG. Sexual dysfunction due to lumbar stiffness is not diminished following adult spinal deformity surgery. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
238. \*Bess S, Line B, Ames C, Burton D, Hostin R, Mundis G, Eastlack R, Hart R, Gupta M, Kelly M, Lafage V, Klineberg E, Kebaish K, Kim HJ, Schwab F, Shaffrey C, **Smith JS**, ISSG. Operative treatment for thoracic adult Scheuermann kyphosis: preoperative disability and surgical outcomes. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
239. \*Durand WM, Daniels AH, Hamilton DK, Passias P, Kim HJ, Protosaltis T, Lafage V, Smith JS, Shaffrey C, Gupta M, Klineberg E, Schwab F, Kelly M, Burton D, Bess S, Ames C, Hart R, ISS. Machine learning models to predict operative versus nonoperative management of adult spinal deformity patients. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
240. \*Passias P, Brown A, Lafage R, Lafage V, Ames C, Burton D, Gum J, Hart R, Hostin R, Kebaish K, Neuman B, Bess S, Line B, Shaffrey C, **Smith JS**, Schwab F, Klineberg E, ISSG. Increasing cost efficiency in adult spinal deformity surgery: identifying predictors of lower total costs. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
241. \*Passias P, Brown A, Diebo B, Lafage R, Lafage V, Ames C, Burton D, Anand N, Hart R, Mundis G, Neuman B, Line B, Shaffrey C, Klineberg E, **Smith JS**, Schwab F, Bess S, ISSG. A risk benefit analysis of increasing surgical invasiveness relative to frailty status in adult spinal deformity surgery. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.

- 242.\*Passias P, Brown A, Diebo B, Lafage R, Lafage V, Burton D, Gum J, Klineberg E, Line B, Soroceanu A, Mundis G, Protosaltis T, Hart R, Bess S, Schwab F, Eastlack R, **Smith JS**, Ames C, Shaffrey C, ISSG. Increasing surgical invasiveness relative to frailty status in cervical deformity surgery: a risk benefit analysis. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 243.\*Passias P, Brown A, Diebo B, Lafage R, Lafage V, Burton D, Hart R, Kim HJ, Bess S, Protosaltis T, Chou D, Shaffrey C, Schwab F, Eastlack R, Line B, Klineberg E, Smith JS, Ames C, ISSG. The impact of post-operative neurologic complications on recovery kinetics in cervical deformity surgery. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 244.\*Passias P, Alas H, Lafage R, Sciubba D, Line B, Klineberg E, Hamilton DK, Lafage V, Burton D, Hart R, Bess S, Gum J, Daniels A, Kim HJ, Protosaltis T, Shaffrey C, Schwab F, **Smith JS**, Ames C, ISSG. Defining symptomatic vs radiographic distal junctional kyphosis after cervical deformity-corrective surgery. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 245.\*Pierce K, Passias P, Lafage R, Chou D, Burton D, Line B, Klineberg E, Hart R, Gum J, Daniels A, Hamilton DK, Bess S, Protosaltis T, Shaffrey C, Schwab F, Scheer J, **Smith JS**, Lafage V, Ames C, ISSG. Prioritization of realignment associated with superior clinical outcomes for surgical cervical deformity patients. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 246.\*Pierce K, Passias P, Lafage R, Lafage V, Burton D, Hart R, Hamilton DK, Gum J, Scheer J, Daniels A, Bess S, Soroceanu A, Klineberg E, Shaffrey C, Line B, Schwab F, **Smith JS**, Ames C, ISSG. Predictors of superior recovery kinetics in adult cervical deformity correction: an analysis using a novel area under the curve methodology. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 247.\*Passias P, Pierce K, Lafage R, Lafage V, Line B, Klineberg E, Burton D, Hart R, Daniels A, Gum J, Hamilton DK, Kim HJ, Bess S, Protosaltis T, Eastlack R, Shaffrey C, Schwab F, **Smith JS**, Ames C, ISSG. Redefining cervical spine deformity classification through novel cut-offs: an assessment of the relationship between radiographic parameters and functional neurological outcomes. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 248.\*Passias P, Alas H, Lafage R, Diebo D, Ames C, Park P, Than K, Daniels A, Hamilton DK, Burton D, Hart R, Bess S, Line B, Klineberg E, **Smith JS**, Schwab F, Lafage V, ISSG. Global spinal deformity from the upper cervical perspective. What is “abnormal” in the upper cervical spine? 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 249.\*Passias P, Cole, Lafage R, Diebo B, Lafage V, Ames C, Burton D, Hart R, Gupta M, Sciubba D, Bess S, Hostin R, Shaffrey C, Line B, Klineberg E, **Smith JS**, Schwab F, ISSG. Comparing and contrasting the clinical utility of sagittal spine alignment classification frameworks: Roussouly vs SRS-Schwab. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 250.\*Scheer JK, Lenke LG, **Smith JS**, Passias P, Kim HJ, Bess S, Protosaltis T, Burton D, Klineberg E, Lafage V, Schwab F, Shaffrey C, Ames C, ISSG. Outcomes of surgical treatment for 138 patients with severe sagittal deformity at a minimum 2-year follow-up. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 251.\***Smith JS**, Shaffrey C, Baldus C, Kelly M, Yanik E, Lurie J, Edwards C, Glassman S, Lenke L, Boachie-Adjei O, Buchowski J, Carreon L, Gum J, Crawford C, Errico T, Lewis S, Koski T, Parent S, Kim HJ, Ames C, Bess S, Schwab F, Bridwell KH. Adult symptomatic lumbar scoliosis patients have high orthopedic disease burden beyond their spinal deformities: results from a prospective multicenter

- study. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 252.\*Bess S, Line B, Kelly M, Baldus C, Ames C, Burton D, Yanik E, Eastlack R, Gupta M, Klineberg E, Kebaish K, Kim HJ, Gum J, Hostin R, Lafage V, Mundis G, Schwab F, Shaffrey C, **Smith JS**, Bridwell KH, ISSG. Preop opioid use is associated with worse postop outcomes and chronic opioid use in non-revision adult scoliosis patients: corroboration of two independent multi-center studies. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 253.Kim HJ, Jingyan, **Smith JS**, Gupta M, Passias P, Gum J, Bess S, Ames C, Shaffrey C, Klineberg E, Lafage R, Schwab F, Lafage V, ISSG. Are we better at preventing PJK today? A comparison of incidence 5-7 years later. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 254.\*Bannwarth M, **Smith JS**, Bess S, Klineberg E, Ames C, Hart R, Mundis G, Kim HJ, Lafage R, Gupta M, Burton D, Shaffrey C, Schwab F, Lafage V, ISSG. Use of BMP for adult spinal deformity surgery: patterns of usage and changes over the past decade. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 255.Bannwarth M, **Smith JS**, Bess S, Klineberg E, Ames C, Hart R, Mundis G, Kim HJ, Lafage R, Gupta M, Burton D, Shaffrey C, Schwab F, Lafage V, ISSG. Evolution of adult spine deformity surgery practice patterns over the past decade has impacted the rates and types of complications. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 256.\*Kim HJ, Bannwarth M, **Smith JS**, Klineberg E, Mundis G, Protosaltis T, Elysee, Bess S, Shaffrey C, Passias P, Schwab F, Ames C, Lafage V, ISSG. Upper thoracic versus mid-thoracic lower instrumented endpoints have similar radiographic and clinical outcomes in cervical deformity patients. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 257.\*Klineberg E, Lafage R, Mundis G, Eastlack R, Bess S, Burton D, Ames C, **Smith JS**, Shaffrey C, Schwab F, Passias P, Protosaltis T, Gupta M, Lafage V, ISSG. Pre-operative extension lateral cervical radiographs are associated with osteotomy type, approach and post-operative cervical alignment following cervical deformity surgery. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 258.\*Virk S, Passias P, Lafage R, Klineberg E, Mundis G, Protosaltis T, Shaffrey C, Bess S, Kim HJ, Ames C, Schwab F, **Smith JS**, Lafage V, ISSG. Intraoperative alignment goals for severe cervical deformity to achieve optimal improvements in health-related quality of life measures. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 259.Lafage R., Smith J, **Smith JS**, Passias P, Klineberg E, Kim HJ, Shaffrey C, Burton D, Gupta M, Mundis G, Ames CP, Bess S, Lafage V, ISSG. Objective realignment guidelines in corrective ASD surgery accounting for reciprocal truncal and pelvic compensation. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 260.\*Gum JL, Serra M, Line B, Protosaltis T, Soroceanu A, Hostin R, Passias P, Kelly M, Burton D, **Smith JS**, Shaffrey C, Lafage V, Lafage R, Klineberg E, Kim HJ, Harris A, Kebaish K, Schwab F, Bess S, Ames C, ISSG. Giving patients the info they want: practical answers to FAQs for shared decision making in ASD surgery. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
- 261.\*Lafage R, **Smith JS**, Jonathan, Passias P, Bess S, Klineberg E, Kim HJ, Shaffrey C, Burton D, Hostin R, Mundis G, Ames C, Schwab F, Lafage V, ISSG. Comprehensive alignment planning for adult spinal deformity more effectively predicts surgical outcomes and proximal junctional kyphosis than previous classifications. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.

262. Gum JL, Serra M, Line B, Protopsaltis T, Soroceanu A, Hostin R, Passias P, Kelly M, Burton D, **Smith JS**, Shaffrey C, Lafage V, Klineberg E, Kim HJ, Harris A, Kebaish K, Schwab F, Bess S, Ames C, ISSG. Predicting ASD surgeries that exceed Medicare allowable payment thresholds: a comparison of hospital costs to what the government will actually pay. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
263. \*Protopsaltis T, Ayres E, Eastlack R, **Smith JS**, Hamilton DK, Daniels A, Klineberg E, Neuman B, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, Ames C, ISSG. Spinopelvic alignment and successful outcomes following correction of severe cervical deformity. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
264. \*Stekas N, Protopsaltis T, Ayres E, Mundis G, **Smith JS**, Hamilton DK, Klineberg E, Sciubba D, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, Ames C, ISSG. Towards a cervical deformity-specific outcome instrument: use of the patient-generated index to capture the disability of cervical deformity. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
265. \*Ayres E, Protopsaltis T, Lafage R, Mundis G, **Smith JS**, Hamilton DK, Klineberg E, Sciubba D, Hart R, Bess S, Shaffrey C, Schwab FJ, Lafage V, Ames C, ISSG. Predicting the magnitude of DJK following cervical deformity correction. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
266. Protopsaltis T, Woo D, Segar A, Lafage R, Mundis G, **Smith JS**, Klineberg E, Passias P, Bess S, Shaffrey C, Schwab F, Lafage V, Ames CP, ISSG. Simulated correction of cervical deformity using in-construct measures demonstrate insufficient corrections result in DJK. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
267. \*Protopsaltis T, Ayres E, Soroceanu A, Mundis G, **Smith JS**, Kelly M, Daniels A, Klineberg E, Ames C, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, ISSG. The pelvic tilt response to ASD correction depends on PI, age, and alignment. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
268. \*Protopsaltis T, Ayres E, Soroceanu A, Mundis G, **Smith JS**, Gum J, Daniels A, Klineberg E, Ames C, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, ISSG. PI and age-optimal alignment within the fusion in ASD surgery improves outcomes and minimizes failures. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
269. \*Gupta M, Burton D, Line B, Hostin R, Daniels A, Gum J, Hamilton DK, Soroceanu A, Kelly M, Park P, Uribe J, Naobumi, Bess S, **Smith JS**, Shaffrey C, Kebaish K, Hart B, ISSG. Opioid prescribing practices among adult spinal deformity surgeons: where are we in 2018? 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
270. Scheer J, Pellise F, Shaffrey C, **Smith JS**, Klineberg E, Bess S, Passias P, Protopsaltis T, Burton DC, Lafage V, Schwab F, Serra M, Ames C, ISSG. Predicative modeling for pseudarthrosis performance benchmarking in 404 patients with a minimum 2-year follow-up. 48<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. September 25-28, 2019.
271. \*Yagi M, Ames C, Hosogane N, **Smith JS**, Shaffrey CI, Schwab F, Lafage V, Matsumoto M, Bess S, Watanabe K, ISSG. Lower satisfaction after adult spinal deformity surgery in Japan compared with the US despite similar SRS-22 pain and function scores: a propensity score matched analysis. 54<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
272. \*Bess S, Line B, Kelly M, Gum J, Hostin R, Kebaish K, Ames C, Burton D, Mundis G, Eastlack R, Hart R, Gupta M, Klineberg E, Kim HJ, Lafage V, Schwab F, Shaffrey C, **Smith JS**, ISSG. Preoperative opioid therapy poorly controls pain in non-revision adult spinal deformity and increases

- risk for chronic postoperative opioid usage. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 273.\*Passias P, Brown A, Lafage R, Lafage V, Ames C, Burton D, Gum J, Hart R, Hostin R, Kebaish K, Neuman B, Bess S, Line B, Shaffrey C, **Smith JS**, Schwab F, Klineberg E, ISSG. Increasing cost efficiency in adult spinal deformity surgery: identifying predictors of lower total costs. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 274.Passias P, Brown A, Diebo B, Lafage R, Lafage V, Ames C, Burton D, Anand N, Hart R, Mundis G, Neuman B, Line B, Shaffrey C, Klineberg E, **Smith JS**, Schwab F, Bess S, ISSG. A risk benefit analysis of increasing surgical invasiveness relative to frailty status in adult spinal deformity surgery. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 275.\*Passias P, Alas H, Bess S, Line B, Lafage V, Lafage R, Ames C, Burton D, Kelly M, Hostin R, Kebaish K, Than K, Hart R, Shaffrey C, Klineberg E, **Smith JS**, Schwab F, ISSG. Patient-related and radiographic predictors of inferior health-related quality of life measures in non-operative adult spinal deformity patients. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 276.\*Passias P, Cole, Lafage R, Diebo B, Lafage V, Ames C, Burton D, Hart R, Gupta M, Sciubba D, Bess S, Hostin R, Shaffrey C, Line B, Klineberg E, **Smith JS**, Schwab F, ISSG. Comparing and contrasting the clinical utility of sagittal spine alignment classification frameworks: Roussouly vs SRS-Schwab. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 277.\*Scheer JK, Lenke LG, **Smith JS**, Passias P, Kim HJ, Bess S, Protosaltis T, Burton D, Klineberg E, Lafage V, Schwab F, Shaffrey C, Ames C, ISSG. Outcomes of surgical treatment for 138 patients with severe sagittal deformity at a minimum 2-year follow-up. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 278.\*Bess S, Line B, Kelly M, Baldus C, Ames C, Burton D, Yanik E, Eastlack R, Gupta M, Klineberg E, Kebaish K, Kim HJ, Gum J, Hostin R, Lafage V, Mundis G, Schwab F, Shaffrey C, **Smith JS**, Bridwell KH, ISSG. Preop opioid use is associated with worse postop outcomes and chronic opioid use in non-revision adult scoliosis patients: corroboration of two independent multi-center studies. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 279.\*Kim HJ, Jingyan, **Smith JS**, Gupta M, Passias P, Gum J, Bess S, Ames C, Shaffrey C, Klineberg E, Lafage R, Schwab F, Lafage V, ISSG. Are we better at preventing PJK today? A comparison of incidence 5-7 years later. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 280.\*Gupta M, Lafage R, Dafrawy M, Klineberg E, **Smith JS**, Bess S, Shaffrey C, Passias P, Protosaltis T, Burton D, Hart R, Hostin R, Kim HJ, Ames C, Schwab F, Lafage V, ISSG. Multiple rod construct and PSO: a survival analysis with minimum 2-yr follow-up. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 281.Kim HJ, Lafage R, Bess S, **Smith JS**, Kleinberg E, Ames C, Shaffrey C, Burton D, Gupta M, Mundis G, Hostin R, Schwab F, Lafage V, ISSG. Risk factors for surgical site infection in adult spinal deformity: as in-depth analysis in 1190 surgical cases with floral distribution. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 282.Klineberg E, Lafage R, Kelly M, Kim HJ, Gupta M, Bess S, Burton D, Ames C, **Smith JS**, Shaffrey C, Schwab F, Passias P, Protosaltis T, Lafage, ISSG. Comprehensive complication classification for adult spinal deformity: intervention severity and impact on length of stay. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.

- 283.\*Klineberg E, Lafage R, Gupta M, Hart R, Mundis G, Bess S, Burton D, Ames C, **Smith JS**, Shaffrey C, Schwab F, Passias P, Protosaltis T, Lafage V, ISSG. Comprehensive complication classification for adult spinal deformity: complication timing and the impact on outcomes at 2 years. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 284.\*Lafage R, **Smith JS**, Jonathan, Passias P, Bess S, Klineberg E, Kim HJ, Shaffrey C, Burton D, Hostin R, Mundis G, Ames C, Schwab F, Lafage V, ISSG. Comprehensive alignment planning for adult spinal deformity more effectively predicts surgical outcomes and proximal junctional kyphosis than previous classifications. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 285.\*Gum JL, Serra M, Line B, Protosaltis T, Soroceanu A, Hostin R, Passias P, Kelly M, Burton D, **Smith JS**, Shaffrey C, Lafage V, Klineberg E, Kim HJ, Harris A, Kebaish K, Schwab F, Bess S, Ames C, ISSG. Predicting ASD surgeries that exceed Medicare allowable payment thresholds: a comparison of hospital costs to what the government will actually pay. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 286.\*Eastlack R, Nguyen S, Soroceanu A, Passias P, Protosaltis T, **Smith JS**, Klineberg E, Lafage V, Hamilton DK, Kim HJ, Mundis G, Shaffrey C, Ames C, ISSG. Are posterior osteotomies warranted when managing mild flexible cervical deformity? 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 287.\*Eastlack R, Nguyen S, Soroceanu A, Passias P, Protosaltis T, **Smith JS**, Klineberg E, Lafage V, Hamilton DK, Kim HJ, Mundis G, Shaffrey C, Ames CP, ISSG. Are posterior osteotomies warranted when managing mild flexible cervical deformity? 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 288.\*Pellise F, Serra-Burriel M, **Smith JS**, Haddad S, Kelly MP, Vila-Casademunt A, Perez-Gruesso FJS, Bess S, Gum JL, Burton DC, Acaroglu ER, Kleinstuck FS, Lafage V, Obeid I, Schwab F, Shaffrey C, Alanay A, Ames C, ISSG, ESSG. Development and expanded validation of an individualized preoperative predictive risk calculator for major complications following adult spinal deformity surgery. A step toward improved shared decision making in a value-driven economy. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 289.Ames C, **Smith JS**, Pellise F, Kelly MP, Alanay A, Acaroglu E, Perez-Gruesso FJS, Kleinstuck FS, Obeid I, Vila-Casademunt A, Burton DC, Lafage V, Schwab F, Shaffrey C, Bess S, Serra-Burriel M, ESSG, ISSG. Artificial intelligence-based adult spinal deformity risk-benefit classification: hierarchical clustering of 1245 patients and surgeries with machine-based learning and simplified decision trees. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 290.\*Pellise F, Serra-Burriel M, **Smith JS**, Haddad S, Kelly MP, Vila-Casademunt A, Perez-Gruesso FJS, Bess S, Gum JL, Burton DC, Acaroglu ER, Kleinstuck FS, Lafage V, Obeid I, Schwab F, Shaffrey C, Alanay A, Ames C, ISSG, ESSG. Predictive risk calculators for unplanned readmissions and reoperations following adult spinal deformity surgery. 54th Annual Meeting of the Scoliosis Research Society. Montreal, Canada. September 18-21, 2019.
- 291.Durand WM, Daniels AH, Restrepo MI, Stey PC, Sarkar IN, Hamilton DK, Passias P, Protosaltis T, Lafage V, **Smith JS**, Shaffrey C, Klineberg E, Schwab F, Burton D, Bess S, Ames C, Hart RA, ISSG. Neural network utilization for the automated extraction of Schwab modifiers from plain radiographs in adult spinal deformity patients. 26<sup>th</sup> Annual Meeting of the International Meeting for Advanced Spine Techniques. Amsterdam, The Netherlands. July 17-20, 2019.
- 292.\*Durand WM, Daniels AH, Hamilton DK, Passias P, Kim HJ, Protosaltis T, Lafage V, Smith JS, Shaffrey C, Gupta M, Klineberg E, Schwab F, Kelly M, Burton D, Bess S, Ames C, Hart R, ISS. Machine learning models to predict operative versus nonoperative management of adult spinal

- deformity patients. 26<sup>th</sup> Annual Meeting of the International Meeting for Advanced Spine Techniques. Amsterdam, The Netherlands. July 17-20, 2019.
- 293.\*Pierce K, Passias P, Lafage R, Lafage V, Ames C, Burton D, Hart R, Hamilton DK, Kelly M, Hostin R, Bess S, Klineberg E, Line B, Shaffrey C, **Smith JS**, Schwab F, ISSG. Does patient frailty status influence recovery following spinal fusion for adult spine deformity? 26<sup>th</sup> Annual Meeting of the International Meeting for Advanced Spine Techniques. Amsterdam, The Netherlands. July 17-20, 2019.
- 294.\*Stekas N, Protopsaltis T, Ayres E, Mundis G, **Smith JS**, Hamilton DK, Klineberg E, Sciubba D, Hart R, Bess S, Shaffrey C, Schwab F, Lafage V, Ames C, ISSG. Towards a cervical deformity-specific outcome instrument: use of the patient-generated index to capture the disability of cervical deformity. 26<sup>th</sup> Annual Meeting of the International Meeting for Advanced Spine Techniques. Amsterdam, The Netherlands. July 17-20, 2019.
- 295.Ames C, Serra-Burriel M, **Smith JS**, Kelly MP, Alanay A, Acaroglu E, Sanchez Perez-Grueso FJ, Kleinstuck F, Obeid I, Lafage V, Schwab FJ, Shaffrey CI, Burton DC, Bess S, Pellisé F, ISSG, ESSG. Utilization of artificial intelligence based hierarchical cluster analysis of patient baseline characteristics and surgical invasiveness provides novel insights on 2-yr outcomes and complications through pattern recognition. 10<sup>th</sup> Annual Meeting of the Global Spine Congress. Toronto, Canada. May 15-18, 2019.
- 296.Serra-Burriel M, Pellise F, Kelly MP, **Smith JS**, Gum J, Alanay A, Acaroglu E, Sanchez Perez-Grueso FJ, Kleinstuck F, Obeid I, Lafage V, Schwab FJ, Shaffrey CI, Burton DC, Bess S, Ames CP, ESSG, ISSG. Development of a preoperative computer models which accurately predict answers to all individual questions on SRS-22 at 2 year follow up: a step towards individualized medicine. 10<sup>th</sup> Annual Meeting of the Global Spine Congress. Toronto, Canada. May 15-18, 2019.
- 297.Serra-Burriel M, Kelly MP, **Smith JS**, Gum J, Alanay A, Acaroglu E, Sanchez Perez-Grueso FJ, Kleinstuck F, Obeid I, Lafage V, Schwab FJ, Shaffrey CI, Burton DC, Bess S, Ames CP, ESSG, ISSG. Development of deployable predictive models for MCID of 2 year outcomes across all commonly used HRQOL instruments in adult spinal deformity surgery: results in 570 patients from 17 hospitals. 10<sup>th</sup> Annual Meeting of the Global Spine Congress. Toronto, Canada. May 15-18, 2019.
- 298.\*Pellise F, Serra-Burriel M, Haddad S, Vila-Casademunt A, Sanchez Perez-Grueso FJ, Bess S, Acaroglu E, **Smith JS**, Kleinstuck F, Lafage V, Obeid I, Schwab FJ, Shaffrey CI, Alanay Ames CP, ISSG, ESSG. Successful creation of deployable preoperative predictive risk calculators for individual patient event-free survivorship for major complications, hospital readmissions and unplanned surgery following adult spinal deformity surgery. 10<sup>th</sup> Annual Meeting of the Global Spine Congress. Toronto, Canada. May 15-18, 2019.
- 299.\*Ames C, Serra-Burriel M, **Smith JS**, Gum J, Kelly MP, Pellise F, Alanay A, Acaroglu E, Sanchez Perez-Grueso FJ, Kleinstuck F, Obeid I, Yermaneni S, Hostin R, Zygorakis C, Lafage V, Schwab FJ, Shaffrey CI, Burton DC, Bess S, ESSG, ISSG. Preoperative prediction of cost and catastrophic cost in adult spine deformity surgery: feasibility analysis of predictive analytics to establish 90 day bundled payments. 10<sup>th</sup> Annual Meeting of the Global Spine Congress. Toronto, Canada. May 15-18, 2019.
- 300.\*Wilson JRF, Jiang F, Dahl B, **Smith JS**, Cheung KM, Carreon L, Shaffrey C, Lewis S, Lenke L, Fehlings M. Effect of tobacco smoking on implant failure rate and risk of intra-operative bleeding: analysis of 270 patients from the prospective, multicenter SCOLI-RISK-1 study of complex adult spinal deformity surgery. 10<sup>th</sup> Annual Meeting of the Global Spine Congress. Toronto, Canada. May 15-18, 2019.
- 301.\*Murthy SG, Buell TJ, Chen CJ, Nguyen JH, Christiansen PA, Buchholz AL, Yen CP, Shaffrey ME, Shaffrey CI, **Smith JS**. Surgical correction of severe adult lumbar scoliosis (major curves  $\geq 75^\circ$ ):

- retrospective analysis with minimum 2-year follow-up. 17<sup>th</sup> Annual AOSpine North America Fellows Forum. Banff Springs, Alberta, Canada. March 28-30, 2019
- 302.\*Agarwal N, Angriman F, Goldschmidt E, Kanter AS, Okonkwo DO, Daniels AH, Passias PG, Protosaltis T, Lafage V, Lafage R, Schwab F, Bess S, Ames CP, **Smith JS**, Shaffrey CI, Burton DC, Hamilton DK. Association of body mass index, sagittal vertical axis change, and health-related quality of life outcomes following adult deformity surgery. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Miami, FL. March 14-17, 2019.
- 303.\*Passias PG, Bortz C, Lafage R, **Smith JS**, Line BG, Mundis GM, Kelly MP, Brown A, Pierce K, Alas H, Park P, Sciubba DM, Hamilton DK, Gum JL, Burton DC, Hart RA, Schwab F, Bess S, Shaffrey CI, Klineberg E, ISSG. Grading of complications following cervical deformity-corrective surgery: are existing classification systems applicable? Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Miami, FL. March 14-17, 2019.
- 304.\*Passias P, Horn S, Soroceanu A, Oh C, Ailon T, Neuman B, Lafage V, Lafage R, **Smith JS**, Line B, Eastlack R, Protosaltis T, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Development of a Novel Cervical Deformity Surgical Invasiveness Index. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Miami, FL. March 14-17, 2019.
- 305.\*Passias P, Frangella N, Lafage R, Lafage V, **Smith JS**, Line B, Hamilton DK, Diebo B, Kebaish K, Segreto F, Soroceanu A, Gum J, Gupta M, Klineberg E, Burton D, Hart R, Ames C, Bess S, Shaffrey C, Schwab F, ISSG. Reciprocal Changes of Mild and Severe Cases of Proximal Junctional Kyphosis After Lumbo-pelvic Spinal Fusions. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Miami, FL. March 14-17, 2019.
- 306.\*Segreto F, Passias P, Lafage V, Lafage R, **Smith JS**, Line B, Diebo B, Kelly M, Mundis G, Protosaltis T, Soroceanu A, Kim HJ, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. The Influence of Surgical Intervention and Sagittal Alignment on Frailty Status in Cervical Deformity Patients. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Miami, FL. March 14-17, 2019.
- 307.\*Passias P, Segreto F, Lafage R, **Smith JS**, Line B, Uribe J, Diebo B, Hamilton DK, Eastlack R, Gum J, Gupta M, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, Lafage V, ISSG. Is Frailty responsive to Surgical Correction of Adult Spinal Deformity? An Investigation of Sagittal Re-alignment and Frailty Component Drivers. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Miami, FL. March 14-17, 2019.
- 308.\*Segreto F, Passias P, Lafage R, Lafage V, **Smith JS**, Line B, Mundis G, Nunley P, Daniels A, Gupta M, Gum J, Hamilton DK, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Incidence of Acute, Progressive, and Delayed Proximal Junctional Kyphosis over an 8-Year Period in Adult Spinal Deformity Patients. Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Miami, FL. March 14-17, 2019.
- 309.\*Passias P, Bortz C, Lafage V, Lafage R, **Smith JS**, Line B, Eastlack R, Horn S, Segreto F, Riew D, Sciubba D, Klineberg E, Soroceanu A, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Limited Morbidity and Radiographic Benefit of C2 vs Subaxial Cervical Upper-Most Instrumented Vertebrae. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
- 310.\*Segreto FA, Lafage V, Lafage R, **Smith JS**, Line BG, Scheer JK, Chou D, Frangella NJ, Bortz CA, Diebo BG, Protosaltis TS, Kim HJ, Ames CP, Passias PG, ISSG. Recovery kinetics: comparison of patients undergoing primary or revision procedures for adult cervical deformity using a novel area under the curve methodology. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.



- 311.\*Protopsaltis T, Stekas N, **Smith JS**, Soroceanu A, Lafage R, Daniels A, Kim HJ, Passias P, Mundis G, Klineberg E, Hamilton DK, Gupta M, Lafage V, Hart R, Schwab F, Burton D, Bess S, Shaffrey C, Ames C, ISSG. Successful Clinical Outcomes Following Surgery for Severe Cervical Deformity are Dependent upon Achieving Sufficient Cervical Sagittal Alignment. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
- 312.\*Horn SR, Passias PG, Lafage R, Lafage V, Hassanzadeh H, Horowitz JA, Bortz CA, Segreto FA **Smith JS**, Sciubba DM, Daniels AH, Shaffrey CI, Hostin RA, Ames CP, ISSG. Cost-utility of revisions for cervical deformity correction warrants minimization of reoperations. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
- 313.\*Passias P, Horn S, Soroceanu A, Oh C, Ailon T, Neuman B, Lafage V, Lafage R, **Smith JS**, Line B, Eastlack R, Protopsaltis T, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Development of a Novel Cervical Deformity Surgical Invasiveness Index. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
- 314.\*Protopsaltis T, Stekas N, **Smith JS**, Soroceanu A, Lafage R, Daniels A, Kim HJ, Passias P, Mundis G, Klineberg E, Hamilton DK, Gupta M, Lafage V, Hart R, Schwab F, Burton D, Bess S, Shaffrey C, Ames C, ISSG. Surgical Outcomes in Rigid versus Flexible Cervical Deformities. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
- 315.\*Passias PG, Horn SR, Lafage V, Lafage R, **Smith JS**, Protopsaltis TS, Bortz CA, Segreto FA, Daniels AH, Sciubba DM, Hart RA, Bess S, Shaffrey CI, Ames CP, ISSG. Predicting the occurrence of post-operative distal junctional kyphosis in cervical deformity patients. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
- 316.\*Carlson B, Lafage R, Pannu TS, Passias P, Ames CP, Hart RA, Shaffrey CI, Mundis G, Protopsaltis T, Gupta M, Klineberg E, Burton D, **Smith JS**, Lafage V, Kin HJ. A comparison of three different positioning techniques on surgical corrections and post-operative alignment in cervical deformity surgery. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
- 317.Segreto F, Passias P, Lafage V, Lafage R, **Smith JS**, Line B, Diebo B, Kelly M, Mundis G, Protopsaltis T, Soroceanu A, Kim HJ, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. The Influence of Surgical Intervention and Sagittal Alignment on Frailty Status in Cervical Deformity Patients. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
- 318.Passias P, Segreto F, Lafage R, Lafage V, **Smith JS**, Line B, Scheer J, Mundis G, Hamilton DK, Kim HJ, Diebo B, Gupta M, Klineberg E, Burton D, Hart R, Schwab F, Shaffrey C, Ames C, Bess S, ISSG. Recovery Kinetics following Spinal Deformity Correction: A Comparison of Isolated Cervical, Thoracolumbar, and Combined Deformity Morphometries. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
- 319.Kim HJ, Lafage R, Elysee J, Shaffrey C, Burton D, Ames C, Mundis G, Hostin R, Bess S, Klineberg E, **Smith JS**, Passias P, Schwab F, Lafage V, ISSG. Cervical, Thoracic and Spinopelvic Compensation after Proximal Junctional Kyphosis – Does Location of PJK Matter? Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
- 320.Passias P, Horn S, Lafage R, Lafage V, **Smith JS**, Line B, Vira S, Mundis G, Diebo B, Bortz C, Segreto F, Protopsaltis T, Kim HJ, Daniels A, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Risk Benefit Assessment of Major Versus Minor Osteotomies for Flexible and Rigid Cervical Deformity Correction. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.

321. Horn S, Passias P, Oh C, Lafage V, Lafage R, **Smith JS**, Line B, Anand N, Bortz C, Eastlack R, Deviren V, Daniels A, Kim HJ, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Predicting the Combined Occurrence of Poor Clinical and Radiographic Outcomes Following Cervical Deformity Corrective Surgery. Cervical Spine Research Society 46<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 6-8, 2018.
322. \***Smith JS**, Shaffrey C, Kelly M, Yanik E, Lurie J, Baldus C, Edwards C, Glassman S, Lenke L, Boachie-Adjei O, Buchowski J, Carreon L, Crawford C, Errico T, Lewis S, Koski T, Parent S, Kim HJ, Bess S, Schwab F, Bridwell K. Impact of Serious Adverse Events on Health-Related Quality of Life Measures Following Surgery for Adult Symptomatic Lumbar Scoliosis. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
323. \*Bess S, Ming X, Lafage V, Haid R, Schwab F, Shaffrey C, **Smith JS**, ISSG. Tether Constructs Used to Prevent Proximal Junctional Kyphosis (PJK) Should Incorporate the UIV+1 and UIV+2; A Finite Element Analysis (FEA). 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
324. \*Bess S, Line B, Lafage R, Lafage V, Ames C, Burton D, Hostin R, Mundis G, Eastlack R, Hart R, Gupta M, Kelly M, Klineberg E, Kebaish K, Kim HJ, Schwab F, Shaffrey C, **Smith JS**, ISSG. Effective Prevention of Proximal Junctional Failure (PJF) in Adult Spinal Deformity (ASD) Surgery Requires a Combination of Surgical Implant Prophylaxis and Avoidance of Overcorrection of Age Adjusted Sagittal Parameters. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
325. \*Passias P, Horn S, Soroceanu A, Oh C, Ailon T, Neuman B, Lafage V, Lafage R, **Smith JS**, Line B, Eastlack R, Protosaltis T, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Development of a Novel Cervical Deformity Surgical Invasiveness Index. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
326. \*Bortz C, Passias P, Lafage V, Lafage R, **Smith JS**, Line B, Mundis G, Kebaish K, Kelly M, Protosaltis T, Sciubba D, Soroceanu A, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Indicators for Non-Routine Discharge Following Cervical Deformity-Corrective Surgery: Radiographic, Surgical, and Patient-related Predictors. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
327. \*Segreto F, Passias P, Lafage V, Lafage R, **Smith JS**, Line B, Eastlack R, Scheer J, Chou D, Frangella N, Neuman B, Protosaltis T, Kim HJ, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Postoperative Recovery Kinetics: A Comparison of Primary and Revision Surgeries. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
328. Passias P, Bortz C, Lafage R, **Smith JS**, Line B, Mundis G, Gupta M, Gum J, Horn S, Segreto F, Sciubba D, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, Lafage V, ISSG. The Consequence of Non-Operative Management in Adult Spinal Deformity: Long-Term Durability of Alignment in Non-Operative Adult Spinal Deformity Treatment Relative to Those Undergoing Correction. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
329. Segreto F, Passias P, Lafage R, **Smith JS**, Line B, Diebo B, Hamilton DK, Mundis G, Hostin R, Gum J, Gupta M, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, Lafage V, ISSG. The Influence of Optimizable Patient Factors on Baseline Frailty in Adult Spinal Deformity. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
330. \*Daniels A, Line B, Passias P, Kim HJ, Protosaltis T, **Smith JS**, Shaffrey C, Reid D, Hamilton DK, Gupta M, Klineberg E, Schwab F, Burton D, Bess S, Ames C, Lafage V, Hart R, ISSG. Unaltered Upper Instrumented Vertebra Reduces Risk of Proximal Junctional Failure Following Surgery for

- Adult Spinal Deformity. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
- 331.\*Passias P, Segreto F, Oh C, Lafage V, Lafage R, **Smith JS**, Daniels A, Line B, Kim HJ, Uribe J, Eastlack R, Hamilton DK, Klineberg E, Burton D, Hart R, Schwab F, Shaffrey C, Ames C, Bess S, ISSG. Probability of Severe Frailty Development among Operative and Non-Operative Adult Spinal Deformity Patients: An Actuarial Survivorship Analysis over a 3-Year Period. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
- 332.\*Neuman B, Raad M, Sciubba D, Passias P, Klineberg E, Hassanzadeh H, Protopsaltis T, Gupta M, Mundis G, Ames C, Gum J, **Smith JS**, Lafage V, Bess S, Kebaish K, ISSG. The Impact of Surgical Invasiveness and Patient Factors on Long Term Opioid Use in ASD Surgery. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
- 333.\*Kim HJ, Lafage R, Elysee J, Shaffrey C, Burton D, Ames C, Mundis G, Hostin R, Bess S, Klineberg E, **Smith JS**, Passias P, Schwab F, Lafage V, ISSG. Cervical, Thoracic and Spinopelvic Compensation after Proximal Junctional Kyphosis – Does Location of PJK Matter? 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
- 334.Serra-Burriel M, Kelly M, **Smith JS**, Gum J, Pellise F, Alanay A, Acaroglu E, Perez-Gruoso J, Kleinstuck F, Obeid I, Lafage V, Schwab F, Shaffrey C, Burton D, Bess S, Ames C, ESSG, ISSG. Development of Preoperative Computer Models which Accurately Predict Answers to all Individual Questions on SRS-22 at 2 year follow up: A Step Towards Individualized Medicine. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
- 335.Serra-Burriel M, **Smith JS**, Gum J, Kelly M, Pellise F, Alanay A, Acaroglu E, Perez-Gruoso J, Kleinstuck F, Obeid I, Yermaneni S, Hostin R, Zygorakis C, Lafage V, Schwab F, Shaffrey C, Burton D, Bess S, Ames C, ESSG, ISSG. Preoperative Prediction of Cost and Catastrophic Cost (CC) in Adult Spine Deformity (ASD) Surgery: Feasibility Analysis of Predictive Analytics to Establish 90 Day Bundled Payments. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
- 336.\*Klineberg E, Lafage V, Soroceanu A, Pellise F, **Smith JS**, Shaffrey C, Gum J, Protopsaltis T, Schwab F, Pannu T, De Kleuver M, Ames C, Bess S, Lenke L, Berven S, ISSG. Preliminary Review of an ISSG AO Multi-Domain Spinal Deformity Complication Classification System. 53<sup>rd</sup> Annual Meeting of the Scoliosis Research Society. Bologna, Italy. October 8-14, 2018.
- 337.Passias PG, Bortz C, Lafage V, Lafage R, Smith JS, Line BG, Eastlack R, Gupta MC, Hostin RA, Horn SR, Sciubba DM, Gum JL, Kebaish K, Klineberg E, Burton DC, Schwab F, Shaffrey CI, Ames CP, ISSG. Congress of Neurological Surgeons. Houston, TX. October 6-10, 2018.
- 338.Bess S, Line B, Ames C, Lafage R, Lafage V, Burton D, Hostin R, Mundis G, Eastlack R, Hart R, Gupta M, Kelly M, Klineberg E, Kebaish K, Kim HJ, Schwab F, Shaffrey C, **Smith JS**, ISSG. Patient Frailty is an Important Contributor to Disability in Adult Spinal Deformity (ASD): Rationale for Routine Frailty and Alignment Assessment. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 339.\*Yagi M, Ames C, Hosogane N, **Smith JS**, Shaffrey C, Schwab F, Lafage V, Matsumoto M, Bess S, Watanabe K, ISSG. Comparison of the Incidence and Risk Factors for Proximal Junctional Failure (PJF) in Surgically Treated Patients with Adult Spinal Deformity (ASD) between Patients from Japan and the United States: Series of 509 Patients with 2-Year Follow-Up. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 340.Passias P, Bortz C, Lafage V, Lafage R, **Smith JS**, Line B, Eastlack R, Horn S, Segreto F, Riew D, Sciubba D, Klineberg E, Soroceanu A, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Limited Morbidity and Radiographic Benefit of C2 vs Subaxial Cervical Upper-Most

- Instrumented Vertebrae. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
341. Passias P, Horn S, Soroceanu A, Oh C, Ailon T, Neuman B, Lafage V, Lafage R, **Smith JS**, Line B, Eastlack R, Protosaltis T, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Development of a Novel Cervical Deformity Surgical Invasiveness Index. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
342. \*Bortz C, Passias P, Lafage V, Lafage R, **Smith JS**, Line B, Mundis G, Kebaish K, Kelly M, Protosaltis T, Sciubba D, Soroceanu A, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Indicators for Non-Routine Discharge Following Cervical Deformity-Corrective Surgery: Radiographic, Surgical, and Patient-related Predictors. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
343. \*Segreto F, Passias P, Lafage V, Lafage R, **Smith JS**, Line B, Diebo B, Kelly M, Mundis G, Protosaltis T, Soroceanu A, Kim HJ, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. The Influence of Surgical Intervention and Sagittal Alignment on Frailty Status in Cervical Deformity Patients. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
344. Bortz C, Passias P, Lafage V, Lafage R, **Smith JS**, Line B, Mundis G, Kelly M, Park P, Sciubba D, Hamilton DK, Gum J, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Klineberg E, ISSG. Grading of Complications Following Cervical Deformity-Corrective Surgery: Are Existing Classification Systems Applicable? 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
345. \*Passias P, Segreto F, Bortz C, Lafage V, Lafage R, **Smith JS**, Line B, Kim HJ, Eastlack R, Hamilton DK, Protosaltis T, Hostin R, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Development of a Modified Cervical Deformity Frailty Index: A Streamlined Clinical Tool for Preoperative Risk Stratification. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
346. Passias P, Segreto F, Lafage V, Lafage R, **Smith JS**, Line B, Bortz C, Horn S, Klineberg E, Neuman B, Kim HJ, Kelly M, Diebo B, Vira S, Burton D, Hart R, Schwab F, Bess S, Hockley A, Shaffrey C, Ames C, ISSG. Effect of Cervical Deformity Correction on Stenosis, Spinal Canal and Cord Compression utilizing Magnetic Resonance and Computed Tomography Imaging Modalities. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
347. \*Horn S, Passias P, Oh C, Lafage V, Lafage R, **Smith JS**, Line B, Anand N, Bortz C, Eastlack R, Deviren V, Daniels A, Kim HJ, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Predicting the Combined Occurrence of Poor Clinical and Radiographic Outcomes Following Cervical Deformity Corrective Surgery. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
348. \*Passias P, Bortz C, Lafage R, **Smith JS**, Line B, Mundis G, Gupta M, Gum J, Horn S, Segreto F, Sciubba D, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, Lafage V, ISSG. The Consequence of Non-Operative Management in Adult Spinal Deformity: Long-Term Durability of Alignment in Non-Operative Adult Spinal Deformity Treatment Relative to Those Undergoing Correction. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
349. Passias P, Segreto F, Oh C, Lafage V, Lafage R, **Smith JS**, Daniels A, Line B, Kim HJ, Uribe J, Eastlack R, Hamilton DK, Klineberg E, Burton D, Hart R, Schwab F, Shaffrey C, Ames C, Bess S, ISSG. Probability of Severe Frailty Development among Operative and Non-Operative Adult Spinal Deformity Patients: An Actuarial Survivorship Analysis over a 3-Year Period. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.

- 350.\*Passias P, Bortz C, Lafage V, Lafage R, **Smith JS**, Line B, Eastlack R, Gupta M, Hostin R, Horn S, Sciubba D, Gum J, Kebaish K, Klineberg E, Burton D, Hart R, Schwab F, Shaffrey C, Ames C, Bess S, ISSG. Durability of Satisfactory Functional Outcomes Following Surgical Adult Spinal Deformity Correction: A 3-Year Survivorship Analysis. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 351.\*Passias P, Segreto F, Lafage R, **Smith JS**, Line B, Uribe J, Diebo B, Hamilton DK, Eastlack R, Gum J, Gupta M, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, Lafage V, ISSG. Is Frailty responsive to Surgical Correction of Adult Spinal Deformity? An Investigation of Sagittal Re-alignment and Frailty Component Drivers. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 352.\*Segreto F, Passias P, Lafage R, Lafage V, **Smith JS**, Line B, Mundis G, Nunley P, Daniels A, Gupta M, Gum J, Hamilton DK, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Incidence of Acute, Progressive, and Delayed Proximal Junctional Kyphosis over an 8-Year Period in Adult Spinal Deformity Patients. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 353.\*Passias P, Frangella N, Lafage R, Lafage V, **Smith JS**, Line B, Hamilton DK, Diebo B, Kebaish K, Segreto F, Soroceanu A, Gum J, Gupta M, Klineberg E, Burton D, Hart R, Ames C, Bess S, Shaffrey C, Schwab F, ISSG. Reciprocal Changes of Mild and Severe Cases of Proximal Junctional Kyphosis After Lumbo-pelvic Spinal Fusions. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 354.\*Daniels A, Line B, Passias P, Kim HJ, Protosaltis T, **Smith JS**, Shaffrey C, Reid D, Hamilton DK, Gupta M, Klineberg E, Schwab F, Burton D, Bess S, Ames C, Lafage V, Hart R, ISSG. Unaltered Upper Instrumented Vertebra Reduces Risk of Proximal Junctional Failure Following Surgery for Adult Spinal Deformity. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 355.\*Daniels A, Durand W, Hamilton DK, Passias P, Kim HJ, Protosaltis T, Lafage V, **Smith JS**, Shaffrey C, Gupta M, Klineberg E, Schwab F, Burton D, Bess S, Ames C, Hart R, ISSG. Rod Fracture Following Apparently Solid Radiographic Fusion in Adult Spinal Deformity Patients. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 356.\**Nguyen JH, Buell T, Mazur MD, Garces J, Mullin JP, Smith JS*, Shaffrey CI, Yen CP, Wang TR. Complications after spinopelvic fixation with iliac screws in 260 adult patients with 2-year minimum follow-up. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 357.*Buell T*, Taylor DG, *Chen CJ, Mullin JP, Mazur MD*, Yen CP, Shaffrey ME, Shaffrey CI, Smith JS, Naik BI. ROTEM-guided transfusion during pedicle subtraction osteotomy for adult spinal deformity: a propensity score-matched cohort analysis. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 358.*Buell TJ, Nguyen JH, Mazur MD, Mullin JP, Garces J, Taylor DG*, Yen CP, Shaffrey CI, **Smith JS**. Extended pedicle subtraction osteotomy for correction of fixed sagittal imbalance in patients with adult spinal deformity: complications and radiographic outcomes after 2-year minimum follow-up. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 359.\*Neuman B, Raad M, Sciubba D, Passias P, Klineberg E, Hassanzadeh H, Protosaltis T, Gupta M, Mundis G, Ames C, Gum J, **Smith JS**, Lafage V, Bess S, Kebaish K, ISSG. The Impact of Surgical Invasiveness and Patient Factors on Long Term Opioid Use in ASD Surgery. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.

- 360.\*Lafage R, Jingyan Y, Schwab F, Kim HJ, **Smith JS**, Shaffrey C, Burton D, Ames C, Mundis G, Hostin R, Bess S, Klineberg E, Passias P, Lafage V, ISSG. Depression Symptoms Are Associated with Poor Functional Status among Operative Spinal Deformity Patients. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 361.\*Eastlack R, Mundis G, Nguyen S, Soroceanu A, Passias P, Protopsaltis T, **Smith JS**, Klineberg E, Lafage V, Hamilton DK, Kim HJ, Ames C, ISSG. Anterior Reconstruction Provides Better Outcomes when Correcting Mild Flexible Cervical Deformity. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018. (Selected as a NASS Best Paper)
- 362.\*Lee SH, Raad M, Neuman B, Gupta M, Hassanzadeh H, Lafage V, Passias P, Shaffrey C, Protopsaltis T, Hamilton DK, **Smith JS**, Klineberg E, Gum J, Bess S, Hostin R, Ames C, Kebaish K, ISSG. The C5-T3 Angle: A Novel Parameter of the Cervicothoracic Junction. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 363.\*Kim HJ, Lafage R, Elysee J, Shaffrey C, Burton D, Ames C, Mundis G, Hostin R, Bess S, Klineberg E, **Smith JS**, Passias P, Schwab F, Lafage V, ISSG. Cervical, Thoracic and Spinopelvic Compensation after Proximal Junctional Kyphosis – Does Location of PJK Matter? 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 364.\*Protopsaltis T, Stekas N, Lafage R, **Smith JS**, Soroceanu A, Sciubba D, Hamilton DK, Eastlack R, Mundis G, Kebaish K, Klineberg E, Gupta M, Lafage V, Hart R, Schwab F, Burton D, Bess S, Shaffrey C, Ames C, ISSG. Can We Define Clinically Relevant DJK in Cervical Deformity Surgery? 25<sup>th</sup> Annual International Meeting for Advanced Spine Techniques. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 365.\*Stekas N, Protopsaltis T, **Smith JS**, Soroceanu A, Lafage R, Neuman B, Kim HJ, Passias P, Mundis G, Klineberg E, Hamilton DK, Gupta M, Lafage V, Hart R, Schwab F, Burton D, Bess S, Shaffrey C, Ames C, ISSG. Can Post-operative cSVA, C2 Slope and T1 Slope be Predicted Accurately in Cervical Deformity Surgery? 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 366.\*Protopsaltis T, Stekas N, **Smith JS**, Soroceanu A, Lafage R, Daniels A, Kim HJ, Passias P, Mundis G, Klineberg E, Hamilton DK, Gupta M, Lafage V, Hart R, Schwab F, Burton D, Bess S, Shaffrey C, Ames C, ISSG. Surgical Outcomes in Rigid versus Flexible Cervical Deformities. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 367.\*Protopsaltis T, Stekas N, **Smith JS**, Soroceanu A, Lafage R, Daniels A, Kim HJ, Passias P, Mundis G, Klineberg E, Hamilton DK, Gupta M, Lafage V, Hart R, Schwab F, Burton D, Bess S, Shaffrey C, Ames C, ISSG. Successful Clinical Outcomes Following Surgery for Severe Cervical Deformity are Dependent Upon Achieving Sufficient Cervical Sagittal Alignment. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 368.Jingyan Y, Khalif M, Lafage R, Schwab F, Kim HJ, Gum J, Shaffrey C, Burton D, Ames C, Mundis G, Hostin R, Bess S, Klineberg E, **Smith JS**, Lafage V, ISSG. What Factors Predict the Development of Proximal Junctional Kyphosis Requiring Revision Surgery Over Time, Demographic, Surgical or Radiographic? Results from a Time-dependent ROC Curve. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 369.\*Ames C, Pellise F, **Smith JS**, Kelly M, Alanay A, Acaroglu E, Perez-Gruoso J, Kleinstuck F, Obeid I, Lafage V, Schwab F, Shaffrey C, Burton D, Bess S, Serra-Burriel M, ESSG, ISSG. Utilization of Artificial Intelligence Based Hierarchical Cluster Analysis of Patient Baseline Characteristics and Surgical Invasiveness Provides Novel Insights on 2-yr Outcomes and Complications through Pattern Recognition. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.

- 370.\*Serra-Burriel M, Kelly M, **Smith JS**, Gum J, Pellise F, Alanay A, Acaroglu E, Perez-Grueso J, Kleinstuck F, Obeid I, Lafage V, Schwab F, Shaffrey C, Burton D, Bess S, Ames C, ESSG, ISSG. Development of Deployable Predictive Models for MCID of 2 year Outcomes Across All Commonly Used HRQOL Instruments in Adult Spinal Deformity Surgery: Results in 570 Patients from 17 Hospitals. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 371.\*Serra-Burriel M, **Smith JS**, Gum J, Kelly M, Pellise F, Alanay A, Acaroglu E, Perez-Grueso J, Kleinstuck F, Obeid I, Yeramani S, Hostin R, Zygourakis C, Lafage V, Schwab F, Shaffrey C, Burton D, Bess S, Ames C, ESSG, ISSG. Preoperative Prediction of Cost and Catastrophic Cost (CC) in Adult Spine Deformity (ASD) Surgery: Feasibility Analysis of Predictive Analytics to Establish 90 Day Bundled Payments. 33<sup>rd</sup> Annual Meeting of the North American Spine Society. Los Angeles, CA. September 26-29, 2018.
- 372.\*Serra-Burriel M, **Smith JS**, Gum JL, Kelly MP, Pellise F, Alanay A, Acaroglu EM, Sanchez Perez-Grueso FJ, Kleinstuck FS, Obeid I, Yeramani S, Hostin R, Zygourakis C, Lafage V, Schwab FJ, Burton DC, Bess S, Ames CP, ESSG, ISSG. Preoperative Prediction of Cost and Catastrophic Cost in Adult Spine Deformity Surgery: Feasibility Analysis of Predictive Analytics to Establish 90-Day Bundled Payments. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 373.\*Serra-Burriel M, Kelly M, **Smith JS**, Gum J, Pellise F, Alanay A, Acaroglu E, Perez-Grueso J, Kleinstuck F, Obeid I, Lafage V, Schwab F, Shaffrey C, Burton D, Bess S, Ames C, ESSG, ISSG. Development of Deployable Predictive Models for MCID of 2-Year Outcomes Across All Commonly Used HRQOL Instruments in Adult Spinal Deformity Surgery: Results in 570 Patients from 17 Hospitals. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 374.\*Haddad S, Serra-Burriel M, Vila-Casademunt A, Sanchez-Perez-Grueso FJ, Bess S, Acaroglu ER, **Smith JS**, Kleinstuck FS, Lafage V, Obeid I, Schwab F, Shaffrey CI, Alanay A, Ames CP, Pellise F, ISSG, ESSG. Successful Creation of Deployable Preoperative Predictive Risk Calculators for Individual Patient Event-Free Survivorship for Major Complications, Hospital Readmissions and Unplanned Surgery Following Adult Spinal Deformity Surgery. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 375.\**Buell T, Nguyen J, Mazur M, Mullin J, Garces J, Taylor D, Yen CP, Shaffrey M, Shaffrey C, Smith JS.* Radiographic Outcome and Complications after Single-Level Lumbar Extended Pedicle Subtraction Osteotomy for Fixed Global Sagittal Malalignment: A Retrospective Analysis of 55 Adult Spinal Deformity Patients with Minimum 2-Year Follow-Up. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 376.\*Passias P, Bortz C, Segreto F, Horn S, Lafage V, **Smith JS**, Line B, Mundis G, Kebaish K, Kelly M, Protopsaltis T, Sciubba D, Soroceanu A, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Indicators for Non-Routine Discharge Following Cervical Deformity-Corrective Surgery: Radiographic, Surgical, and Patient-related Predictors. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 377.\*Passias P, Horn S, Lafage R, Lafage V, **Smith JS**, Line B, Vira S, Mundis G, Diebo B, Bortz C, Segreto F, Protopsaltis T, Kim HJ, Daniels A, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Risk Benefit Assessment of Major Versus Minor Osteotomies for Flexible and Rigid Cervical Deformity Correction. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 378.\**Buell T, Taylor D, Chen CJ, Mullin J, Mazur M, Yen CP, Shaffrey M, Smith JS, Shaffrey C, Naik B.* ROTEM-Guided Transfusion During Pedicle Subtraction Osteotomy for Adult Spinal Deformity: A Propensity Score-Matched Cohort Analysis. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.

- 379.\**Nguyen JH, Buell T, Mazur MD, Garces J, Mullin JP, Smith JS, Shaffrey CI, Yen CP, Wang TR.* Complications after spinopelvic fixation with iliac screws in 260 adult patients with 2-year minimum follow-up. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 380.\**Passias P, Segreto F, Horn S, Bortz C, Oh C, Lafage V, Lafage R, Smith JS, Daniels A, Line B, ISSG.* Probability of Severe Frailty Development among Operative and Non-Operative Adult Spinal Deformity Patients: An Actuarial Survivorship Analysis over a 3-Year Period. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 381.\***Smith JS**, Shaffrey C, Kelly M, Baldus C, Lenke L, Lewis S, Parent S, Bess S, Schwab F, Bridwell K, ASLS. Impact of Serious Adverse Events on Health-Related Quality of Life Measures Following Surgery for Adult Symptomatic Lumbar Scoliosis. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018. (Recipient of Best Podium Presentation from >500 submissions).
- 382.\**Protosaltis T, Stekas N, Smith JS, Soroceanu A, Lafage R, Daniels A, Kim HJ, Passias P, Mundis G, Klineberg E, Hamilton DK, Gupta M, Lafage V, Hart R, Schwab F, Burton D, Bess S, Shaffrey C, Ames C, ISSG.* Successful Clinical Outcomes Following Surgery for Severe Cervical Deformity are Dependent Upon Achieving Sufficient Cervical Sagittal Alignment. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 383.\**Serra-Burriel M, Kelly M, Smith JS, Gum J, Pellise F, Alanay A, Acaroglu E, Perez-Gruoso J, Kleinstuck F, Obeid I, Lafage V, Schwab F, Shaffrey C, Burton D, Bess S, Ames C, ESSG, ISSG.* Development of Preoperative Computer Models which Accurately Predict Answers to all Individual Questions on SRS-22 at 2 year follow up: A Step Towards Individualized Medicine. Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 384.\**Protosaltis T, Stekas N, Lafage R, Smith JS, Soroceanu A, Sciubba D, Hamilton DK, Eastlack R, Mundis G, Kebaish K, Klineberg E, Gupta M, Lafage V, Hart R, Schwab F, Burton D, Bess S, Shaffrey C, Ames C, ISSG.* Can We Define Clinically Relevant DJK in Cervical Deformity Surgery? Eurospine Annual Meeting. Barcelona, Spain. September 19-21, 2018.
- 385.\**Passias P, Segreto F, Lafage R, Lafage V, Smith JS, Line B, Scheer J, Mundis G, Hamilton DK, Kim HJ, Diebo B, Gupta M, Klineberg E, Burton D, Hart R, Schwab F, Shaffrey C, Ames C, Bess S, ISSG.* Recovery Kinetics following Spinal Deformity Correction: A Comparison of Isolated Cervical, Thoracolumbar, and Combined Deformity Morphometries. 25<sup>th</sup> Annual International Meeting for Advanced Spine Techniques. Los Angeles, CA. July 11-14, 2018.
- 386.\**Segreto F, Passias P, Lafage R, Lafage V, Smith JS, Line B, Mundis G, Nunley P, Daniels A, Gupta M, Gum J, Hamilton DK, Klineberg E, Burton D, Hart R, Schwab F, Bess S, Shaffrey C, Ames C, ISSG.* 25<sup>th</sup> Annual International Meeting for Advanced Spine Techniques. Los Angeles, CA. July 11-14, 2018.
- 387.\**Daniels A, Durand W, Hamilton DK, Passias P, Kim HJ, Protosaltis T, Lafage V, Smith JS, Shaffrey C, Gupta M, Klineberg E, Schwab F, Burton D, Bess S, Ames C, Hart R, ISSG.* Rod Fracture Following Apparently Solid Radiographic Fusion in Adult Spinal Deformity Patients. 25<sup>th</sup> Annual International Meeting for Advanced Spine Techniques. Los Angeles, CA. July 11-14, 2018.
- 388.\**Neuman B, Raad M, Sciubba D, Passias P, Klineberg E, Hassanzadeh H, Protosaltis T, Gupta M, Mundis G, Ames C, Gum J, Smith JS, Lafage V, Bess S, Kebaish K, ISSG.* A Comparative Analysis of Young vs Older Adult Spinal Deformity Patients Fused to the Pelvis: Who Benefits More? 25<sup>th</sup> Annual International Meeting for Advanced Spine Techniques. Los Angeles, CA. July 11-14, 2018.
- 389.\**Gum J, Yermaneni S, Raad M, Hostin R, Kelly M, Lafage V, Smith JS, Passias P, Kebaish K, Shaffrey C, Burton D, Ames C, Schwab F, Bess S, ISSG.* Improvement in SRS-22r Self-Image and Activity Correlate Most with Patient Satisfaction after 3-Column Osteotomy. 25<sup>th</sup> Annual International Meeting for Advanced Spine Techniques. Los Angeles, CA. July 11-14, 2018.



- 390.\*Nguyen JH, Buell T, Mazur MD, Garces J, Mullin JP, **Smith JS**, Shaffrey CI, Yen CP, Wang TR. Complications after spinopelvic fixation with iliac screws in 260 adult patients with 2-year minimum follow-up. 25<sup>th</sup> Annual International Meeting for Advanced Spine Techniques. Los Angeles, CA. July 11-14, 2018.
- 391.\*Protopsaltis T, Stekas N, Lafage R, **Smith JS**, Soroceanu A, Sciubba D, Hamilton DK, Eastlack R, Mundis G, Kebaish K, Klineberg E, Gupta M, Lafage V, Hart R, Schwab F, Burton D, Bess S, Shaffrey C, Ames C, ISSG. Can We Define Clinically Relevant DJK in Cervical Deformity Surgery? 25<sup>th</sup> Annual International Meeting for Advanced Spine Techniques. Los Angeles, CA. July 11-14, 2018. (Nominated for White Cloud Award)
- 392.\*Serra-Burriel M, Kelly M, **Smith JS**, Gum J, Pellise F, Alanay A, Acaroglu E, Perez-Grueso J, Kleinstuck F, Obeid I, Lafage V, Schwab F, Shaffrey C, Burton D, Bess S, Ames C, ESSG, ISSG. Development of Deployable Predictive Models for MCID of 2 year Outcomes Across All Commonly Used HRQOL Instruments in Adult Spinal Deformity Surgery: Results in 570 Patients from 17 Hospitals. 25<sup>th</sup> Annual International Meeting for Advanced Spine Techniques. Los Angeles, CA. July 11-14, 2018.
- 393.*Mullin JP, Nguyen JH, **Smith JS**, Shaffrey CI.* Complications after spinopelvic fixation with iliac screws. 16<sup>th</sup> Annual AOSpine North America Fellows Forum. Banff Springs, Alberta, Canada. March 22-24, 2018.
- 394.*Mazur MD, Buell TJ, Nguyen JH, Mullin JP, Garces J, Taylor DG, Yen CP, Shaffrey CI, **Smith JS**.* Extended pedicle subtraction osteotomy for correction of fixed sagittal imbalance in patients with adult spinal deformity: complications and radiographic outcomes after 2-year minimum follow-up. 16<sup>th</sup> Annual AOSpine North America Fellows Forum. Banff Springs, Alberta, Canada. March 22-24, 2018.
- 395.\**Garces J, Buell TJ, Mullin JP, Mazur MD, Nguyen JH, Taylor DG, Buchholz AL, Yen CP, Shaffrey CI, **Smith JS**.* 1 The effect of junctional tethers on proximal junctional kyphosis in multilevel posterior spinal instrumentation for adult spinal deformity. 16<sup>th</sup> Annual AOSpine North America Fellows Forum. Banff Springs, Alberta, Canada. March 22-24, 2018.
- 396.\*Passias PG, Poorman GW, Qureshi R, Hassanzadeh H, Horn SR, Jain A, Kelly MP, Hostin RA, Segreto F, Bortz C, Janjua MB, Ames CP, **Smith JS**, Lafage V, Burton DC, Bess S, Shaffrey CI, Schwab F, Gupta MC. Cost-utility analysis of cervical deformity surgeries using one-year outcomes. 34<sup>th</sup> Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 14-17, 2018.
- 397.\*Passias PG, Vasquez-Montes D, Poorman GW, Protopsaltis TS, Horn SR, Diebo BG, Bortz C, Segreto F, Janjua MB, Ames CP, **Smith JS**, Lafage V, Lafage R, Klineberg EO, Shaffrey CI, Bess S, Schwab FJ, ISSG. Predictive model for distal junctional kyphosis after cervical deformity surgery. 34<sup>th</sup> Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 14-17, 2018.
- 398.\*Buell T, Buchholz L, Quinn JC, Bess S, Line BG, Ames CP, Schwab F, Lafage V, Shaffrey CI, **Smith JS**. A pilot study on posterior polyethylene tethers to prevent proximal junctional kyphosis after multilevel spinal instrumentation for adult spinal deformity. 34<sup>th</sup> Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 14-17, 2018.
- 399.\**Buell T, Quinn JC, Buchholz AL, Nguyen J, Mazur MD, Bess S, Line BG, Ames CP, Schwab F, Lafage V, Shaffrey CI, **Smith JS**.* Alignment risk factors for proximal junctional kyphosis and the effect of lower thoracic junctional tethers for adult spinal deformity. 34<sup>th</sup> Annual Meeting of the

- AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 14-17, 2018.
- 400.\*Passias PG, Horn SR, Bortz C, Ramchandran S, Burton DC, Protosaltis T, Lafage R, Lafage V, Diebo BG, Poorman GW, Segreto F, Janjua MB, **Smith JS**, Ames CP, Shaffrey CI, Kim HJ, Neuman BJ, Daniels AH, Soroceanu A, Klineberg E. The relationship between improvements in myelopathy and sagittal realignment in cervical deformity surgery outcomes. 34<sup>th</sup> Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 14-17, 2018.
- 401.\*Poorman GW, Passias PG, Horn SR, Diebo BG, Segreto F, Bortz C, Janjua MB, Klineberg E, Shaffrey CI, Lafage V, Protosaltis T, Ames CP, **Smith JS**, Mundis GM, Neuman BJ, Hart R, Burton DC. Identifying sources of improvement of axial pain in corrective cervical deformity surgery. 34<sup>th</sup> Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 14-17, 2018.
- 402.\*Passias PG, Oh C, Horn SR, Kim HJ, Hamilton DK, Sciubba DM, Neuman BJ, Buckland AJ, Poorman GW, Bortz C, Segreto F, Janjua MB, Protosaltis T, Klineberg E, Ames CP, **Smith JS**, Lafage V, ISSG. Predicting the occurrence of complications following corrective cervical deformity surgery: analysis of a prospective multicenter database using predictive analytics. 34<sup>th</sup> Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 14-17, 2018.
- 403.\*Passias PG, Poorman GW, Wang C, Protosaltis T, Shaffrey CI, Hart R, Lafage V, Diebo BG, **Smith JS**, Segreto F, Horn SR, Bortz C, Janjua MB, Ames CP, Lafage R, Kim HJ, ISSG. Effect of cervical deformity correction on spinal canal cross-sectional area and stenosis. 34<sup>th</sup> Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 14-17, 2018.
- 404.\*Zygoiurakis CC, Scheer JK, Yoon S, Yermaneni S, Hostin RA, O'Brien MF, Shaffrey CI, **Smith JS**, Deviren V, Ames CP. Direct cost analysis of 38 cervical spinal deformity operations across two major spinal deformity centers with implications for catastrophic costs and 90-day cost bundles. 34<sup>th</sup> Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Orlando, FL. March 14-17, 2018.
- 405.\*Passias PG, Poorman GW, Lafage V, **Smith JS**, Ames CP, Schwab FJ, Shaffrey CI, Horn SR, Wang C, Hart RA, Burton DC, Lafage R, Bess RS, Sciubba DM, ISSG. Cervical vs. thoracolumbar spinal deformities: a comparison of baseline quality-of-life burden. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 406.\*Protosaltis TS, Tishelman JC, Ramchandran S, Lafage R, **Smith JS**, Kim HJ, Passias PG, Mundis GM, Hamilton DK, Gupta MC, Hart RA, Bess RS, Shaffrey CI, Ames CP, ISSG. Distal junctional kyphosis (DJK) after cervical deformity surgery: analysis with in-construct measurements. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017. (3<sup>rd</sup> Place Clinical Research Award Winner; selected from ~450 abstracts submitted)
- 407.\*Protosaltis TS, Soroceanu A, **Smith JS**, Gupta MC, Lafage R, Kim HJ, Passias PG, Hamilton DK, Mundis GM, Klineberg EO, Lafage V, Schwab F, Deviren V, Albert TJ, Riew DK, Hart RA, Burton DC, Bess S, Shaffrey CI, Ames CP, ISSG. Analysis of prospective collection of 374 osteotomies in 99 patients with adult cervical deformity. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 408.\*Protosaltis T, Ramchandran S, Tishelman JC, **Smith JS**, Sciubba DM, Passias PG, Mundis GM, Lafage R, Klineberg EO, Gupta MC, Lafage V, Hart RA, Burton DC, Bess S, Shaffrey CI, Schwab FJ, Ames CP, ISSG. Prospective multicenter analysis of outcomes following surgical correction of

- patients with severe cervical deformity and horizontal gaze disruption. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 409.\*Wang SJ, Aguwa OK, Shaffrey CI, Mundis GM, Hostin RA, Burton DC, Ames CP, Klineberg EO, Lafage R, **Smith JS**, Passias PG, Schwab FJ, Lafage V, Kim HJ, ISSG. High C2-T3 sagittal imbalance is an independent predictor of recurrent proximal junctional kyphosis. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 410.\*Horn SR, Passias PG, Lafage R, **Smith JS**, Poorman GW, Diebo BG, Shaffrey CI, Sciubba DM, Klineberg EO, Protosaltis TS, Schwab FJ, Bess RS, Lafage V, Ames CP, ISSG. Improvement in Ames-ISSG cervical deformity classification modifier grades correlate to clinical improvement and likelihood of reaching MCID in multiple metrics: series of 73 patients with 1-year follow-up. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
411. \*Poorman GW, Passias PG, Qureshi R, Hassanzadeh H, Kelly MP, Hostin RA, Ames CP, **Smith JS**, Lafage V, Burton DC, Bess RS, Shaffrey CI, Schwab FJ, Gupta MC, ISSG. Cost-utility analysis of cervical deformity surgeries using one-year outcomes. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 412.\*Passias PG, Horn SR, Ramchandran S, Burton DC, Protosaltis TS, Lafage R, Lafage V, Poorman GW, **Smith JS**, Ames CP, Shaffrey CI, Kim HJ, Soroceanu A, Klineberg EO, ISSG. The relationship between improvements in myelopathy and sagittal realignment in cervical deformity surgery. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 413.\*Passias PG, Og C, Horn SR, Lafage R, Lavery JA, Kim HJ, Hamilton DK, Sciubba DM, Neuman BJ, Buckland AJ, Poorman GW, Protosaltis TS, Klineberg EO, Ames CP, **Smith JS**, Lafage V, ISSG. Predicting the occurrence of complications following corrective cervical deformity surgery: analysis of a prospective multicenter database using predictive analytics. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 414.\*Passias PG, Horn SR, Poorman GW, Daniels AH, Hamilton DK, Sciubba DM, **Smith JS**, Shaffrey CI, Lafage R, Lafage V, Ames CP, Mundis G, Eastlack R, Schwab FJ, ISSG. Clinical and radiographic outcomes of patients with cervical deformity secondary to thoracolumbar proximal junctional kyphosis. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 415.\*Passias PG, Poorman GW, Horn SR, Daniels AH, Hamilton DK, Sciubba DM, **Smith JS**, Neuman BJ, Shaffrey CI, Lafage V, Lafage R, Ames CP, Hart RA, Soroceanu A, Mundis GM, Eastlack RK, ISSG. Impact of obesity on radiographic alignment and short-term complications after surgical treatment of adult cervical deformity. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 416.\*Passias PG, Vasquez-Montes D, Poorman GW, Protosaltis TS, Horn SR, Diebo BG, Ames CP, **Smith JS**, Lafage V, Lafage R, Klineberg EO, Shaffrey CI, Bess S, Schwab FJ, ISSG. Predictive model for distal junctional kyphosis after cervical deformity surgery. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 417.\*Passias PG, Poorman GW, Horn SR, Klineberg EO, Shaffrey CI, Lafage V, Protosaltis TS, Ames CP, **Smith JS**, Mundis GM, Neuman BJ, Hart RA, Burton DC, ISSG. Identifying sources of improvement in axial pain following cervical deformity correction. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 418.\*Passias PG, Oh C, Horn SR, Poorman GW, Lafage R, Diebo B, Scheer JK, **Smith JS**, Shaffrey CI, Protosaltis TS, Kim HJ, Hart RA, Lafage R, Ames CP, ISSG. Predictive model for achieving a good

- overall outcome at one-year following surgical correction of adult cervical deformity. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 419.\*Kim HJ, Bao H, Shaffrey CI, **Smith JS**, Kelly MP, Gupta MC, Albert TJ, Protopsaltis TS, Mundis GM, Passias PG, Klineberg EO, Lafage V, Ames CP, ISSG. Neurological complications and recovery rates in adult cervical deformity surgery. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 420.Tishelman JC, Protopsaltis TS, **Smith JS**, Scheer J, Neuman BJ, Mundis GM, Lafage R, Gupta MC, Burton DC, Bess RS, Shaffrey CI, Schwab FJ, Ames CP, ISSG. Advanced age is not a predictor for distal junctional kyphosis in operative cervical deformity patients. 45<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Hollywood, FL. November 30-December 2, 2017.
- 421.\**Buell TJ, Buchholz AL, Quinn JC*, Ness RS, Line BG, Ames CP, Schwab FJ, Lafage V, Shaffrey CI, **Smith JS**. A pilot study on posterior polyester tethers as an anti-PJK device for multilevel spinal instrumentation for adult spinal deformity. Global Spine Congress. Singapore. May 2-5, 2018.
- 422.\***Smith JS**, Shaffrey CI, Kim HJ, Passias PG, Protopsaltis TP, Lafage R, Mundis GM Jr, Klineberg O, Lafage V, Schwab FJ, Scheer JK, Kelly MP, Hamilton DK, Deviren V, Hostin RA, Albert TJ, Riew D, Hart RA, Burton DC, Bess S, Ames CP. Prospective multicenter assessment of all-cause mortality following surgery for adult cervical deformity. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 423.**Smith JS**, Ames CP, Deviren V, Shaffrey CI, Mehdian H, Bartels R, Toyone T, Robinson Y, Ferch R, Koller H, Schroder J. Characteristics of deformity surgery for patients with rigid cervical kyphosis: results of an international multicenter study. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 424.**Smith JS**, Shaffrey CI, Gupta M, Klineberg E, Lafage V, Schwab F, Kim HJ, Passias P, Protopsaltis T, Lafage R, Mundis G, Scheer J, Kelly M, Hamilton DK, Soroceanu A, Daniels A, Deviren V, Hostin R, Hart R, Burton D, Bess S, Ames CP, ISSG. Incidence and outcomes of neurological complications in 176 adult spinal deformity patients treated with 3-column osteotomy. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 425.\*Bess S, Line BG, Lafage V, Lafage R, Ames CP, Burton DC, Hart RA, Hostin R, O'Brien MF, Mundis GM, Gupta MC, Kim HJ, Klineberg EO, Kebaish K, Protopsaltis TS, Passias PG, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Use of prophylactic techniques to prevent proximal junctional failure (PJF) following adult spinal deformity (ASD) surgery does not prevent PJF, however prophylaxis might reduce need for revision surgery. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 426.\*Neuman BJ, Raad M, Klineberg EO, Sciubba DM, Mundis GM, Passias PG, Scheer JK, Gum JL, Kebaish K, Hamilton DK, Protopsaltis TS, Line BG, **Smith JS**, Ames CP, ISSG. ASD-SR invasiveness index predicts the magnitude of deformity surgery essential to stage to reduce risk of complications. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 427.\*Soroceanu A, Gum JL, Kelly MP, Passias PG, **Smith JS**, Protopsaltis TP, Lafage V, Kim HJ, Scheer JK, Gupta MC, Mundis GM, Klineberg EO, Burton DC, Bess S, Ames CP, ISSG. Establishing the minimum clinically important difference in NDI and mJOA for adult cervical deformity. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 428.\*Plais N, Bao H, Kim HJ, Gupta MC, Pesenti S, **Smith JS**, Mundis GM, Hostin R, Burton DC, Ames CP, Klineberg EO, Bess S, Schwab F, Lafage V, ISSG. Concave coronal malalignment is associated with worse health-related quality of life: an analysis of painful scoliosis in adult patients with no

- history of spine surgery. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 429.\*Kim HJ, Bao H, Shaffrey CI, **Smith JS**, Kelly MP, Gupta MC, Albert TJ, Protosaltis TS, Mundis GM, Passias PG, Klineberg EO, Lafage V, Ames CP, ISSG. Neurological complications and recovery rates in adult cervical deformity surgery. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 430.\*Protosaltis TS, Soroceanu A, **Smith JS**, Gupta MC, Lafage R, Kim HJ, Passias PG, Hamilton DK, Mundis GM, Klineberg EO, Lafage V, Schwab F, Deviren V, Albert TJ, Riew DK, Hart RA, Burton DC, Bess S, Shaffrey CI, Ames CP, ISSG. Analysis of prospective collection of 374 osteotomies in 99 patients with adult cervical deformity. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 431.\*Kim HJ, Wang SJ, Aguwa OK, Lafage R, Shaffrey CI, Mundis GM, Hostin R, Burton DC, Ames CP, Klineberg EO, Gupta MC, **Smith JS**, Schwab FJ, Lafage V, ISSG. Recurrent proximal junctional kyphosis: incidence, risk factors, revision rates and outcomes at 2 year minimum follow up. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 432.\*Lafage R, Schwab FJ, Klineberg EO, Burton DC, Bess S, Kim HJ, **Smith JS**, Ames CP, Hostin R, Shaffrey CI, Mundis GM, Lafage V, ISSG. Risk factor analysis for PJK after spinal deformity surgery: a new simple scoring system. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 433.\*Hassanzadeh H, Shaffrey CI, **Smith SJ**, Jain A, Klineberg EO, Sciubba DM, Kebaish K, Burton DC, Passias PG, Buckland AJ, Lafage V, Hostin R, Bess S, ISSG. Risk factors affecting discharge disposition in patients undergoing multi-level lumbar fusion. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 434.\*Protosaltis TS, Ramchandran S, Tishelman JC, **Smith JS**, Neuman BJ, Mundis GM, Lafage R, Klineberg EO, Hamilton DK, Lafage V, Gupta MC, Hart RA, Schwab FJ, Burton DC, Bess S, Shaffrey CI, Ames CP, ISSG. The importance of C2-slope, a singular marker of cervical deformity, correlates with patient reported outcomes. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 435.\*Passias PG, Lavery JA, Ramchandran S, Horn SR, Burton DC, Protosaltis TS, Lafage R, Lafage V, Diebo BG, Poorman GW, **Smith JS**, Ames CP, Shaffrey CI, Kim HJ, Neuman BJ, Daniels AH, Soroceanu A, Klineberg EO, ISSG. The relationship between improvements in myelopathy and sagittal realignment in cervical deformity surgery. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 436.\*Passias PG, Poorman GW, Horn SR, Klineberg EO, Shaffrey CI, Lafage V, Protosaltis TS, Ames CP, **Smith JS**, Mundis GM, Neuman BJ, Hart RA, Burton DC, ISSG. Sources of improvement in axial pain following cervical deformity correction. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 437.\*Hassanzadeh H, **Smith JS**, Bess S, Shaffrey CI, Qureshi R, Jain A, Kebaish K, Sciubba DM, Passias PG, Burton DC, Buckland AJ, Lafage V, Hostin R, Klineberg EO, ISSG. Medicare reimbursements of comorbidities and complications in elderly patients undergoing multi-level fusions. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 438.\*Protosaltis T, Ramchandran S, Tishelman JC, **Smith JS**, Sciubba DM, Passias PG, Mundis GM, Lafage R, Klineberg EO, Gupta MC, Lafage V, Hart RA, Burton DC, Bess S, Shaffrey CI, Schwab FJ, Ames CP, ISSG. Prospective multicenter analysis of outcomes following surgical correction of patients with severe cervical deformity and horizontal gaze disruption. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.

- 439.\*Gum JL, Line BG, Carreon LY, Hostin R, Yeramenehi, Glassman SD, Kelly MP, Burton DC, Polly DW, **Smith JS**, Shaffrey CI, Schwab FJ, Sethi RK, Jain A, Ames CP, Bess S, ISSG. Reaching Medicare allowable threshold in ASD surgery: multicenter cost analysis comparing actual direct hospital costs versus Medicare reimbursement. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 440.\*Klineberg EO, Soroceanu A, Mundis GM, Kim HJ, Kelly MP, **Smith JS**, Shaffrey CI, Hart RA, Burton DC, Lafage V, Schwab FJ, Ames CP, Berven SH, Lenke LW, Bess S, ISSG. Comprehensive complication classification for adult spinal deformity: impact on patient outcomes. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 441.Mundis GM, Gupta MC, Klineberg EO, Bess S, Shaffrey CI, Daniels AH, Lafage V, Burton DC, **Smith JS**, Kim HJ, Protosaltis TS, Passias PG, Akbarnia BA, ISSG. The impact of a multicenter study group on its own practice patterns. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 442.Bao H, Varghese JJ, Kim HJ, Gupta MC, Shaffrey CI, **Smith JS**, Mundis GM, Hostin R, Burton DC, Ames CP, Klineberg EO, Bess S, Schwab FJ, Lafage V, ISSG. Does the use of an interbody fusion at the osteotomy site limit the loss of correction after 3 column osteotomy in adult spinal deformity? 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 443.Scheer JK, **Smith JS**, Shaffrey CI, Daniels AH, Protosaltis TS, Passias PG, Hart RA, Burton DC, Bess S, Lafage R, Lafage V, Schwab FJ, Klineberg EO, Ames CP, ISSG. Development of a validated computer based preoperative predictive model for pseudarthrosis with 91% accuracy in 336 adult spinal deformity patients. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 444.Raad M, Neuman BJ, Hassanzadeh H, Passias PG, Klineberg EO, Mundis GM, Protosaltis TS, Miller EK, **Smith JS**, Hamilton DK, Lafage V, Bess S, Kebaish K, Sciubba DM, ISSG. Preoperative level of activity as a tool for patient stratification in adult spine deformity surgery. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 445.Gupta MC, Bao H, Kelly MP, Shaffrey CI, Mundis GM, Hostin R, Burton DC, Ames CP, Schwab FJ, Kim HJ, Klineberg EO, Bess S, **Smith JS**, Lafage V, ISSG. Adult idiopathic scoliosis vs degenerative scoliosis: differences in disease and surgical treatment. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 446.Buckland AJ, Protosaltis T, Passias PG, Bess S, **Smith JS**, Hostin R, Shaffrey CI, Mundis GM, Ames CP, Klineberg EO, Burton DC, Kim HJ, Lafage R, Lafage V, ISSG. Back and leg pain as drivers of ODI improvement in adult spinal deformity. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 447.Yeramenehi S, Jain A, Gum JL, Kelly MP, Glassman SD, Polly DW, Kebaish K, Burton DC, Ames CP, **Smith JS**, Shaffrey CI, Sethi RK, Bess S, Hostin R, ISSG. Cost-effectiveness and clinical effectiveness in adult spinal deformity patients: results from a prospective multicenter study. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 448.Poorman GW, Passias PG, Horn SR, Daniels AH, Hamilton DK, Kim HJ, Sciubba DM, Diebo BG, Kelly MP, **Smith JS**, Neuman BJ, Shaffrey CI, Lafage V, Lafage R, ISSG. Depressed patients achieve outcomes similar to non-depressed patients following surgery for cervical deformity despite worse baseline status. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
- 449.Protosaltis TS, Soroceanu A, Tishelman JC, Buckland AJ, Mundis GM, **Smith JS**, Daniels AH, Lenke LG, Kim HJ, Klineberg EO, Ames CP, Hart RA, Bess S, Shaffrey CI, Schwab FJ, Lafage V,

- ISSG. Should targets for adult spinal deformity correction depend on pelvic incidence? 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
450. Ailon TT, Eastlack RK, Ames CP, Burton DC, Hart RA, **Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Bess S, ISSG. Implant density does not impact correction achieved or maintenance thereof in select adult spinal deformity patients. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
451. Passias PG, Lavery JA, Horn SR, Oh C, Ramchandran S, Burton DC, Lafage V, Lafage R, Poorman GW, **Smith JS**, Ames CO, Shaffrey CI, Kim HJ, Soroceanu A, Klineberg EO, ISSG. Evaluating cervical deformity corrective surgery outcomes at 1-year using current patient derived functional measures; are they adequate? 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
452. Passias PG, Og C, Horn SR, Lafage R, Lavery JA, Kim HJ, Hamilton DK, Sciubba DM, Neuman BJ, Buckland AJ, Poorman GW, Protosaltis TS, Klineberg EO, Ames CP, **Smith JS**, Lafage V, ISSG. Predicting the occurrence of complications following corrective cervical deformity surgery: analysis of a prospective multicenter database using predictive analytics. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
453. Passias PG, Poorman GW, Horn SR, Daniels AH, Hamilton DK, Sciubba DM, **Smith JS**, Neuman BJ, Shaffrey CI, Lafage V, Lafage R, Ames CP, Hart RA, Soroceanu A, Mundis GM, Eastlack RK, ISSG. Impact of obesity on radiographic alignment and short-term complications after surgical treatment of adult cervical deformity. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
454. Bess S, Turner AW, Lafage V, Haid RW, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Polyethylene terephthalate (PET) tether fixation that incorporates UIV+2 fixation and anchors to the rod reduces proximal junctional range of motion (ROM) more effectively than other tether constructs: implications for PJK prophylaxis. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
455. Passias PG, Vasquez-Montes D, Poorman GW, Protosaltis TS, Horn SR, Diebo BG, Ames CP, **Smith JS**, Lafage V, Lafage R, Klineberg EO, Shaffrey CI, Bess S, Schwab FJ, ISSG. Predictive model for distal junctional kyphosis after cervical deformity surgery. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
456. Miller EK, Neuman BJ, Sciubba DM, Scheer JK, **Smith JS**, Ailon TT, Kebaish K, Bess S, Lafage V, Line BG, Shaffrey CI, Schwab FJ, Klineberg EO, Ames CP, ISSG. The association of frailty with chin-brow vertebral angle compensatory ability in 122 cervical deformity patients and with global sagittal vertebral angle in 813 global deformity patients. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
457. Eastlack RK, Ledesma J, Mundis GM, Nguyen S, Klineberg EO, Lafage V, Burton DC, **Smith JS**, Ames CP, Protosaltis TS, Passias PG, Schwab FJ, Anand N, ISSG. Operative time is an independent risk factor for complications in adult spinal deformity surgery. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
458. Poorman GW, Passias PG, Qureshi R, Hassanzadeh H, Jain A, Kelly MP, Hostin R, Ames CP, **Smith JS**, Lafage V, Burton DC, Bess S, Shaffrey CI, Schwab FJ, Gupta MC, ISSG. Cervical deformity surgeries meet cost-utility benchmarks using one-year outcome analysis. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
459. Javidan Y, Nunley P, Mundis GM, Daniels AH, Nguyen S, Bess S, Ames CP, Burton DC, Hart RA, **Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Klineberg EO, ISSG. Adult spinal deformity interbody

- fusion and graft choice: polyetheretherketone (PEEK) or titanium. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
460. Klineberg EO, Soroceanu A, Mundis GM, Kim HJ, Kelly MP, **Smith JS**, Shaffrey CI, Hart RA, Burton DC, Lafage V, Schwab FJ, Ames CP, Berven SH, Lenke LG, Bess B, ISSG. Comprehensive complication classification for adult spinal deformity: impact on length of stay. 32<sup>nd</sup> Annual Meeting of the North American Spine Society. Orlando, FL. October 25-28, 2017.
461. \*Kim HJ, Bao H, Shaffrey CI, **Smith JS**, Kelly MP, Gupta MC, Albert TJ, Protosaltis TS, Mundis GM, Passias PG, Klineberg EO, Lafage V, Ames CP, ISSG. Neurological complications and recovery rates in adult cervical deformity surgery. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
462. \***Smith JS**, Shaffrey CI, Kim HJ, Passias PG, Protosaltis TP, Lafage R, Mundis GM Jr, Klineberg O, Lafage V, Schwab FJ, Scheer JK, Kelly MP, Hamilton DK, Deviren V, Hostin RA, Albert TJ, Riew D, Hart RA, Burton DC, Bess S, Ames CP. Prospective multicenter assessment of all-cause mortality following surgery for adult cervical deformity. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
463. \*Soroceanu A, Gum JL, Kelly MP, Passias PG, **Smith JS**, Protosaltis TP, Lafage V, Kim HJ, Scheer JK, Gupta MC, Mundis GM, Klineberg EO, Burton DC, Bess S, Ames CP, ISSG. Establishing the minimum clinically important difference in NDI and mJOA for adult cervical deformity. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
464. \*Kim HJ, Wang SJ, Aguwa OK, Lafage R, Shaffrey CI, Mundis GM, Hostin R, Burton DC, Ames CP, Klineberg EO, Gupta MC, **Smith JS**, Schwab FJ, Lafage V, ISSG. Recurrent proximal junctional kyphosis: incidence, risk factors, revision rates and outcomes at 2 year minimum follow up. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
465. \*Bess S, Line BG, Ames CP, Burton DC, Lafage V, Lafage R, Hart RA, Kelly MP, Kim HJ, Klineberg EO, Hostin R, Mundis GM, Gupta MC, Kebaish K, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. How much will I improve after my surgery and will I be normal? The critical importance of collecting and discussing patient reported outcomes measures (PROMS) with adult spinal deformity (ASD) patients. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
466. \*Jain A, Yeramaneni S, Gum JL, Kelly MP, Kebaish K, Burton DC, Ames CP, Shaffrey CI, **Smith JS**, Hassanzadeh H, Glassman SD, Carreon LY, Bess S, Hostin R, ISSG. Cost effectiveness of rhBMP-2 use in adult spinal surgery. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
467. \*Mundis GM, Lafage R, Eastlack RK, Soroceanu A, Lafage V, Sciubba DM, Klineberg EO, Kim HJ, **Smith JS**, Shaffrey CI, Ames CP, Hart RA, Schwab FJ, ISSG. Is the “2/3 lumbar lordosis come from L4-S1” rule predictive of outcome among patients with sagittal plane spinal deformities? 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
468. \*Bao H, Varghese JJ, Kim HJ, Gupta MC, Shaffrey CI, **Smith JS**, Mundis GM, Hostin R, Burton DC, Ames CP, Klineberg EO, Bess S, Schwab FJ, Lafage V, ISSG. Does the use of an interbody fusion at the osteotomy site limit the loss of correction after 3 column osteotomy in adult spinal deformity? 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
469. \*Klineberg EO, Soroceanu A, Mundis GM, Kim HJ, Kelly MP, **Smith JS**, Shaffrey CI, Hart RA, Burton DC, Lafage V, Schwab FJ, Ames CP, Berven SH, Lenke LW, Bess S, ISSG. Comprehensive complication classification for adult spinal deformity: impact on patient outcomes. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.



470. Yeramaneni S, Jain A, Gum JL, Kelly MP, Glassman SD, Polly DW, Kebaish K, Burton DC, Ames CP, **Smith JS**, Shaffrey CI, Sethi RK, Bess S, Hostin R, ISSG. Cost-effectiveness and clinical effectiveness in adult spinal deformity patients: results from a prospective multicenter study. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
471. Gupta MC, Lafage R, Kelly MP, Shaffrey CI, Mundis GM, Hostin R, Burton DC, Ames CP, Schwab FJ, Kim HJ, Klineberg EO, Bess S, **Smith JS**, Lafage V, ISSG. Evolution of sagittal plane correction durability and associations with patient reported outcome measures (PROMS) for long fusions terminating at the upper thoracic (UT) vs thoracolumbar (TL) spine with minimum 3 yr follow-up. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017. (Recipient of the Louis A. Goldstein Award for Best Clinical Poster; >1,500 abstract submissions).
472. Gum JL, Jain A, Carreon YC, Hostin R, Yeramaneni S, Glassman SD, Kelly MP, Burton DC, Polly DW, **Smith JS**, Shaffrey CI, Schwab FJ, Sethi R, Neuman BJ, Ames CP, Bess S, ISSG. Planned staging of complex ASD surgery does not result in increased length of stay or increased cost. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
473. Pesenti S, Pannu T, Andres-Bergos T, Sciubba DM, De Kleuver M, Pellise F, Glassman SD, **Smith JS**, Lafage V, Schwab FJ. Meta-analysis of risk factors associated with 30-day unplanned readmissions after spinal arthrodesis. 52<sup>nd</sup> Annual Meeting of the Scoliosis Research Society. Philadelphia, PA. September 6-9, 2017.
474. \*Protosaltis TP, Soroceanu A, Tishelman JC, Buckland AJ, Mundis GM, **Smith JS**, Daniels AH, Lenke LG, Kim HJ, Klineberg EO, Ames CP, Hart RA, Bess S, Shaffrey CI, Schwab FJ, Lafage V, ISSG. Should targets for adult spinal deformity correction depend on pelvic incidence? 24<sup>th</sup> Annual International Meeting for Advanced Spine techniques. Cape Town, South Africa. July 12-15, 2017.
475. \*Lafage R, Schwab FJ, Klineberg EO, Burton DB, Bess S, Kim HJ, **Smith JS**, Ames CP, Hostin R, Shaffrey CI, Mundis GM, Lafage V, ISSG. Risk factors for PJK after adult spinal deformity surgery: a new simple scoring system. 24<sup>th</sup> Annual International Meeting for Advanced Spine techniques. Cape Town, South Africa. July 12-15, 2017.
476. \*Miller EK, Neuman BJ, Sciubba DM, Scheer JK, **Smith JS**, Ailon TT, Kebaish K, Bess S, Lafage V, Line BG, Shaffrey CI, Schwab FJ, Klineberg EO, Ames CP, ISSG. The association of frailty with chin-brow vertical angle compensatory ability in 122 cervical deformity patients and with global sagittal vertical angle in 13 global deformity patients. 24<sup>th</sup> Annual International Meeting for Advanced Spine techniques. Cape Town, South Africa. July 12-15, 2017.
477. \*Pesenti S, Pannu T, Andres-Bergos J, **Smith JS**, Glassman SD, Pellise F, DeKleuver M, Sciubba DM, Lafage V, Schwab FJ. Meta-analysis of risk factors associated with surgical site infection after spinal arthrodesis. 24<sup>th</sup> Annual International Meeting for Advanced Spine techniques. Cape Town, South Africa. July 12-15, 2017.
478. \*Bess S, Line BG, Lafage V, Lafage R, Ames CP, Burton DC, Hart RA, Hostin R, O'Brien MF, Mundis GM, Gupta MC, Kim HJ, Klineberg EO, Kebaish K, Protosaltis TS, Passias PG, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Use of prophylactic techniques to prevent proximal junctional failure (PJF) following adult spinal deformity (ASD) surgery does not prevent PJF, however prophylaxis might reduce need for revision surgery. 24<sup>th</sup> Annual International Meeting for Advanced Spine techniques. Cape Town, South Africa. July 12-15, 2017.
479. \*Pannu T, Lafage R, **Smith JS**, Shaffrey CI, Mundis GM, Hostin R, Ames CP, Lenke LG, Gupta MC, Kim HJ, Bess S, Gum JL, Schwab FJ, Lafage V, ISSG. Mechanical loading of the upper-most instrumented vertebra normative values and impact on proximal junctional kyphosis in adult spinal deformity. 24<sup>th</sup> Annual International Meeting for Advanced Spine techniques. Cape Town, South Africa. July 12-15, 2017.

- 480.\*Passias PG, Poorman GW, Wang C, Protopsaltis T, Shaffrey, CI, Hart R, Lafage V, Diebo BG, **Smith JS**, Horn SR, Janjua MB, Ames CP, Lafage R, Kim HJ, ISSG. Effect of cervical deformity correction on spinal cord volume and stenosis. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 7-11, 2017.
- 481.\*Koller H, **Smith JS**, Mehdian H, Ames CP, Bartels RHMA, Schroeder J, Ferch R, Toyone T, Deviren V, Shaffrey C, Robinson Y. The CSRS-ES cervical kyphosis study. Cervical Spine Research Society European Section. Salzburg, Austria. May 24-26, 2017.
- 482.\***Smith JS**, Shaffrey C, Kim HJ, Mundis G, Gupta M, Klineberg E, Schwab F, Lafage V, Lafage R, Passias P, Protopsaltis T, Neuman B, Daniels A, Ailon T, Scheer J, Kebaish K, Hart R, O'Brien M, Burton D, Deviren V, Albert T, Riew D, Ames C, ISSG. Outcomes of Operative Treatment for Adult Cervical Deformity: A Prospective Multicenter Assessment with 1-Year Follow-up. Annual Meeting of the European Cervical Spine Research Society. Salzburg, Austria. May 24-27, 2017.
- 483.\***Smith JS**, Shaffrey C, Kim HJ, Neuman B, Klineberg E, Schwab F, Lafage V, Lafage R, Scheer J, Protopsaltis T, Passias P, Mundis G, Hart R, Deviren V, Bess S, Ames CP, ISSG. Three-column Osteotomy for Correction of Cervical Deformity: Alignment Changes and Early Complications in A Multicenter Prospective Series of 24 Patients. Annual Meeting of the European Cervical Spine Research Society. Salzburg, Austria. May 24-27, 2017.
- 484.\***Smith JS**, Line B, Bess S, Shaffrey C, Kim HJ, Mundis G, Scheer J, Klineberg E, Gupta M, Daniels S, Kelly MP, Gum J, Schwab F, Lafage V, Lafage R, Ailon T, Passias P, Protopsaltis T, Hart R, Burton D, Deviren V, Ames C, ISSG. The Health Impact of Symptomatic Adult Cervical Deformity: Comparison to United States Population Norms and Chronic Disease States Based on the EQ5D. Annual Meeting of the European Cervical Spine Research Society. Salzburg, Germany. May 24-27, 2017.
- 485.\*Passias P, Vasquez-Montes D, Poorman GW, Protopsaltis T, Horn S, Diebo B, Ames CP, **Smith JS**, Lafage V, Lafage R, Klineberg E, Shaffrey C, Bess S, Schwab F, ISSG. Predictive model for distal junctional kyphosis after cervical deformity surgery. Annual Meeting of the European Cervical Spine Research Society. Salzburg, Germany. May 24-27, 2017.
- 486.\*Zygorakis CC, Scheer J, Upton L, Yoon S, Yermaneni S, Hostin R, O'Brien MF, Shaffrey C, **Smith JS**, Deviren V, Ames CP. Direct cost analysis of 38 cervical spinal deformity operations across two major spinal deformity centers with implications for catastrophic costs and 90-day cost bundles. Annual Meeting of the European Cervical Spine Research Society. Salzburg, Germany. May 24-27, 2017.
- 487.\*Wilson JR, Harrop J, Schroeder G, Vaccaro A, **Smith JS**, Arnold P, Fehlings M. An economic case for the surgical treatment of Type II odontoid fractures in the elderly: A Markov cost-utility analysis based on the prospective AOSpine geriatric odontoid fracture. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 488.\*Miller E, Ailon T, Scheer J, Daniels A, Kojo DK, **Smith JS**, Shaffrey C, Neuman B, Kebaish K, Ames C. Despite higher risk stratification scores, frail patients achieve greater two-year health related quality of life improvement from baseline compared to non-frail patients following adult spinal deformity surgery. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 489.\***Smith JS**, Gupta M, Klineberg E, Shaffrey C, Schwab F, Lafage V, Liabaud B, Kim HJ, Hart R, Hostin R, Burton D, Deviren V, Bess S, Ames C, ISSG. Complication Rates Associated with 3-Column Osteotomy in 82 Adult Spinal Deformity Patients: Retrospective Review of a Prospectively Collected Multicenter Consecutive Series with Minimum 2-Yr Follow-Up. Global Spine Congress. Milan, Italy. May 3-6, 2017.

- 490.\*Ailon TT, **Smith JS**, Shaffrey CI, Soroceanu A, Lafage V, Schwab F, Burton D, Hart R, Kim H, Gum J, Hostin R, Kelly M, Glassman S, Scheer J, Bess S, Ames C, ISSG. Adult Spinal Deformity Patients with Previous Fusions have an Equal Chance of Reaching Substantial Clinical Benefit Thresholds in Health-related Quality of Life Measures but do not Reach the Same Absolute Level of Improvement. Annual Meeting of American Association of Neurological Surgeons. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 491.\*Miller E, Neuman B, Sciubba DM, Scheer J, **Smith JS**, Kebaish K, Shaffrey C, Ames C. Comparison of frailty based on cervical and global SVA classification. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 492.\***Smith JS**, Line B, Bess S, Shaffrey C, Kim HJ, Mundis G, Scheer J, Klineberg E, Gupta M, Daniels S, Kelly MP, Gum J, Schwab F, Lafage V, Lafage R, Ailon T, Passias P, Protopsaltis T, Hart R, Burton D, Deviren V, Ames C, ISSG. The Health Impact of Symptomatic Adult Cervical Deformity: Comparison to United States Population Norms and Chronic Disease States Based on the EQ5D. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 493.\*Miller E, Neuman B, Sciubba DM, Kebaish K, Scheer J, **Smith JS**, Shaffrey C, Ames C. Assessment of a novel adult cervical deformity frailty index as a component of a preoperative risk stratification. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 494.\*Gupta MC, Diebo BG, Protopsaltis TS, Hart RA, **Smith JS**, Ames CP, Lafage R, Scheer JK, Kim HJ, Bess S, Burton DC, Passias PG, Schwab FJ, Lafage V, ISSG. Bimodal incidence and causes of proximal junctional kyphosis in adult spinal deformity. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 495.\*Miller E, Hamilton DK, Daniels A, Neuman B, Kebaish K, Scheer J, **Smith JS**, Shaffrey C, Ames C. Surgical strategy can mitigate effects of patient factors on pseudarthrosis rate at 2 years following adult deformity surgery. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 496.\*Miller E, Neuman B, Jain A, Sciubba DM, Kebaish K, Scheer J, **Smith JS**, Shaffrey C, Ames CP. Development and assessment of a novel adult spinal deformity frailty index to assist with risk stratification for ASD surgery. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 497.**Smith JS**, Shaffrey C, Kim HJ, Neuman B, Klineberg E, Schwab F, Lafage V, Lafage R, Scheer J, Protopsaltis T, Passias P, Mundis G, Hart R, Deviren V, Bess S, Ames CP, ISSG. Three-column Osteotomy for Correction of Cervical Deformity: Alignment Changes and Early Complications in A Multicenter Prospective Series of 24 Patients. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 498.Ailon T, **Smith JS**, Shaffrey C, Kim HJ, Mundis G, Gupta M, Klineberg E, Schwab F, Lafage V, Lafage R, Passias P, Protopsaltis T, Neuman B, Daniels A, Scheer J, Kebaish K, Hart R, O'Brien M, Burton D, Deviren V, Albert T, Riew D, Ames C, ISSG. Outcomes of Operative Treatment for Adult Cervical Deformity: A Prospective Multicenter Assessment with 1-Year Follow-up. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 499.Langella, Lafage V, Ames CP, Bess S, Burton D, Kim H, Hostin R, Klineberg E, Mundis G, Schwab F, **Smith JS**, Liabaud B, Berjano P, ISSG. The correlation between abdominal morphology and adult spinal deformity measured using xipho-pubic angle: a multi-center cohort study. Global Spine Congress. Milan, Italy. May 3-6, 2017.
- 500.Scheer JK, Lafage R, Liabaud B, Schwab FJ, **Smith JS**, Mundis GM Jr, Hostin R, Shaffrey CI, Ames CP, Burton DC, Kim HJ, Bess S, Gupta MC, Lafage V, ISSG. Under-correction of sagittal deformities based on age-adjusted alignment thresholds leads to worse HRQOL while over-correction provides no additional benefit. Global Spine Congress. Milan, Italy. May 3-6, 2017.

501. Scheer JK, Ailon T, **Smith JS**, Hart RA, Burton DB, Bess S, Neuman B, Passias P, Miller E, Shaffrey C, Schwab F, Lafage V, Klineberg E, Ames CP, ISSG. Predictive Modeling of Length of Hospital Stay (LOS) Following Adult Spinal Deformity (ASD) Correction: Analysis of 653 Patients with an Accuracy of 75% within 2 Days. Global Spine Congress. Milan, Italy. May 3-6, 2017.
502. **Smith JS**, Shaffrey C, Kim HJ, Mundis G, Gupta M, Klineberg E, Schwab F, Lafage V, Lafage R, Passias P, Protopsaltis T, Neuman B, Daniels A, Ailon T, Scheer J, Kebaish K, Hart R, O'Brien M, Burton D, Deviren V, Albert T, Riew D, Ames C, ISSG. Outcomes of Operative Treatment for Adult Cervical Deformity: A Prospective Multicenter Assessment with 1-Year Follow-up. Annual Meeting of American Association of Neurological Surgeons. Los Angeles, CA. April 22-26, 2017.
503. **Smith JS**, Shaffrey C, Kim HJ, Neuman B, Klineberg E, Schwab F, Lafage V, Lafage R, Scheer J, Protopsaltis T, Passias P, Mundis G, Hart R, Deviren V, Bess S, Ames CP, ISSG. Three-column Osteotomy for Correction of Cervical Deformity: Alignment Changes and Early Complications in A Multicenter Prospective Series of 24 Patients. Annual Meeting of American Association of Neurological Surgeons. Los Angeles, CA. April 22-26, 2017.
504. **Smith JS**, Line B, Bess S, Shaffrey C, Kim HJ, Mundis G, Scheer J, Klineberg E, Gupta M, Daniels S, Kelly MP, Gum J, Schwab F, Lafage V, Lafage R, Ailon T, Passias P, Protopsaltis T, Hart R, Burton D, Deviren V, Ames C, ISSG. The Health Impact of Symptomatic Adult Cervical Deformity: Comparison to United States Population Norms and Chronic Disease States Based on the EQ5D. Annual Meeting of American Association of Neurological Surgeons. Los Angeles, CA. April 22-26, 2017.
505. Ailon TT, **Smith JS**, Shaffrey CI, Soroceanu A, Lafage V, Schwab F, Burton D, Hart R, Gum J, Hostin R, Kelly M, Glassman S, Bess S, Ames C, ISSG. Adult Spinal Deformity Patients with Previous Fusions have an Equal Chance of Reaching Substantial Clinical Benefit Thresholds in Health-related Quality of Life Measures but do not Reach the Same Absolute Level of Improvement. Annual Meeting of American Association of Neurological Surgeons. Los Angeles, CA. April 22-26, 2017.
506. **Smith JS**, Gupta M, Klineberg E, Shaffrey C, Schwab F, Lafage V, Liabaud B, Kim HJ, Hart R, Hostin R, Burton D, Deviren V, Bess S, Ames C, ISSG. Complication Rates Associated with 3-Column Osteotomy in 82 Adult Spinal Deformity Patients: Retrospective Review of a Prospectively Collected Multicenter Consecutive Series with Minimum 2-Yr Follow-Up. Annual Meeting of American Association of Neurological Surgeons. Los Angeles, CA. April 22-26, 2017.
507. \*Miller EK, Ailon TT, Scheer JK, Daniels AH, **Smith JS**, Schwab F, Lafage V, Burton DC, Hart R, Bess S, Shaffrey CI, Ames CP, ISSG. Frail patients achieve greater health-related quality of life improvement following adult spinal deformity surgery. Annual Meeting of American Association of Neurological Surgeons. Los Angeles, CA. April 22-26, 2017.
508. Scheer JK, Lafage R, Liabaud B, Schwab FJ, **Smith JS**, Mundis GM Jr, Hostin R, Shaffrey CI, Ames CP, Burton DC, Kim HJ, Bess S, Gupta MC, Lafage V, ISSG. Under-correction of sagittal deformities based on age-adjusted alignment thresholds leads to worse HRQOL while over-correction provides no additional benefit. Annual Meeting of American Association of Neurological Surgeons. Los Angeles, CA. April 22-26, 2017.
509. Scheer JK, Ailon T, **Smith JS**, Hart RA, Burton DB, Bess S, Neuman B, Passias P, Miller E, Shaffrey C, Schwab F, Lafage V, Klineberg E, Ames CP, ISSG. Predictive Modeling of Length of Hospital Stay (LOS) Following Adult Spinal Deformity (ASD) Correction: Analysis of 653 Patients with an Accuracy of 75% within 2 Days. Annual Meeting of American Association of Neurological Surgeons. Los Angeles, CA. April 22-26, 2017.
510. Scheer J, Hostin R, Robinson C, Gum J, Schwab F, Hart R, Lafage V, Burton D, Bess S, Protopsaltis T, Klineberg E, Shaffrey C, **Smith JS**, Ames C, ISSG. Use of a Validated Predictive Model for

- Patient Selection in Adult Spinal Deformity (ASD) Surgery has the Potential to Enhance QALYs Gained at 2-years: Simulation in 234 ASD Patients. Annual Meeting of American Association of Neurological Surgeons. Los Angeles, CA. April 22-26, 2017.
511. \*Passias P, Jalai C, **Smith JS**, Poorman G, Protosaltis T, Neuman B, Sciubba D, Diebo B, Lafage R, Lafage V, Ames C, Shaffrey C, ISSG. Does Myelopathy or Alignment Improvement Drive Acute Post-Operative Outcomes in Cervical Deformity Patients? Annual Meeting of American Association of Neurological Surgeons. Los Angeles, CA. April 22-26, 2017.
512. \**Buchholz AL, Buell TJ, Quinn JC, Shaffrey CI, **Smith JS***. Long-segment fusion and the use of a tether for proximal junction kyphosis reduction. 15<sup>th</sup> Annual AOSpine North America Fellows Forum. Banff Springs, Alberta, Canada. March 23-27, 2017. (**Selected as best abstract/presentation for the meeting.**)
513. *Quinn JC, Buell TJ, Buchholz AL, Shaffrey CI, **Smith JS***. Sagittal UIV angle correction: a risk factor for PJK in thoracolumbar fusions. 15<sup>th</sup> Annual AOSpine North America Fellows Forum. Banff Springs, Alberta, Canada. March 23-27, 2017.
514. \***Smith JS**, Shaffrey C, Kim HJ, Mundis G, Gupta M, Klineberg E, Schwab F, Lafage V, Lafage R, Passias P, Protosaltis T, Neuman B, Daniels A, Ailon T, Scheer J, Kebaish K, Hart R, O'Brien M, Burton D, Deviren V, Albert T, Riew D, Ames C, ISSG. Outcomes of Operative Treatment for Adult Cervical Deformity: A Prospective Multicenter Assessment with 1-Year Follow-up. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
515. \***Smith JS**, Shaffrey C, Kim HJ, Neuman B, Klineberg E, Schwab F, Lafage V, Lafage R, Scheer J, Protosaltis T, Passias P, Mundis G, Hart R, Deviren V, Bess S, Ames CP, ISSG. Three-column Osteotomy for Correction of Cervical Deformity: Alignment Changes and Early Complications in A Multicenter Prospective Series of 24 Patients. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
516. \*Ailon TT, **Smith JS**, Shaffrey CI, Soroceanu A, Lafage V, Schwab F, Burton D, Hart R, Gum J, Hostin R, Kelly M, Glassman S, Bess S, Ames C, ISSG. Adult Spinal Deformity Patients with Previous Fusions have an Equal Chance of Reaching Substantial Clinical Benefit Thresholds in Health-related Quality of Life Measures but do not Reach the Same Absolute Level of Improvement. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
517. \*Lenke L, Miller EK, Sciubba DM, Scheer JK, Neuman BJ, **Smith JS**, Dahl B, Fehlings MG, Cheung K, Carreon LY, Shaffrey CI, Kebaish K, Ames CP, ISSG. Use of the adult spinal deformity frailty index (ASD-FI) to predict major complications in the scoli-risk 1 multicenter, international patient database. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
518. \*Miller EK, Ailon TT, Scheer JK, Daniels AH, **Smith JS**, Schwab F, Lafage V, Burton DC, Hart R, Bess S, Shaffrey CI, Ames CP, ISSG. Despite higher risk stratification scores, frail patients achieve greater two-year health-related quality of life improvement from baseline compared to non-frail patients following adult spinal deformity surgery. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
519. \*Scheer JK, Lafage R, Liabaud B, Schwab FJ, **Smith JS**, Mundis GM Jr, Hostin R, Shaffrey CI, Ames CP, Burton DC, Kim HJ, Bess S, Gupta MC, Lafage V, ISSG. Under-correction of sagittal deformities based on age-adjusted alignment thresholds leads to worse HRQOL while over-correction provides no additional benefit. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
520. \*Hostin R, Scheer JK, Robinson C, Gum J, Schwab F, Hart R, Lafage V, Burton DC, Bess S, Protosaltis T, Klineberg E, Shaffrey CI, **Smith JS**, Ames CP. Use of a validated predictive model for

- patient selection in adult deformity surgery has the potential to enhance QALYs gained at two years: simulation in 234 ASD patients. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
- 521.\*Scheer JK, Ailon T, **Smith JS**, Hart RA, Burton DB, Bess S, Neuman B, Passias P, Miller E, Shaffrey C, Schwab F, Lafage V, Klineberg E, Ames CP, ISSG. Predictive Modeling of Length of Hospital Stay (LOS) Following Adult Spinal Deformity (ASD) Correction: Analysis of 653 Patients with an Accuracy of 75% within 2 Days. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
- 522.\*Gupta MC, Diebo BG, Protopsaltis TS, Hart RA, **Smith JS**, Ames CP, Lafage R, Scheer JK, Kim HJ, Bess S, Burton DC, Passias PG, Schwab FJ, Lafage V, ISSG. Bimodal incidence and causes of proximal junctional kyphosis in adult spinal deformity. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
- 523.\*Goldschmidt E, Angriman F, Trevisan M, Zhou J, Agarwal N, Chen K, Kanter AS, Okonkwo DO, Passias P, Scheer JK, Protopsaltis T, Lafage V, Lafage R, Schwab F, Bess S, Ames CP, **Smith JS**, Burton DC, Hamilton DK, ISSG. Towards a better understanding of cervical sagittal alignment: utilizing a novel angle to describe the relationship between T1 vertebral body slope, cervical lordosis, and cervical sagittal alignment. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
- 524.\*Passias PG, Jalai CM, Lafage R, Ramchandran S, Poorman GW, Lafage V, **Smith JS**, Horn SR, Deviren V, Hart R, Protopsaltis T, Daniels AH, Klineberg E, Shaffrey CI, Ames CP, ISSG. Reciprocal changes in unfused spinal regions after treatment of cervical deformity based on deformity driver and surgical strategies. Spine Summit Annual Meeting of the AANS/CNS DSPN. Las Vegas, NV. March 8-11, 2017.
- 525.\***Smith JS**, Shaffrey C, Kim HJ, Mundis G, Gupta M, Klineberg E, Schwab F, Lafage V, Lafage R, Passias P, Protopsaltis T, Neuman B, Daniels A, Ailon T, Scheer J, Kebaish K, Hart R, O'Brien M, Burton D, Deviren V, Albert T, Riew D, Ames C, ISSG. Outcomes of Operative Treatment for Adult Cervical Deformity: A Prospective Multicenter Assessment with 1-Year Follow-up. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 526.\*Wilson JR, Harrop JS, Schroeder GD, Vaccaro A, Chapman JR, Prasad SK, **Smith JS**, Kepler C, Arnold PM, Fehlings MF. An economic case for the surgical treatment of Type II odontoid fractures in the elderly: A Markov cost-utility analysis based on the prospective AOSpine geriatric odontoid fracture study. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 527.\*Iyer S, Hongda B, Kim HJ, **Smith JS**, Kelly MP, Gupta MC, Albert TJ, Protopsaltis TS, Mundis GM, Passias PG, Neuman BJ, Klineberg EO, Lafage V, Ames CP. Cervical deformity surgery does not result in post-operative dysphagia: A prospective cohort study. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 528.\*Passias PG, Jalai C, Kim HJ, **Smith JS**, Ames CP, Hamilton DK, Eastlack RK, Burton DC, Gupta MC, Bess S, Lafage V, Schwab F, ISSG. Adult spinal deformity patients with proximal junctional kyphosis adjust with cervical malalignment at similar rates but distinct characteristics relative to those unaffected. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 529.\*Ramchandran S, Hamilton DK, Sciubba D, Passias PG, Lafage V, Lafage R, Hart RA, Burton DC, Bess S, Gupta MC, **Smith JS**, Shaffrey CI, Ames CP, ISSG. Analysis of successful vs failed radiographic outcomes following cervical deformity surgery. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.

- 530.\*Kim HJ, Iyer S, Bao H, Protosaltis TS, Mundis GM, Passias PG, Neuman B, Klineberg E, Lafage V, Ames CP, ISSG. The posterior use of BMP-2 in cervical deformity surgery does not result in increased peri-operative complications: A prospective multicenter study. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 531.Protosaltis TS, Ramchandran S, Kim HJ, Neuman B, Passias PG, Lafage V, Gupta MC, Hart RA, Schwab F, Bess S, **Smith JS**, Shaffrey CI, Ames CP, ISSG. Analysis of early distal junction kyphosis (DJK) after cervical deformity correction. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 532.Protosaltis TS, Cruz D, Spiegel MA, Day L, Ames CP, Burton DC, Smith JS, Shaffrey CI, Schwab FJ, Errico TJ, Bess S, Lafage V. Total Disability Index (TDI): A single measure of disability in patients with neck and/or back pain. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 533.**Smith JS**, Shaffrey C, Kim HJ, Neuman B, Klineberg E, Schwab F, Lafage V, Lafage R, Scheer J, Protosaltis T, Passias P, Mundis G, Hart R, Deviren V, Bess S, Ames CP, ISSG. Three-column Osteotomy for Correction of Cervical Deformity: Alignment Changes and Early Complications in A Multicenter Prospective Series of 24 Patients. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 534.**Smith JS**, Line B, Bess S, Shaffrey C, Kim HJ, Mundis G, Scheer J, Klineberg E, Gupta M, Daniels S, Kelly MP, Gum J, Schwab F, Lafage V, Lafage R, Ailon T, Passias P, Protosaltis T, Hart R, Burton D, Deviren V, Ames C, ISSG. The Health Impact of Symptomatic Adult Cervical Deformity: Comparison to United States Population Norms and Chronic Disease States Based on the EQ5D. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 535.Protosaltis T, Ramchandran S, Kim HJ, Sciubba D, Passias PG, Lafage C, Scheer J, Klineberg E, Gupta M, Hart R, Mundis G, Bess S, **Smith JS**, Shaffrey CI, Ames CP, ISSG. The importance of C2-slope as a singular marker of cervical deformity and the link between upper-cervical and cervico-thoracic alignment among cervical deformity patients. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 536.Ramchandran S, Protosaltis T, Sciubba D, Scheer JK, Daniels AH, Passias P, Lafage V, Kim HJ, Mundis GM, Klineberg E, Hart RA, **Smith JS**, Shaffrey CI, Ames CP, ISSG. Upper cervical and infra-cervical compensation in cervical deformity patients. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 537.Miller E, Ailon T, Neuman B, Klineberg E, Mundis G, Sciubba D, Kebaish K, Lafage V, Scheer J, **Smith JS**, Hamilton DK, Bess S, Ames C. Assessment of a novel cervical deformity (ACD) frailty index (FI) as a component of preoperative risk stratification. 44<sup>th</sup> Annual Meeting of the Cervical Spine Research Society. Toronto, Ontario, Canada. December 1-3, 2016.
- 538.\***Smith JS**, Gupta M, Klineberg E, Shaffrey C, Schwab F, Lafage V, Liabaud B, Kim HJ, Hart R, Hostin R, Burton D, Deviren V, Bess S, Ames C, ISSG. Complication Rates Associated with 3-Column Osteotomy in 82 Adult Spinal Deformity Patients: Retrospective Review of a Prospectively Collected Multicenter Consecutive Series with Minimum 2-Yr Follow-Up. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 539.\*Miller E, Jain A, Daniels A, Neuman B, Soroceanu A, Ailon T, Sciubba D, Bess S, Line B, Lafage V, Scheer J, Kebaish K, **Smith JS**, Ames CP, ISSG. Assessment of a Novel Adult Spinal Deformity (ASD) Frailty Index (ASD-FI) to Assist with Risk Stratification for ASD Surgery. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.

- 540.\*Miller E, Lenke L, Rebmann-Espinoza K, Neuman B, Sciubba D, **Smith JS**, Qiu Y, Dahl B, Matsuyama Y, Fehlings M, Cheung K, Carreon L, Ames C, AO Spine KFD, ISSG. Use of the Adult Spinal Deformity (ASD) Frailty Index (ASD-FI) to Predict Major Complication Risk in the Scolio-Risk 1 Patient Database. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 541.\*Kim HJ, Diebo BG, Schwab FJ, Lafage V, Mundis GM Jr, Shaffrey CI, **Smith JS**, Hart RA, Burton DC, Bess S, Ames CP, Klineberg EO, ISSG. Factors associated with complication-free patients in adult spinal deformity surgery: a study of 301 patients with 2-year follow-up. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 542.\*Miller E, Vila-Casademunt A, Sciubba D, Neuman B, **Smith JS**, Kebaish K, Alanay A, Acaroglu E, Kleinstuck F, Obeid I, Perez-Grueso FS, Pellise F, Ames C, ESSG, ISSG. Development and External Validation of the Adult Spinal Deformity (ASD) Frailty Index (ASD-FI). 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016. (Nominated for Hibbs Basic Research Award, 6 nominated out of a total 1,541 abstract submissions)
- 543.\*Kim HJ, Bao H, Iyer S, **Smith JS**, Kelly MP, Gupta M, Albert TJ, Protosaltis T, Mundis GM, Passias P, Neuman B, Klineberg E, Lafage V, Ames CP, ISSG. Neurological complications in Adult Cervical Deformity Surgery. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016. (Nominated for Hibbs Clinical Research Award, 9 nominated out of a total 1,541 abstract submissions)
- 544.\*Protosaltis T, Ramchandran S, Kim HJ, Neuman B, Passias P, Lafage V, Lafage R, Gupta M, Hart R, **Smith JS**, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Analysis of Early Distal Junctional Kyphosis (DJK) after Cervical Deformity Correction. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 545.\*Lafage R, Line B, Liabaud B, Schwab F, **Smith JS**, Gum J, Ames C, Hostin R, Mundis G, Burton D, Kim HJ, Bess S, Klineberg E, Lafage V, ISSG. Orientation of The Upper Instrumented Segment Influences Proximal Junctional Disease Following Adult Spinal Deformity (ASD) Surgery. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 546.\*Ailon TT, **Smith JS**, Shaffrey CI, Soroceanu A, Lafage V, Schwab F, Burton D, Hart R, Gum J, Hostin R, Kelly M, Glassman S, Bess S, Ames C, ISSG. Adult Spinal Deformity Patients with Previous Fusions have an Equal Chance of Reaching Substantial Clinical Benefit Thresholds in Health-related Quality of Life Measures but do not Reach the Same Absolute Level of Improvement. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 547.\*Kim HJ, Iyer S, Schwab F, Protosaltis T, Passias P, Hostin R, Mundis G, Deviren V, Shaffrey C, Kebaish K, **Smith JS**, Bess S, Ames C, Klineberg E, ISSG. Rates of Recovery and Outcomes after Neurologic Complications in Adult Spinal Deformity Surgery. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 548.\*Gum JL, Carreon LY, Kelly MP, Jain A, Hostin R, **Smith JS**, Lafage V, Lafage R, Burton DC, Schwab FJ, Hart RA, Klineberg EO, Shaffrey CI, Bess S, Glassman SD, ISSG. What drives improvement in self-image after ASD surgery? 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 549.\*Hosogane N, Ames CP, Matsumoto M, Yagi M, Matsuyama Y, Taneichi H, Yamato Y, Takeuchi D, Schwab FJ, Shaffrey CI, **Smith JS**, Bess S, Lafage V, ISSG. Ethnic variations in surgical outcomes in older adult spinal deformity (ASD) patients: a comparison between North American and Japanese ASD patients with 2-year follow-up. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.



- 550.\*Varghese JJ, Patel A, Liabaud B, Ames CP, **Smith JS**, Gum JL, Shaffrey CI, Diebo BG, Lafage R, Bess S, Schwab FJ, Lafage V, Kim HJ, ISSG. The impact of pre-operative supine radiographs on surgical strategy in adult spinal deformity. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 551.\*Scheer JK, Lafage R, Liabaud B, Schwab FJ, **Smith JS**, Mundis GM Jr, Hostin R, Shaffrey CI, Ames CP, Burton DC, Kim HJ, Bess S, Gupta MC, Lafage V, ISSG. Under-correction of sagittal deformities based on age-adjusted alignment thresholds leads to worse HRQOL while over-correction provides no additional benefit. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 552.Protopsaltis T, Ramchandran S, Hamilton DK, Sciubba DM, Passias PG, Lafage V, Lafage R, **Smith JS**, Hart RA, Gupta MC, Burton DC, Bess S, Shaffrey CI, Ames CP, ISSG. Analysis of successful vs failed radiographic outcomes following cervical deformity surgery. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 553.Gupta MC, Diebo BG, Protopsaltis TS, Hart RA, **Smith JS**, Ames CP, Lafage R, Scheer JK, Kim HJ, Bess S, Burton DC, Passias PG, Schwab FJ, Lafage V, ISSG. Bimodal incidence and causes of proximal junctional kyphosis in adult spinal deformity. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 554.Liabaud B, Lafage R, Hart RA, Schwab FJ, **Smith JS**, Kim HJ, Hostin R, Passias PG, Ames CP, Mundis GM, Burton DC, Bess S, Klineberg EO, Lafage V, ISSG. Proximal junctional kyphosis can be predicted following adult spinal deformity surgery: models based on regional alignment changes within the fusion area. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 555.Ramchandran S, Protopsaltis TS, Sciubba DM, Scheer JK, Daniels AH, Passias PG, Lafage V, Kim HJ, Mundis Gm, Klineberg EO, Hart RA, **Smith JS**, Shaffrey CI, Ames CP, ISSG. Upper cervical and infra-cervical compensation in cervical deformity patients. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 556.Passias P, Jalai C, **Smith JS**, Lafage V, Diebo B, Protopsaltis T, Poorman G, Ramchandran S, Bess S, Shaffrey C, Ames C, Schwab F, ISSG. Characterizing Cervical Spine Deformity Based on Existing Cervical and Adult Deformity Classification Schemes at Presentation and Following Treatment. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 557.**Smith JS**, Shaffrey C, Kim HJ, Neuman B, Klineberg E, Schwab F, Lafage R, Protopsaltis T, Passias P, Mundis G, Hart R, Deviren V, Bess S, Ames CP, ISSG. Three-column Osteotomy for Correction of Cervical Deformity: Alignment Changes and Early Complications in A Multicenter Prospective Series of 24 Patients. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 558.Passias PG, Oh C, Jalai Cm, Poorman GW, Lafage R, Diebo BG, Scheer JK, Smith JS, Shaffrey CI, Protopsaltis TS, Kim HJ, Hart RA, Lafage V, Ames CP, ISSG. Predictive model for patient-reported outcomes scores following cervical spine deformity surgical correction. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 559.Jain A, Hassanzadeh H, Puvanesarajah, Klineberg EO, Kelly MP, Hamilton DK, Lafage V, Buckland AJ, Passias PG, Protopsaltis TS, Lafage R, **Smith JS**, Shaffrey CI, Kebaish KM, ISSG. Medical complications in 3,519 surgically treated elderly patients with adult spinal deformity: comparison of multicenter surgeon maintained vs Medicare claims database. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
- 560.**Smith JS**, Line B, Bess S, Shaffrey C, Kim HJ, Mundis G, Klineberg E, Schwab F, Lafage V, Passias P, Protopsaltis T, Hart R, Burton D, Ames C, ISSG. The Health Impact of Symptomatic Adult

- Cervical Deformity: Comparison to United States Population Norms and Chronic Disease States Based on the EQ5D. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
561. Kim HJ, Bao H, Iyer S, **Smith JS**, Gupta MC, Albert TJ, Protopsaltis TS, Mundis GM, Passias PG, Neuman BJ, Klineberg EO, Lafage V, Ames CP, ISSG. The posterior use of BMP-2 in cervical deformity surgery does not result in increased complications: a prospective multicenter study. 51<sup>st</sup> Annual Meeting of the Scoliosis Research Society. Prague, Czech Republic. September 21-24, 2016.
562. Ailon TT, **Smith JS**, Shaffrey CI, Soroceanu A, Lafage V, Schwab F, Burton D, Hart R, Gum J, Hostin R, Kelly M, Glassman S, Bess S, Ames C, ISSG. Adult Spinal Deformity Patients with Previous Fusions have an Equal Chance of Reaching Substantial Clinical Benefit Thresholds in Health-related Quality of Life Measures but do not Reach the Same Absolute Level of Improvement. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
563. \***Smith JS**, Gupta M, Klineberg E, Shaffrey C, Schwab F, Lafage V, Liabaud B, Kim HJ, Hart R, Hostin R, Burton D, Deviren V, Bess S, Ames C, ISSG. Complication Rates Associated with 3-Column Osteotomy in 82 Adult Spinal Deformity Patients: Retrospective Review of a Prospectively Collected Multicenter Consecutive Series with Minimum 2-Yr Follow-Up. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
564. **Smith JS**, Line B, Bess S, Shaffrey C, Kim HJ, Mundis G, Klineberg E, Schwab F, Lafage V, Passias P, Protopsaltis T, Hart R, Burton D, Ames C, ISSG. The Health Impact of Symptomatic Adult Cervical Deformity: Comparison to United States Population Norms and Chronic Disease States Based on the EQ5D. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
565. \***Smith JS**, Shaffrey C, Kim HJ, Neuman B, Klineberg E, Schwab F, Lafage R, Protopsaltis T, Passias P, Mundis G, Hart R, Deviren V, Bess S, Ames CP, ISSG. Three-column Osteotomy for Correction of Cervical Deformity: Alignment Changes and Early Complications in A Multicenter Prospective Series of 24 Patients. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
566. **Smith JS**, Shaffrey C, Kim HJ, Gupta M, Schwab F, Passias P, Protopsaltis T, Hart R, O'Brien M, Burton D, Deviren V, Albert T, Riew D, Ames C, ISSG. Outcomes of Operative Treatment for Adult Cervical Deformity: A Prospective Multicenter Assessment with 1-Year Follow-up. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
567. Jalai C, Passias P, Poorman G, **Smith JS**, Scheer J, Sciubba D, Hamilton DK, Mundis G, Klineberg E, Lafage V, Shaffrey C, Ames C, ISSG. Comparative Analysis of Intra-Operative Complications between a Multicenter Prospective Cervical Deformity Database Versus a Nationwide Sample. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
568. \*Scheer J, Hostin R, Robinson C, Gum J, Schwab F, Hart R, Lafage V, Burton D, Bess S, Protopsaltis T, Klineberg E, Shaffrey C, **Smith JS**, Ames C, ISSG. Use of a Validated Predictive Model for Patient Selection in Adult Spinal Deformity (ASD) Surgery has the Potential to Enhance QALYs Gained at 2-years: Simulation in 234 ASD Patients. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
569. Line B, Bess S, **Smith JS**, Shaffrey CI, Klineberg E, Kim HJ, Lafage V, Schwab F, Soroceanu A, Burton D, Gupta M, Deviren V, Ames C, Hart R, ISSG. Failure Patterns of Prophylactic Techniques Utilized to Prevent Proximal Junctional Failure (PJF) Following Adult Spinal Deformity (ASD) Surgery Are Predictable: A Guideline for Surgeons. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.

570. Buckland A, Puvanesarajah, Jain A, Klineberg E, Vigdorichik J, Schwarzkopf R, Shaffrey C, **Smith JS**, Hart R, Ames C, Hassanzadeh, ISSG. Dislocation of Primary Total Hip Arthroplasty is More Common in Patients with Lumbar Spinal Fusion. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
571. Miller E, Neuman B, Sciubba D, Scheer J, **Smith JS**, Klineberg E, Ames C, ISSG. Association of Frailty with Cervical and Global SVA Classification. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
572. \*Passias P, Jalai C, **Smith JS**, Lafage V, Diebo B, Protopsaltis T, Poorman G, Ramchandran S, Bess S, Shaffrey C, Ames C, Schwab F, ISSG. Characterizing Cervical Spine Deformity Based on Existing Cervical and Adult Deformity Classification Schemes at Presentation and Following Treatment. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
573. \*Kim HJ, Bao H, Iyer S, **Smith JS**, Gupta MC, Albert TJ, Protopsaltis TS, Mundis GM, Passias PG, Neuman BJ, Klineberg EO, Lafage V, Ames CP, ISSG. The posterior use of BMP-2 in cervical deformity surgery does not result in increased complications: a prospective multicenter study. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
574. Passias P, Jalai C, **Smith JS**, Poorman G, Protopsaltis T, Neuman B, Sciubba D, Diebo B, Lafage R, Lafage V, Ames C, Shaffrey C, ISSG. Does Myelopathy or Alignment Improvement Drive Acute Post-Operative Outcomes in Cervical Deformity Patients? 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
575. \*Kim HJ, Bao H, Iyer S, **Smith JS**, Kelly MP, Gupta M, Albert TJ, Protopsaltis T, Mundis GM, Passias P, Neuman B, Klineberg E, Lafage V, Ames CP, ISSG. Neurological complications in Adult Cervical Deformity Surgery. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
576. \*Kim HJ, Bao H, Iyer S, **Smith JS**, Kelly MP, Gupta M, Albert TJ, Protopsaltis T, Mundis GM, Passias P, Neuman B, Klineberg E, Lafage V, Ames CP, ISSG. Cervical Deformity Surgery does not result in Post-operative Dysphagia: a Prospective Cohort Study. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
577. \*Passias PG, Jalai CM, Lafage V, Lafage R, Protopsaltis TS, Ramchandran S, Gupta MC, Hart RA, Deviren V, Soroceanu A, **Smith JS**, Schwab FJ, Shaffrey CI, Ames CP, ISSG. Primary drivers of cervical deformity: prevalence and effect of surgical treatment strategies on post-operative alignment. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
578. \*Passias PG, Oh C, Jalai Cm, Poorman GW, Lafage R, Diebo BG, Scheer JK, Smith JS, Shaffrey CI, Protopsaltis TS, Kim HJ, Hart RA, Lafage V, Ames CP, ISSG. Predictive model for patient-reported outcomes scores following cervical spine deformity surgical correction. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
579. \*Kim HJ, Diebo BG, Iyer S, Kelly MP, Sciubba DM, Schwab FJ, Lafage V, Mundis GM, Shaffrey CI, **Smith JS**, Hart RA, Burton DC, Bess S, Ames CP, Klineberg EO, ISSG. Thromboembolic disease in adult spinal deformity Surgery: incidence and risk factors in 737 patients. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
580. Klineberg E, Nguyen S, Kelly M, Bess S, Shaffrey C, **Smith JS**, Lafage V, Schwab F, Errico T, Burton D, Kim HJ, Ames CP, Gupta M, Mundis GM, ISSG. Estimated Blood Loss is a Weak Predictor of Major Complications in Adult Spinal Deformity Surgery. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
581. Scheer JK, Ailon T, **Smith JS**, Hart RA, Burton DB, Bess S, Neuman B, Passias P, Miller E, Shaffrey C, Schwab F, Lafage V, Klineberg E, Ames CP, ISSG. Predictive Modeling of Length of Hospital

- Stay (LOS) Following Adult Spinal Deformity (ASD) Correction: Analysis of 653 Patients with an Accuracy of 75% within 2 Days. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
- 582.\*Klineberg E, Jain A, Puvanesarajah V, Shaffrey C, **Smith JS**, Bess S, Burton D, Lafage V, Kim HJ, Sciubba D, Ames C, Scheer JK, Gupta M, Hassanzadeh H, ISSG. Medical Complication Profile for Elective Orthopedic Surgery in the Elderly, Establishment of a Baseline Complication Rate for THA, TKA, and Spine Fusion. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
- 583.\*Kim HJ, Iyer S, Schwab F, Protosaltis T, Passias P, Hostin R, Mundis G, Deviren V, Shaffrey C, Kebaish K, **Smith JS**, Bess S, Ames C, Klineberg E, ISSG. Rates of Recovery and Outcomes after Neurologic Complications in Adult Spinal Deformity Surgery. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
- 584.Miller E, Jain A, Daniels A, Neuman B, Soroceanu A, Ailon T, Sciubba D, Bess S, Line B, Lafage V, Scheer J, Kebaish K, **Smith JS**, Ames CP, ISSG. Assessment of a Novel Adult Spinal Deformity (ASD) Frailty Index (ASD-FI) to Assist with Risk Stratification for ASD Surgery. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
- 585.Hamilton DK, Buza J, Passias P, Jalai C, Kim HJ, Hart R, Ailon T, Gupta M, Ames C, Deviren V, Daniels A, Lafage V, Bess S, Klineberg E, Shaffrey C, Jain A, **Smith JS**, ISSG. The Fate of Adult Spinal Deformity (ASD) Patients Incurring Rod Fracture after Thoracolumbar Fusion without Prior 3-Column Osteotomy. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
- 586.\*Gum JL, Hostin R, Robinson C, Glassman S, Burton D, Polly DW Jr, Bess S, Kelly M, Shaffrey C, **Smith JS**, Lafage V, Schwab F, Ames C, Carreon LY, ISSG. Cost-effectiveness of Surgical Treatment of Adult Spinal Deformity: Comparison of Posterior-only versus Anterior-Posterior Approach. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016. (Recipient of the 2016 North American Spine Society Value Abstract Award)
- 587.\*Gum JL, Carreon LY, Hostin R, Robinson C, Glassman SD, Kelly M, Burton D, Polly DW Jr, **Smith JS**, Shaffrey C, Schwab F, Lafage V, Hart R, Ames C, ISSG. Propensity-Matched Cost-effectiveness Comparison of Bone Morphogenetic Protein (BMP) Utilization in Adult Spinal Deformity (ASD) Surgery using Direct Costs. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
- 588.\*Cruz DL, Day L, Ramchandran S, Foster N, Line B, Lafage V, Ames C, Shaffrey C, Kelly M, Gum J, **Smith JS**, Schwab F, Hostin R, Bess S, ISSG. Operative (OP) Treatment of Adult Spinal Deformity (ASD) Patients with Moderate to Severe Disability is Superior to Nonoperative (NON) Treatment. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
- 589.\*Gupta MC, Diebo BG, Protosaltis TS, Hart RA, **Smith JS**, Ames CP, Lafage R, Scheer JK, Kim HJ, Bess S, Burton DC, Passias PG, Schwab FJ, Lafage V, ISSG. Bimodal incidence and causes of proximal junctional kyphosis in adult spinal deformity. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
- 590.\*Miller E, Lenke L, Rebmann-Espinoza K, Neuman B, Sciubba D, **Smith JS**, Qiu Y, Dahl B, Matsuyama Y, Fehlings M, Cheung K, Carreon L, Ames C, AO Spine KFD, ISSG. Use of the Adult Spinal Deformity (ASD) Frailty Index (ASD-FI) to Predict Major Complication Risk in the Scolio-Risk 1 Patient Database. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
- 591.Daniels A, Line B, Lafage V, **Smith JS**, Shaffrey C, Gupta M, Klineberg E, Schwab F, Passias P, Burton D, Bess S, Ames C, Hart R, ISSG. When Do Surgeons Choose Upper Thoracic Versus Lower

- Thoracic Proximal End Point for Fusion of Adult Spinal Deformity Patients? 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
592. Keefe M, Scheer J, Yagi M, **Smith JS**, Shaffrey C, Bess S, Lafage V, Schwab F, Hosogane N, Matsumoto M, Ames C, ISSG. Comparing Japanese and American Patient Expectations and Priorities Using A Patient Generated Index (PGI). 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
593. \*Miller E, Vila-Casademunt A, Sciubba D, Neuman B, **Smith JS**, Kebaish K, Alanay A, Acaroglu E, Kleinstuck F, Obeid I, Perez-Grueso FS, Pellise F, Ames C, ESSG, ISSG. Development and External Validation of the Adult Spine Deformity (ASD) Frailty Index (ASD-FI). 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
594. \*Protopsaltis T, Ramchandran S, Kim HJ, Neuman B, Passias P, Lafage V, Lafage R, Gupta M, Hart R, **Smith JS**, Schwab F, Bess S, Shaffrey C, Ames C, ISSG. Analysis of Early Distal Junctional Kyphosis (DJK) after Cervical Deformity Correction. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
595. Steiner C, Henry J, Diebo B, **Smith JS**, Patel, Shaffrey C, Ames C, Mundis G, Burton D, Bess S, Gum J, Schwab F, Lafage V, Kim HJ, ISSG. Operative vs. Nonoperative Treatment for Sagittal Deformities Characterized by Loss of Lumbar Lordosis with Normal Sagittal Vertical Axis. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
596. \*Lafage R, Scheer J, Liabaud B, Schwab F, **Smith JS**, Passias P, Hostin R, Ames C, Mundis G, Burton D, Kim HJ, Bess S, Klineberg E, Lafage V, ISSG. Impact of Radiculopathy on Patients Reported Outcomes (PRO): A Propensity Matched Study on 386 Adult Spinal Deformity Patients With and Without Leg Pain. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
597. \*Lafage R, Obeid I, Liabaud B, Bess S, Burton D, **Smith JS**, Jalai C, Hostin R, Shaffrey C, Ames C, Kim HJ, Klineberg E, Schwab F, Lafage V, ISSG. Location of Correction Within the Lumbar Spine Impacts Acute Adjacent Segment Kyphosis. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
598. \*Elysee, Lafage R, Line B, Schwab F, **Smith JS**, Obeid I, Hart R, Gum J, Ames C, Mundis G, Albert TJ, Bess S, Gupta M, Lafage V, ISSG. Upper-Most Instrumented Vertebra Mechanical Loading Correlates With the Magnitude of Proximal Junctional Kyphosis in Adult Spinal Deformity Surgery. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
599. \*Liabaud B, Lafage R, Hart R, Schwab F, **Smith JS**, Kim HJ, Hostin R, Passias P, Ames C, Mundis G, Burton D, Bess S, Klineberg E, Lafage V, ISSG. Proximal Junctional Kyphosis (PJK) Can Be Predicted Following Adult Spinal Deformity (ASD) Surgery: Models Based On Regional Alignment Changes Within the Fusion Area. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
600. \*Lafage R, Gum J, Liabaud B, Schwab F, **Smith JS**, Ames C, Hostin R, Shaffrey C, Mundis G, Burton D, Hart, Bess S, Gupta M, Lafage V, ISSG. Unfused Thoracic Spine Reciprocal Alignment Changes Following Adult Spinal Deformity (ASD) Surgery Can Be Predicted. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
601. \*Lafage R, Line B, Liabaud B, Schwab F, **Smith JS**, Gum J, Ames C, Hostin R, Mundis G, Burton D, Kim HJ, Bess S, Klineberg E, Lafage V, ISSG. Orientation of The Upper Instrumented Segment Influences Proximal Junctional Disease Following Adult Spinal Deformity (ASD) Surgery. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.

- 602.\*Baker JF, McClelland S 3<sup>rd</sup>, Line BG, **Smith JS**, Gold HT, Hart RA, Ames CP, Bess RS. Surgery for degenerative conditions of the lumbar spine in Parkinson's disease: comparative analysis from the Nationwide Inpatient Sample Database. 31<sup>st</sup> Annual Meeting of the North American Spine Society. Boston, MA. October 26-29, 2016.
- 603.\*Miller E, Ailon T, Neuman BJ, Klineberg EO, Mundis GM, Sciubba DM, Kebaish K, Lafage V, Scheer JK, **Smith JS**, Hamilton DK, Bess S, Ames CP, ISSG. Assessment of a novel cervical deformity frailty index as a component of a preoperative risk stratification. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016. (One of 9 abstracts nominated for the Whitecloud Award for Best Clinical Abstract from >1,500 submitted abstracts)
- 604.\*Soroceanu A, **Smith JS**, Gupta MC, Passias P, Protosaltis TS, Hart RA, Lafage V, Burton DC, Scheer JK, Schwab FJ, Errico TJ, Shaffrey CI, Ames CP, ISSG. Primary versus revision adult cervical deformity: a prospective multicenter study with 1-year follow-up. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016. (One of 9 abstracts nominated for the Whitecloud Award for Best Clinical Abstract from >1,500 submitted abstracts)
- 605.\*Lafage R, Obeid I, Liabaud B, Bess S, Burton DC, **Smith JS**, Jalai CM, Hostin R, Shaffrey CI, Ames CP, Kim HJ, Klineberg EO, Schwab FJ, Lafage V, ISSG. Location of correction within the lumbar spine impacts acute adjacent segment kyphosis. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016. (One of 9 abstracts nominated for the Whitecloud Award for Best Clinical Abstract from >1,500 submitted abstracts)
- 606.\*Kim HJ, Bao H, Iyer S, **Smith JS**, Gupta MC, Albert TJ, Protosaltis TS, Mundis GM, Passias PG, Neuman BJ, Klineberg EO, Lafage V, Ames CP, ISSG. The posterior use of BMP-2 in cervical deformity surgery does not result in increased complications: a prospective multicenter study. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.
- 607.\*Kim HJ, Diebo BG, Iyer S, Kelly MP, Sciubba DM, Schwab FJ, Lafage V, Mundis GM, Shaffrey CI, **Smith JS**, Hart RA, Burton DC, Bess S, Ames CP, Klineberg EO, ISSG. Thromboembolic disease in adult spinal deformity Surgery: incidence and risk factors in 737 patients. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.
- 608.\*Jain A, Hassanzadeh H, Puvanesarajah, Klineberg EO, Kelly MP, Hamilton DK, Lafage V, Buckland AJ, Passias PG, Protosaltis TS, Lafage R, **Smith JS**, Shaffrey CI, Kebaish KM, ISSG. Medical complications in 3,519 surgically treated elderly patients with adult spinal deformity: comparison of multicenter surgeon maintained vs Medicare claims database. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.
- 609.\*Ramchandran S, Protosaltis TS, Sciubba DM, Scheer JK, Daniels AH, Passias PG, Lafage V, Kim HJ, Mundis Gm, Klineberg EO, Hart RA, **Smith JS**, Shaffrey CI, Ames CP, ISSG. Upper cervical and infra-cervical compensation in cervical deformity patients. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.
- 610.\***Smith JS**, Shaffrey CI, Kim HJ, Neuman BJ, Klineberg EO, Schwab FJ, Lafage R, Protosaltis TS, Passias PG, Mundis GM, Hart RA, Deviren V, Bess S, Ames CP, ISSG. Three-column osteotomy for correction of cervical deformity: alignment changes and early complications in a multicenter prospective series of 24 patients. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.
- 611.\***Smith JS**, Line B, Bess S, Shaffrey CI, Kim HJ, Mundis GM, Klineberg EO, Schwab FJ, Lafage V, Protosaltis TS, Hart RA, Burton DC, Ames CP, ISSG. The health impact of symptomatic adult cervical deformity: comparison to United States population norms and chronic disease states based on the EQ5D. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.

- 612.\*Passias PG, Jalai CM, Lafage V, Lafage R, Protopsaltis TS, Ramchandran S, Gupta MC, Hart RA, Deviren V, Soroceanu A, **Smith JS**, Schwab FJ, Shaffrey CI, Ames CP, ISSG. Primary drivers of cervical deformity: prevalence and effect of surgical treatment strategies on post-operative alignment. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.
- 613.\*Passias PG, Oh C, Jalai Cm, Poorman GW, Lafage R, Diebo BG, Scheer JK, Smith JS, Shaffrey CI, Protopsaltis TS, Kim HJ, Hart RA, Lafage V, Ames CP, ISSG. Predictive model for patient-reported outcomes scores following cervical spine deformity surgical correction. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.
- 614.\*Kim HJ, Bao H, Iyer S, **Smith JS**, Kelly MP, Gupta MC, Albert TJ, Mundis GM, Passias PG, Neuman BJ, Klineberg E, Lafage V, Ames CP, ISSG. Cervical deformity surgery does not result in post-operative dysphagia: a prospective cohort study. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.
- 615.\*Gupta MC, Diebo BG, Protopsaltis TS, Hart RA, **Smith JS**, Ames CP, Lafage R, Scheer JK, Kim HJ, Bess S, Burton DC, Passias PG, Schwab FJ, Lafage V, ISSG. Bimodal incidence and causes of proximal junctional kyphosis in adult spinal deformity. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.
- 616.\*Liabaud B, Lafage R, Hart RA, Schwab FJ, **Smith JS**, Kim HJ, Hostin R, Passias PG, Ames CP, Mundis GM, Burton DC, Bess S, Klineberg EO, Lafage V, ISSG. Proximal junctional kyphosis can be predicted following adult spinal deformity surgery: models based on regional alignment changes within the fusion area. 23<sup>rd</sup> Annual International Meeting for Advanced Spine Techniques. Washington, DC. July 13-16, 2016.
- 617.\*Scheer JK, Ailon TT, **Smith JS**, Hart R, Burton DC, Bess S, Neuman BJ, Passias PG, Miller E, Shaffrey CI, Schwab F, Lafage V, Klineberg E, Ames CP. Predictive modeling of length of hospital stay (LOS) following adult spinal deformity (ASD) correction: analysis of 653 patients with an accuracy of 75% within two days. Congress of Neurological Surgeons. San Diego, CA. September 24-28, 2016.
- 618.\*Scheer JK, **Smith JS**, Schwab FJ, Lafage V, Hart RA, Bess S, Line B, Diebo BG, Protopsaltis TS, Jain A, Ailon T, Burton DC, Klineberg EO, Ames CP, ISSG. Development of validated computer based preoperative predictive model for proximal junction failure or clinically significant PJK with 86 percent accuracy based on 510 ASD patients with two-year follow up. 84<sup>th</sup> Annual Meeting of the American Association of Neurological Surgeons. Chicago, IL. April 30-May 4, 2016.
- 619.\*Scheer JK, **Smith JS**, Schwab FJ, Lafage V, Shaffrey CI, Bess S, Daniels AH, Hart RA, Protopsaltis T, Mundis GM, Ailon T, Burton DC, Klineberg EO, Ames CP, ISSG. Development of a preoperative predictive model for intra- or peri-operative major complications with high accuracy validated with 558 ASD patients. 84<sup>th</sup> Annual Meeting of the American Association of Neurological Surgeons. Chicago, IL. April 30-May 4, 2016.
- 620.\*Saigal R, Berven S, Lafage V, Kelly M, Kopjar B, **Smith J**, Dahl B, Cheung K, Carreon L, Schwab F, Rebmann K, Shaffrey C, Fehlings M, Lenke L, Ames C. New motor deficit after spinal deformity surgery leads to worsened early HRQOL: sub analysis of 273 patients from Scolio Risk 1 prospective study. Global Spine Congress. Dubai, United Arab Emirates. April 13-16, 2016.
- 621.\*Gupta MC, Henry J, Schwab FJ, Klineberg EO, **Smith JS**, Gum JL, Polly DW Jr, Liabaud B, Diebo BG, Hamilton DK, Eastlack RK, Passias PG, Burton DC, Protopsaltis TS. Dedicated surgical measurement software helps obtain sagittal and pelvic parameters more reliably than traditional PACS. Global Spine Congress. Dubai, United Arab Emirates. April 13-16, 2016.

- 622.\***Smith JS**, Lafage V, Shaffrey CI, Protosaltis T, Passias P, Schwab F, O'Brien M, Mundis G, Hart R, Kim HJ, Klineberg E, Riew KD, Ames CP, ISSG. Prospective multicenter assessment of early complication rates associated with adult cervical deformity (ACD) surgery in 78 patients. Global Spine Congress. Dubai, United Arab Emirates. April 13-16, 2016.
- 623.\*Klineberg E, **Smith JS**, Lafage V, Shaffrey CI, Bess S, Schwab F, Gupta M, Hart R, Protosaltis T, Mundis G, Kim H, Burton D, Scheer J, Ames C, ISSG. Prospective multicenter assessment of complication rates associated with adult spinal deformity surgery in 291 patients with minimum 2-year follow-up. Global Spine Congress. Dubai, United Arab Emirates. April 13-16, 2016.
- 624.\*Gupta M, Henry JK, Lafage V, Schwab F, Ames CP, Klineberg E, **Smith JS**, Deviren V, Shaffrey CI, Hart R, Hostin R, Mundis G, Kim HJ, Burton D, ISSG. Reducing rod breakage and nonunion in pedicle subtraction osteotomy: the importance of rod number and configuration in 264 patients with 2-year follow-up. Global Spine Congress. Dubai, United Arab Emirates. April 13-16, 2016.
- 625.\*Berven S, Saigal R, Lafage V, Kelly M, Kopjar B, **Smith J**, Dahl B, Cheung K, Carreon L, Schwab F, Espinoza-Rebmann K, Shaffrey C, Fehlings M, Lenke L, Ames C. Defining normative quality metrics in complex high-risk deformity cases: results from the Scolio-Risk 1 study. Global Spine Congress. Dubai, United Arab Emirates. April 13-16, 2016.
- 626.\*Scheer JK, **Smith JS**, Schwab FJ, Lafage V, Hart RA, Bess S, Line B, Diebo BG, Protosaltis TS, Jain A, Ailon T, Burton DC, Klineberg EO, Ames CP, ISSG. Development of validated computer based preoperative predictive model for proximal junction failure or clinically significant PJK with 86 percent accuracy based on 510 ASD patients with two-year follow up. Global Spine Congress. Dubai, United Arab Emirates. April 13-16, 2016.
- 627.\*Shamji M, Tetreault L, Kurpad S, Brodke D, **Smith J**, Arnold P, Broedt E, Dettori J, Fehlings M. Change in impairment following operative treatment of degenerative cervical myelopathy: a systematic review and meta-analysis. Global Spine Congress. Dubai, United Arab Emirates. April 13-16, 2016.
- 628.\**Sure D, LaBagnara M*, **Smith JS**, Shaffrey CI, ISSG. Complication rates associated with 3-column osteotomy in 82 adult spinal deformity patients: retrospective review of a prospectively collected multicenter consecutive series with minimum 2-year follow-up. 14<sup>th</sup> Annual AOSNA Fellows Forum. Banff Springs, Alberta, Canada. March 21-April 2, 2016.
- 629.\*Scheer JK, **Smith JS**, Schwab FJ, Lafage V, Hart RA, Bess S, Line B, Diebo BG, Protosaltis TS, Jain A, Ailon T, Burton DC, Klineberg EO, Ames CP, ISSG. Development of validated computer based preoperative predictive model for proximal junction failure or clinically significant PJK with 86 percent accuracy based on 510 ASD patients with two-year follow up. 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 630.\*Klineberg EO, Carlson BB, Protosaltis TS, Passias PG, **Smith JS**, Ames CP, Hostin RA, Gupta MC, Lafage V, Mundis GM, Kelly MP, Hart RA, Schwab FJ, Burton DB. Can measures on cervical radiographs predict concurrent thoracolumbar deformity and provide a threshold for acquiring full-length spine radiographs? 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 631.\*Passias P, Jalai C, Worley N, Scheer JK, Soroceanu A, Protosaltis T, Klineberg E, Sciubba D, Neuman B, Kim HJ, Hamilton K, **Smith JS**, Lafage V, Ames CP. Development of new onset cervical deformity is common in operative and non-operative ASD patients but is associated with different baseline factors: series of 2010 patients with 3 year follow up. 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 632.\*Lafage R, Lafage V, Protosaltis T, Hart R, Passias P, Klineberg E, **Smith JS**, Neuman B, Hamilton K, Jain A, Mundis G, Zabala L, Shaffrey C, Ames C, ISSG. Focal and dynamic cervical alignment



- pathology correlates with myelopathy severity in cervical deformity patients. 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 633.\*Protopsaltis T, Lafage R, Lafage V, Sciubba DM, Hamilton DK, **Smith JS**, Passias PG, Soroceanu A, Mundis GM, Klineberg EO, Hart RA, Shaffrey CI, Schwab FJ, Ames CP, ISSG. Novel cervical angular measures account for both upper cervical compensation and sagittal alignment. 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 634.\***Smith JS**, Klineberg E, Shaffrey CI, Ailon T, Lafage V, Schwab F, Bess S, Daniels A, Scheer JK, Protopsaltis T, Chapman J, Fehlings MG, Ames CP. Assessment of impact of long-cassette standing x-rays on surgical planning for cervical pathology: an international survey of spine surgeons. 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 635.\*Theologis A, Mundis GM Jr, Nguyen S, Okonkwo DO, Mummaneni PV, **Smith JS**, Shaffrey CI, Fessler RG, Bess S, Schwab F, Diebo BG, Burton DC, Hart R, Deviren V, Ames CP, ISSG. Utility of multi-level lateral interbody fusion of the thoracolumbar coronal curve apex in adult deformity surgery in combination with posterior instrumentation and L5-S1 interbody fusion: a case-matched evaluation of 46 patients. 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 636.\*Ailon T, Scheer JK, Ames CP, Hart RA, Klineberg EO, Lafage V, Bess S, Burton DC, Gupta MC, Protopsaltis TS, Hostin RA, Deviren V, Schwab FJ, **Smith JS**, Shaffrey CI. Proximal junctional angle predicts need for revision but not deterioration in sagittal radiographic parameters after adult spinal deformity. 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 637.\*Sciubba D, Jain A, Neuman B, Kebaish K, Passias P, Zebala L, Kim HJ, Protopsaltis T, Scheer J, **Smith JS**, Hamilton K, Bess S, Klineberg E, Ames C, ISSG. Development of a preoperative adult spinal deformity frailty index that correlates to common quality and value metrics: length of stay, major complications and patient reported outcomes. 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 638.\*Bess S, **Smith JS**, Lafage V, Shaffrey CI, Schwab FJ, Haid RW, Harris J, Turner AW. The effect of posterior tethers on the biomechanics of proximal junctional kyphosis: a finite element analysis. 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 639.\*Theologis A, Scheer JK, Ailon T, **Smith JS**, Shaffrey CI, Bess S, Gupta M, Klineberg E, Kebaish K, Schwab FJ, Lafage V, Burton DC, Hart RA, Ames CP, ISSG. The impact of depression on two-year outcomes after adult spinal deformity surgery. 32<sup>nd</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Spine Summit 2016. Orlando, FL. March 16-19, 2016.
- 640.\*Grabel ZJ, Hart RA, Clark AP, Park SH, Shaffrey CI, Scheer J, **Smith JS**, Kelly M, DePasse JM, Gupta M, Ames CP, Daniels AH. Adult spinal deformity knowledge in orthopedic spine surgeons: impact of training and practice experience. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.
- 641.\*Cheriyian T, Schwab F, Kebaish K, Gupta M, Ames C, Shaffrey C, Tanzi E, Kelly M, **Smith JS**, Bess S, Hart R, Hostin R, Errico T, Lafage V, ISSG. Site variability in surgical technique and outcomes in adult spinal deformity. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.

642. Passias P, Jalai C, Worley N, Scheer JK, Soroceanu A, Protosaltis T, Klineberg E, Sciubba D, Neuman B, Kim HJ, Hamilton K, **Smith JS**, Lafage V, Ames CP. Development of new onset cervical deformity is common in operative and non-operative ASD patients but is associated with different baseline factors: series of 2010 patients with 3 year follow up. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.
643. **Smith JS**, Lafage V, Shaffrey CI, Protosaltis T, Passias P, Schwab F, O'Brien M, Mundis G, Hart R, Kim HJ, Klineberg E, Riew KD, Ames CP, ISSG. Prospective multicenter assessment of early complication rates associated with adult cervical deformity (ACD) surgery in 78 patients. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.
644. \*Lafage R, Lafage V, Protosaltis T, Hart R, Passias P, Klineberg E, **Smith JS**, Neuman B, Hamilton K, Jain A, Mundis G, Zabala L, Shaffrey C, Ames C, ISSG. Focal and dynamic cervical alignment pathology correlates with myelopathy severity in cervical deformity patients. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.
645. \*Sciubba D, Jain A, Neuman B, Kebaish K, Passias P, Zebala L, Kim HJ, Protosaltis T, Scheer J, **Smith JS**, Hamilton K, Bess S, Klineberg E, Ames C, ISSG. Development of a preoperative adult spinal deformity frailty index that correlates to common quality and value metrics: length of stay, major complications and patient reported outcomes. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.
646. \***Smith JS**, Klineberg E, Lafage V, Shaffrey CI, Bess S, Schwab F, Gupta M, Hart R, Protosaltis T, Mundis G, Kim HJ, Burton D, Scheer JK, Ames CP, ISSG. Prospective multicenter assessment of intraoperative and perioperative complication rates associated with adult spinal deformity surgery in 558 patients. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.
647. \*Scheer JK, **Smith JS**, Schwab FJ, Lafage V, Shaffrey CI, Bess S, Daniels AH, Hart RA, Protosaltis T, Mundis GM, Ailon T, Burton DC, Klineberg EO, Ames CP, ISSG. Development of a preoperative predictive model for intra- or peri-operative major complications with high accuracy validated with 558 ASD patients. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.
648. Henry J, Schwab F, Protosaltis T, **Smith JS**, Ames C, Kelly M, Gum J, Mundis G, Hostin R, Hart R, Kebaish K, Burton D, Bess S, Lafage V, ISSG. Post-operative alignment in ASD surgery can be predicted based on construct length, termination level and procedure type: series of 222 patients. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.
649. \*Bronson WH, Protosaltis T, Liabaud B, Mundis G, Gum J, Burton D, **Smith JS**, Ames C, Schwab F, Lafage V, ISSG. Reliability of intraoperative prone lateral radiographs in predicting postoperative standing sagittal alignment. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.
650. \*Gupta M, Henry JK, Lafage V, Schwab F, Ames CP, Klineberg E, **Smith JS**, Deviren V, Shaffrey CI, Hart R, Hostin R, Mundis G, Kim HJ, Burton D, ISSG. Reducing rod breakage and nonunion in pedicle subtraction osteotomy: the importance of rod number and configuration in 264 patients with 2-year follow-up. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.
651. \*Scheer JK, Gum J, Kelly M, Schwab F, Hostin R, Lafage V, Bess S, Protosaltis T, Burton D, Gupta M, Hart R, Mundis G, **Smith JS**, Ames CP, ISSG. Ratio of disability to deformity burden in 264 adult spinal deformity patients with 2-year follow-up: novel insight into drivers of disability. American Academy of Orthopedic Surgeons Annual Meeting. Orlando, FL. March 1-5, 2016.

- 652.\*Iyer S, Kim HJ, Theologis A, Nemani VM, Albert TJ, Lenke LG, Burch S, Boachie-Adjei O, Deviren V, Protosaltis TS, **Smith JS**, Scheer JK, Mizutani J, Klineberg EO, Ames CP. Outcomes and complications of fusions from the cervical spine to the pelvis: series of 46 cases with average 2.7-year follow-up. 43<sup>rd</sup> Annual Cervical Spine Research Society Annual Meeting. San Diego, CA. December 2-5, 2016.
- 653.\*Kim HJ, Iyer S, **Smith JS**, Kelly MP, O'Brien MF, Gupta MC, Albert TJ, Protosaltis TS, Mundis GM, Passias PG, Klineberg EO, Ames CP, ISSG. Cervical deformity surgery does not result in acute post-operative dysphagia: preliminary results from a prospective cervical deformity study. 43<sup>rd</sup> Annual Cervical Spine Research Society Annual Meeting. San Diego, CA. December 2-5, 2016.
- 654.O'Neill KR, Fehlings MG, Mroz TE, Smith ZA, Hsu WK, Kanter A, Steinmetz MP, Arnold PM, Mummaneni PV, Chou D, Nassr A, Qureshi SA, Cho SK, Baird EO, **Smith JS**, Tannoury C, Tannoury TY, Gokaslan ZL, Hart RA, Isaacs RE, Sasso RC, Bumpass DB, Bydon M, Corriveau M, DeGiacomo A, Derakhshan A, Jobse BC, Lubelski D, Lee S, Massicotte EM, Pace J, Smith G, Than KD, Riew KD. A multicenter study of the presentation, treatment, and outcomes of cervical dural tears. 43<sup>rd</sup> Annual Cervical Spine Research Society Annual Meeting. San Diego, CA. December 2-5, 2016.
- 655.Passias PG, Oh C, Jalai CM, Worley NJ, Lafage R, Scheer JK, Klineberg EO, Hart RA, Kim HJ, **Smith JS**, Lafage VC, Ames CP, ISSG. Predictive model for cervical alignment outcomes following surgical correction of adult spinal deformity. 43<sup>rd</sup> Annual Cervical Spine Research Society Annual Meeting. San Diego, CA. December 2-5, 2016.
- 656.Kim HJ, Iyer S, Theologis AA, Albert TJ, Lenke LG, Deviren V, Nemani VM, Boachie-Adjei O, Burch S, Mizutani J, Klineberg EO, Protosaltis TS, **Smith JS**, Scheer JK, Ames CP. Extent of proximal fusion correlates with worse outcomes in cervical to pelvis fusions. 43<sup>rd</sup> Annual Cervical Spine Research Society Annual Meeting. San Diego, CA. December 2-5, 2016.
- 657.\*ISSG, Buckland AJ, Vigdorichik J, Lafage R, Mundis GM, Gum JL, Kelly MP, Hart RA, Ames CP, **Smith JS**, Bess S, Errico TJ, Schwab FJ, Lafage V. Acetabular anteversion changes in spinal deformity correction: implications for hip and spine surgeons. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 658.\*ISSG, Scheer JK, Hostin R, Schwab FJ, Robinson C, Lafage V, Burton DC, Hart RA, Kelly MP, Keefe MK, Polly DW JR, Bess S, Shaffrey CI, **Smith JS**, Ames CP, ISSG. Operative management of adult spinal deformity results in significant increases in QALYs gained compared to nonoperative management: analysis of 479 patients with minimum two-year follow-up. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 659.\*ISSG, Bess S, Line B, Kelly MP, Ames CP, Burton DC, Hart RA, Hostin R, Gum JL, Fu KG, Klineberg EO, Lafage V, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Operative treatment of adult spinal deformity improves health related quality of life for all deformity types, while patients treated nonoperatively demonstrate no change at minimum two years follow-up. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 660.\*ISSG, Scheer JK, **Smith JS**, Schwab FJ, Lafage V, Hart RA, Bess S, Line B, Diebo BG, Protosaltis TS, Jain A, Ailon T, Burton DC, Klineberg EO, Ames CP, ISSG. Development of validated computer based preoperative predictive model for proximal junction failure or clinically significant PJK with 86 percent accuracy based on 510 ASD patients with two-year follow up. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 661.\*ISSG, Protosaltis TS, Diebo B, Lafage R, **Smith JS**, Scheer JK, Sciubba DM, Passias PG, Kim HJ, Hamilton DK, Soroceanu A, O'Brien MF, Klineberg EO, Ames CP, Shaffrey CI, Bess S, Hart RA, Schwab FJ, Lafage V. Identifying preoperative thoracic compensation and predicting postoperative reciprocal thoracic kyphosis and PJK. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.

- 662.\*ISSG, Klineberg EO, Carlson BB, Protosaltis TS, Passias PG, **Smith JS**, Ames CP, Hostin RA, Gupta MC, Lafage V, Mundis GM, Kelly MP, Hart RA, Schwab FJ, Burton DB. Can measures on cervical radiographs predict concurrent thoracolumbar deformity and provide a threshold for acquiring full-length spine radiographs? 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 663.\*ISSG, Gupta MC, Henry JK, Lafage V, Schwab FJ, Ames CP, Klineberg EO, **Smith JS**, Deviren V, Shaffrey CI, Hart RA, Hostin R, Mundis GM, Kim HJ, Burton DC, ISSG. Reducing rod breakage and nonunion in pedicle subtraction osteotomy: the importance of rod number and configuration in 264 patients with two-year follow up. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 664.\*ISSG, Scheer JK, Gum JL, Kelly MP, Schwab FJ, Hostin R, Lafage V, Bess S, Protosaltis TS, Burton DC, Gupta MC, Hart RA, Mundis GM, **Smith JS**, Ames CP, ISSG. Ratio of disability to deformity burden in 264 adult spinal deformity patients with two-year follow-up: novel insights into drivers of disability. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 665.\*ISSG, Gomez J, Lafage V, Sciubba D, Bess S, Mundis GM, Liabaud B, Shaffrey CI, Kelly MP, Ames CP, **Smith JS**, Passias PG, Burton DC, Errico TJ, Schwab FJ. Adult scoliosis deformity surgery: comparison of one versus two attending surgeons' clinical outcomes. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 666.\*ISSG, Ailon T, Scheer JK, Ames CP, Hart RA, Klineberg EO, Lafage V, Bess S, Burton DC, Gupta MC, Protosaltis TS, Hostin RA, Deviren V, Schwab FJ, **Smith JS**, Shaffrey CI. Proximal junctional angle predicts need for revision but not deterioration in sagittal radiographic parameters after adult spinal deformity. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 667.\*ISSG, **Smith JS**, Iyer S, Kim HJ, Kelly MP, Hart RA, Gupta MC, Hamilton DK, Neuman BJ, Protosaltis TS, Mundis GM, Lafage V, Passias PG, Klineberg EO, Ames CP. Cervical deformity surgery does not result in acute postoperative dysphagia: preliminary results from a prospective cervical deformity study. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 668.ISSG, Hamilton DK, Carlson BB, Klineberg EO, Bess S, Hart RA, Burton DC, Keefe MK, Scheer JK, Ames CP, **Smith JS**, Passias PG, Protosaltis TS, Soroceanu A, Sciubba DM, Kim HJ, Lafage V, Mundis GM, Schwab FJ. Patients incurring multiple complications following adult spinal deformity surgery demonstrate an additive effect resulting in incremental worsening of health related quality of life. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 669.ISSG, Klineberg EO, Iyer S, Kelly MP, Cunningham ME, Zebala LP, Neuman BJ, Hart RA, Daniels A, Bess S, Gupta MC, Hamilton DK, Mundis GM, Lafage V, **Smith JS**, Ames CP, Burton DC, Kim HJ. Dural tears do not affect outcomes or rates of other associated complications in adult spinal deformity surgery. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 670.ISSG, Hostin R, Robinson C, Gum JL, Kelly MP, Polly DW Jr, Bess S, Ames CP, Burton DC, Gupta MC, Schwab FJ, **Smith JS**, O'Brien MF, ISSG. What is the most expensive cause for readmission following adult spinal deformity surgery? 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
- 671.ISSG, Gupta MC, Henry J, Schwab FJ, Klineberg EO, **Smith JS**, Gum JL, Polly DW Jr, Liabaud B, Diebo BG, Hamilton DK, Eastlack RK, Passias PG, Burton DC, Protosaltis TS. Dedicated surgical

- measurement software helps obtain sagittal and pelvic parameters more reliably than PACS. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
672. ISSG, Cheriyan T, Schwab F, Kebaish K, Gupta M, Ames C, Shaffrey C, Tanzi E, Kelly M, **Smith JS**, Bess S, Hart R, Hostin R, Errico T, Lafage V, ISSG. Site variability in surgical technique and outcomes in adult spinal deformity. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
673. ISSG, Scheer JK, Keefe MK, Kelly MP, Lafage V, Bess S, Burton DC, Hart RA, Jain A, Protopsaltis TS, Hostin RA, Shaffrey CI, **Smith JS**, Schwab FJ, Ames CP. Quantifying risk aversion and likelihood of decision regret in the preoperative evaluation of the adult deformity patient. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
674. ISSG, Lafage R, Schwab FJ, Bess S, Burton DC, Ames CP, Hart RA, Line B, Scheer JK, **Smith JS**, Kim HJ, Klineberg EO, Protopsaltis TS, Lafage V. Redefining radiographic thresholds for junctional kyphosis pathologies. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
675. ISSG, Gum JL, Carreon LY, Kelly MP, Hostin RA, Robinson C, Burton DC, Polly DW JR, Shaffrey CI, Lafage V, Schwab FJ, Ames CP, Kim HJ, **Smith JS**, Bess S. Cell saver for adult spinal deformity surgery minimizes cost. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
676. ISSG, Gum JL, Hostin R, Robinson C, Kelly MP, Carreon LY, Polly DW JR, Bess S, Burton DC, Shaffrey CI, **Smith JS**, Lafage V, Schwab FJ, Ames CP, Glassman SD, ISSG. Impact of cost valuation on cost effectiveness in adult spinal deformity surgery. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
677. ISSG, **Smith JS**, Shaffrey CI, Protopsaltis T, Passias P, Mundis G, Hart R, Kim HJ, Ames CP. Prospective multicenter assessment of early complication rates associated with adult cervical deformity (ACD) surgery in 78 patients. 30<sup>th</sup> Annual Meeting of the North American Spine Society. Chicago, IL. October 14-17, 2015.
678. \*Scheer JK, Shaffrey CI, Shaffrey ME, **Smith JS**, Keefe M, Ames CP. Operative management of adult spinal deformity results in significant increases in QALYs gained compared to nonoperative management: analysis of 479 patients with minimum 2-year follow-up. American Academy of Neurological Surgery. Heidelberg, Germany. October 7-10, 2015.
679. \*Scheer JK, **Smith JS**, Hamilton DK, Sciubba D, Keefe M, Shaffrey CI, Shaffrey ME, Ames CP. Development of a preoperative adult spinal deformity frailty index that correlates to common quality and value metrics: length of stay, major complications and patient reported outcomes. American Academy of Neurological Surgery. Heidelberg, Germany. October 7-10, 2015.
680. \***Smith JS**, Shaffrey CI, Shaffrey ME, Ailon T, Keefe M, Hamilton DK, Sciubba D, Scheer JK, Ames CP. Prospective multicenter assessment of complication rates associated with adult spinal deformity surgery in 291 patients with minimum 2-year follow-up. American Academy of Neurological Surgery. Heidelberg, Germany. October 7-10, 2015.
681. \*Scheer JK, Hostin R, Schwab FJ, Robinson C, Lafage V, Burton DC, Hart RA, Kelly MP, Keefe MK, Polly DW JR, Bess S, Shaffrey CI, **Smith JS**, Ames CP, ISSG. Operative management of adult spinal deformity results in significant increases in QALYs gained compared to nonoperative management: analysis of 479 patients with minimum two-year follow-up. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
682. \*Bess S, Line B, Kelly MP, Ames CP, Burton DC, Hart RA, Hostin R, Gum JL, Fu KG, Klineberg EO, Lafage V, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Operative treatment of adult spinal

- deformity improves health related quality of life for all deformity types, while patients treated nonoperatively demonstrate no change at minimum two years follow-up. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 683.\*Scheer JK, **Smith JS**, Schwab FJ, Hart RA, Hostin R, Lafage V, Jain A, Burton DC, Bess S, Ailon T, Protosaltis T, Klineberg EO, Shaffrey CI, Ames CP, ISSG. Development of a validated computer based preoperative predictive model for reaching ODI MCID for adult spinal deformity patients. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 684.\*Ailon T, Hamilton DK, Hart RA, Klineberg EO, Lafage V, Bess S, Burton DC, Gupta MC, **Smith JS**, Shaffrey CI, ISSG. Low fusion grade does not impact two-year health-related quality of life unless rod fracture occurs for adult spinal deformity. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 685.\*Kim HJ, Iyer S, Theologis A, Albert TJ, Lenke LG, Deviren V, Nemani VM, Boachie-Adjei O, Burch S, Mizutani J, Klineberg EO, Protosaltis TS, **Smith JS**, Scheer JK, Ames CP, ISSG. Extent of proximal fusion correlates with worse clinical outcomes in cervical to pelvis fusions. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 686.\*Gupta MC, Henry JK, Lafage V, Schwab FJ, Ames CP, Klineberg EO, **Smith JS**, Deviren V, Shaffrey CI, Hart RA, Hostin R, Mundis GM, Kim HJ, Burton DC, ISSG. Reducing rod breakage and nonunion in pedicle subtraction osteotomy: the importance of rod number and configuration in 264 patients with two-year follow up. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 687.\*Harris JE, Bess S, Schwab FJ, Shaffrey CI, Haid RW, **Smith JS**, Lafage V, Turner AW. The effect of posterior tethers on the biomechanics of proximal junctional kyphosis: a finite element analysis. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 688.\*Cheriyian T, Schwab FJ, Kebaish K, Gupta MC, Ames CP, Shaffrey CI, Tanzi EM, Kelly MP, **Smith JS**, Bess S, Hart RA, Hostin R, Errico TJ, Lafage V, ISSG. Site variability in surgical technique and outcomes in adult spinal deformity. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 689.\*Scheer JK, Gum JL, Kelly MP, Schwab FJ, Hostin R, Lafage V, Bess S, Protosaltis TS, Burton DC, Gupta MC, Hart RA, Mundis GM, **Smith JS**, Ames CP, ISSG. Ratio of disability to deformity burden in 264 adult spinal deformity patients with two-year follow-up: novel insights into drivers of disability. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 690.\*Ailon T, Scheer JK, Ames CP, Hart RA, Klineberg EO, Lafage V, Bess S, Burton DC, Gupta MC, Protosaltis TS, Hostin R, Schwab FJ, **Smith JS**, Shaffrey CI, ISSG. Proximal junctional angle predicts need for revision but not deterioration in sagittal radiographic parameters after adult spinal deformity surgery. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 691.\*Passias PG, Jalai C, Worley N, Scheer JK, Soroceanu A, Protosaltis TS, Klineberg EO, Sciubba DM, Neuman BJ, Kim HJ, Hamilton DK, **Smith JS**, Lafage V, Ames CP, ISSG. Development of new onset cervical deformity in non-operative ASD patients with three-year follow up. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 692.\*Klineberg EO, **Smith JS**, Lafage V, Shaffrey CI, Bess S, Schwab FJ, Gupta MC, Hart RA, Protosaltis TS, Mundis GM, Kim HJ, Burton DC, Scheer JK, Ames CP, ISSG. Prospective multicenter assessment of intraoperative and perioperative complication rates associated with adult

- spinal deformity surgery in 558 patients. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 693.\*Scheer JK, **Smith JS**, Schwab FJ, Lafage V, Hart RA, Bess S, Line B, Diebo BG, Protosaltis TS, Jain A, Ailon T, Burton DC, Klineberg EO, Ames CP, ISSG. Development of validated computer based preoperative predictive model for proximal junction failure or clinically significant PJK with 86 percent accuracy based on 510 ASD patients with two-year follow up. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 694.\*Kelly MP, Bess S, Ames CP, Burton DC, Carreon LY, Polly DW Jr, Hostin R, Jain A, Gum JL, Lafage V, Schwab FJ, Shaffrey CI, **Smith JS**, Kim HJ, ISSG. Minimum detectable change for health-related quality of life measures varies according to age and disability in adult spinal deformity: implications for calculating minimal clinically important difference. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 695.\*Gum JL, Hostin R, Robinson C, Kelly MP, Carreon LY, Polly DW JR, Bess S, Burton DC, Shaffrey CI, **Smith JS**, Lafage V, Schwab FJ, Ames CP, Glassman SD, ISSG. Impact of cost valuation on cost effectiveness in adult spinal deformity surgery. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 696.\*Gum JL, Carreon LY, Kelly MP, Hostin R, Robinson C, Burton DC, Polly DW JR, Shaffrey CI, Lafage V, Schwab FJ, Ames CP, Kim HJ, **Smith JS**, Bess S, ISSG. Cell saver for adult spinal deformity surgery minimizes cost. 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 697.\*Hostin R, Robinson C, Gum JL, Kelly MP, Polly DW Jr, Bess S, Ames CP, Burton DC, Gupta MC, Schwab FJ, **Smith JS**, O'Brien MF, ISSG. What is the most expensive cause for readmission following adult spinal deformity surgery? 50<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Minneapolis, MN. September 30-October 3, 2015.
- 698.\*Scheer JK, Hostin R, Schwab FJ, Robinson C, Lafage V, Burton DC, Hart RA, Kelly MP, Keefe MK, Polly DW JR, Bess S, Shaffrey CI, **Smith JS**, Ames CP, ISSG. Operative management of adult spinal deformity results in significant increases in QALYs gained compared to nonoperative management: analysis of 479 patients with minimum two-year follow-up. Congress of Neurological Surgeons. New Orleans, LA. September 26-30, 2015.
- 699.**Smith JS**, Klineberg E, Protosaltis TS, Gupta M, Burton D, Deviren V, Eastlack R, Gates M, Passias P, Mundis G, Hamilton K, Hart R, Bess S, Ames CP. Assessment of surgical treatment strategies for moderate to severe adult cervical deformity reveals marked variation in approaches, osteotomies and fusion levels. Congress of Neurological Surgeons. New Orleans, LA. September 26-30, 2015.
- 700.\***Smith JS**, Shaffrey CI, Protosaltis T, Passias P, Mundis G, Hart R, Kim HJ, Ames CP. Prospective multicenter assessment of early complication rates associated with adult cervical deformity (ACD) surgery in 78 patients. Eurospine Annual Meeting. Copenhagen, Denmark. September 2-4, 2015.
- 701.\*Ames CP, **Smith JS**, Schwab F, Jain A, Ailon T, Klineberg E, Scheer J. Development of validated computer based preoperative predictive model for proximal junction failure (PJF) or clinically significant PJK with 86% accuracy based on 510 ASD patients with 2-year follow-up. Eurospine Annual Meeting. Copenhagen, Denmark. September 2-4, 2015.
- 702.\***Smith JS**, Klineberg E, Schwab F, Shaffrey C, Bess S, Mundis G, Kim HJ, Scheer J, Ames C. Prospective multicenter assessment of complication rates associated with adult spinal deformity surgery in 291 patients with minimum 2-year follow-up. Eurospine Annual Meeting. Copenhagen, Denmark. September 2-4, 2015.

- 703.\*Ames CP, **Smith JS**, Schwab F, Shaffrey C, Mundis G, Ailon T, Klineberg E, Scheer J. Development of a preoperative predictive model for intra- or peri-operative major complications with high accuracy validated with 558 ASD patients. Eurospine Annual Meeting. Copenhagen, Denmark. September 2-4, 2015.
- 704.\***Smith JS**, Klineberg E, Schwab F, Shaffrey CI, Bess S, Mundis G, Kim HJ, Scheer J, Ames CP. Prospective multicenter assessment of intraoperative and perioperative complication rates associated with adult spinal deformity surgery in 558 patients. Eurospine Annual Meeting. Copenhagen, Denmark. September 2-4, 2015.
- 705.\*Ames CP, Protosaltis T, Lafage R, Sciubba D, Hart R, **Smith JS**, Shaffrey CI, Schwab F. Novel cervical angular measures account for both upper cervical compensation and sagittal alignment. Eurospine Annual Meeting. Copenhagen, Denmark. September 2-4, 2015.
- 706.\*Lafage V, Gupta M, Henry J, Schwab F, Ames CP, Klineberg E, **Smith JS**, Shaffrey C, Burton D. Reducing rod breakage and nonunion in pedicle subtraction osteotomy: the importance of rod number and configuration in 264 patients with 2-year follow-up. Eurospine Annual Meeting. Copenhagen, Denmark. September 2-4, 2015.
- 707.Lafage R, Protosaltis T, Diebo B, **Smith JS**, Klineberg E, Burton D, Ames C, Bess S, Schwab F. Identifying thoracic compensation and predicting reciprocal thoracic kyphosis and PJK. Eurospine Annual Meeting. Copenhagen, Denmark. September 2-4, 2015.
- 708.\*Kim HJ, Iyer S, Zebala LP, Kelly MP, Sciubba DM, Protosaltis TS, Gupta M, Neuman BJ, Mundis GM, Ames, CP, **Smith JS**, Hart RA, Burton DC, Klineberg EO. Neurologic complications in adult spinal deformity surgery: incidence, risk factors and outcomes in 558 patients. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 709.\*Bess S, Line B, Klineberg E, Ames CP, Akbarnia B, Boachie-Adjei O, Burton DC, Gates ML, Hamilton DK, Hart RA, Hostin R, Lafage V, Mundis GM, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 710.\*Sciubba DM, Jain A, Neuman BJ, Kebaish K, Passias PG, Zebala LP, Kim HJ, Protosaltis T, Scheer JK, **Smith JS**, Hamilton DK, Bess S, Klineberg EO, Ames CP, ISSG. Development of a pre-operative adult spinal deformity frailty index that correlates to common quality and value metrics: length of stay, major complications and patient-reported outcomes. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 711.\*Lafage R, Schwab FJ, Bess S, Burton DC, Ames CP, Hart RA, Line B, Scheer JK, **Smith JS**, Kim HJ, Klineberg EO, Protosaltis TP, Lafage V, ISSG. Redefining radiographic thresholds for junctional kyphosis pathologies. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 712.\*Gupta M, Henry J, Schwab FJ, Klineberg EO, **Smith JS**, Gum JL, Polly DW, Liabaud B, Diebo BG, Hamilton DK, Eastlack RK, Passias PG, Burton DC, Protosaltis T, ISSG. Dedicated surgical measures software (SMS) helps obtain sagittal and pelvic parameters more than PACS. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 713.\*Soroceanu A, **Smith JS**, Lafage V, Klineberg EO, Ailon T, Ames CP, Shaffrey CI, Gupta M, Mundis GM, Kebaish K, Sciubba DM, Hart RA, Hostin R, Schwab FJ, ISSG. Larger global sagittal correction with pedicle subtraction osteotomy is associated with increased PJK and major complications but better correction and HRQL scores. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.



- 714.\*Berven S, Saigal R, Lafage V, Kelly MP, Kopjar B, **Smith JS**, Dahl BT, Cheung K, Carreon L, Schwab FJ, Rebmann K, Shaffrey CI, Fehlings MG, Lenke LG, Ames CP. Defining normative quality metrics in complex high-risk deformity cases: results from the Scolio-Risk 1 study. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 715.\*Protosaltis T, Lafage R, Lafage V, Sciubba DM, Hamilton DK, **Smith JS**, Passias PG, Soroceanu A, Mundis GM, Klineberg EO, Hart RA, Shaffrey CI, Schwab FJ, Ames CP, ISSG. Novel cervical angular measures account for both upper cervical compensation and sagittal alignment. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 716.\*Theologis A, Scheer JK, Ailon T, **Smith JS**, Shaffrey CI, Bess S, Gupta M, Klineberg E, Kebaish K, Schwab FJ, Lafage V, Burton DC, Hart RA, Ames CP, ISSG. The impact of depression on two-year outcomes after adult spinal deformity surgery. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 717.\*Scheer JK, Keefe MK, Kelly MP, Lafage V, Bess S, Burton DC, Hart RA, Jain A, Protosaltis TS, Hostin R, Shaffrey CI, **Smith JS**, Schwab FJ, Ames CP, ISSG. Importance of patient reported individualized goals when assessing outcomes for adult spinal deformity: initial experience with a patient generated instrument. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 718.\*Jain A, Kebaish K, Sciubba D, Neuman BJ, Scheer JK, Schwab FJ, Lafage V, Protosaltis TS, Burton DC, **Smith JS**, Shaffrey CI, Hostin R, Robinson C, Ames CP, ISSG. Early recovery kinetics predict three-year outcomes in operatively treated adult patients with spinal deformity. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 719.\*Koller H, Meyer M, Meier O, Contag AG, Daniels AH, Hamilton DK, **Smith JS**, Bess S, Klineberg EO, Ames CP, Schwab FJ, Hart RA, ISSG. Selecting caudal fusion levels: two-year functional outcomes with matched pairs analysis in multilevel fusion to L5 versus S1. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 720.\*Kim HJ, Iyer S, Theologis A, Nemani VM, Albert TJ, Lenke LG, Burch S, Boachie-Adjei O, Deviren V, Protosaltis T, **Smith JS**, Scheer JK, Mizutani J, Klineberg EO, Ames CP. Outcomes and complications of fusions from the cervical spine to the pelvis: series of 46 cases with average 2.7 year follow-up. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 721.\***Smith JS**, Klineberg E, Protosaltis TS, Gupta M, Burton D, Deviren V, Eastlack R, Gates M, Passias P, Mundis G, Hamilton K, Hart R, Bess S, Ames CP. Assessment of surgical treatment strategies for moderate to severe adult cervical deformity reveals marked variation in approaches, osteotomies and fusion levels. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 722.\***Smith JS**, Lafage V, Shaffrey CI, Protosaltis T, Passias P, Schwab F, O'Brien M, Gupta M, Mundis G, Hart R, Kim HJ, Klineberg E, Riew D, Ames CP. Prospective multicenter assessment of early complication rates associated with adult cervical deformity surgery in 78 patients. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 723.\*Lafage R, Lafage V, Protosaltis T, Hart R, Passias P, Klineberg E, **Smith JS**, Neuman B, Hamilton K, Jain A, Mundis G, Zabala L, Shaffrey CI, Ames CP. Focal and dynamic cervical alignment pathology correlates with myelopathy severity in cervical deformity patients. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 724.\*Protosaltis TS, Lafage R, Lafage V, Schwab F, **Smith JS**, Passias P, Spiegel M, Sciubba D, Mundis G, Kim HJ, Klineberg E, Hart R, Shaffrey CI, Ames CP. Towards a cervical deformity outcome instrument: principle component analysis of 89 HRQL questions in 476 patients with cervical

- deformity. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 725.\*Scheer JK, **Smith JS**, Schwab FJ, Lafage V, Shaffrey CI, Bess S, Daniels AH, Hart RA, Protosaltis T, Mundis GM, Ailon T, Burton DC, Klineberg EO, Ames CP, ISSG. Development of a preoperative predictive model for intra- or peri-operative major complications with high accuracy validated with 558 ASD patients. 22<sup>nd</sup> International Meeting for Advanced Spine Techniques. Kuala Lumpur, Malaysia. July 8-11, 2015.
- 726.\***Smith JS**, Klineberg E, Protosaltis TS, Gupta M, Burton D, Deviren V, Eastlack R, Gates M, Passias P, Mundis G, Hamilton K, Hart R, Bess S, Ames CP. Assessment of surgical treatment strategies for moderate to severe adult cervical deformity reveals marked variation in approaches, osteotomies and fusion levels. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
- 727.Passias P, Jalai C, Worley N, Scheer JK, Soroceanu A, Protosaltis T, Klineberg E, Sciubba D, Neuman B, Kim HJ, Hamilton K, **Smith JS**, Lafage V, Ames CP. Development of new onset cervical deformity is common in operative and non-operative ASD patients but is associated with different baseline factors: series of 2010 patients with 3 year follow up. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
- 728.Protosaltis TS, Lafage R, Lafage V, Schwab F, **Smith JS**, Passias P, Spiegel M, Sciubba D, Mundis G, Kim HJ, Klineberg E, Hart R, Shaffrey CI, Ames CP. Towards a cervical deformity outcome instrument: principle component analysis of 89 HRQL questions in 476 patients with cervical deformity. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
- 729.**Smith JS**, Klineberg E, Shaffrey CI, Ailon T, Lafage V, Schwab F, Bess S, Daniels A, Scheer JK, Protosaltis T, Chapman J, Fehlings MG, Ames CP. Assessment of impact of long-cassette standing x-rays on surgical planning for cervical pathology: an international survey of spine surgeons. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
- 730.**Smith JS**, Lafage V, Shaffrey CI, Protosaltis T, Passias P, Schwab F, O'Brien M, Gupta M, Mundis G, Hart R, Kim HJ, Klineberg E, Riew D, Ames CP. Prospective multicenter assessment of early complication rates associated with adult cervical deformity surgery in 78 patients. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
- 731.**Smith JS**, Iyer S, Kim HJ, Kelly MP, O'Brien M, Gupta M, Albert TJ, Protosaltis T, Mundis GM, Passias P, Klineberg E, Ames CP. Cervical deformity surgery does not result in acute post-operative dysphagia: preliminary results from a prospective cervical deformity study. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
- 732.Klineberg E, Carlson BB, Protosaltis T, Passias P, **Smith JS**, Ames CP, Hostin R, Gupta M, Lafage V, Mundis G, Kelly M, Hart R, Schwab F, Burton DC. Can measurements on cervical radiographs predict concurrent thoracolumbar deformity and provide a threshold for acquiring full-length spine radiographs? Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
- 733.Kim HJ, Iyer S, Theologis A, Nemani V, Albert TJ, Lenke LG, Mizutani J, Burch S, Deviren V, Boachie Adjei O, Protosaltis T, **Smith JS**, Scheer JK, Ames CP. Extent of proximal fusion correlates with worse clinical outcomes in cervical to pelvis fusions. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
- 734.Protosaltis TS, Lafage R, Lafage V, Sciubba D, Hamilton K, **Smith JS**, Passias P, Soroceanu A, Mundis G, Klineberg E, Hart R, Shaffrey CI, Schwab F, Ames CP. Novel cervical angular measures

- account for both upper cervical compensation and sagittal alignment. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
735. Lafage R, Lafage V, Protopsaltis T, Hart R, Passias P, Klineberg E, **Smith JS**, Neuman B, Hamilton K, Jain A, Mundis G, Zabala L, Shaffrey CI, Ames CP. Focal and dynamic cervical alignment pathology correlates with myelopathy severity in cervical deformity patients. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
736. Ailon T, Scheer JK, **Smith JS**, Shaffrey CI, Lafage V, Protopsaltis T, Ames CP. Characterization of distribution of segmental changes in cervical alignment after lumbar pedicle subtraction osteotomy. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
737. Kim HJ, Iyer S, Theologis A, Nemani V, Albert TJ, Lenke LG, Mizutani J, Burch S, Deviren V, Adjei OB, Protopsaltis T, **Smith JS**, Scheer JK, Ames CP. Outcomes and complications of fusions from the cervical spine to the pelvis: series of 46 cases with average 2.7 year follow up. Cervical Spine Research Society European Section Annual Meeting. London, UK. May 26-28, 2015.
738. \*Protopsaltis TS, Fehlings MG, Liu S, **Smith JS**, Lafage V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Lafage R, Challier V, Schwab FJ, Massicotte E, Yoon ST, Ames CP. Impact of regional and focal cervical alignment on myelopathy severity: report of 151 patients. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
739. \*Liu S, Lafage R, **Smith JS**, Protopsaltis T, Lafage V, Challier V, Shaffrey C, Kim HJ, Arnold PM, Chapman JR, Schwab F, Massicotte E, Yoon ST, Fehlings MF, Ames CP. The impact of dynamic alignment, motion, and center of rotation in cervical spondylotic myelopathy. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
740. \*Ames C, Passias P, Soroceanu A, Boniello A, Scheer J, Schwab F, Shaffrey C, Kim HJ, Protopsaltis T, Mundis G, Gupta M, Klineberg E, Lafage V, **Smith J**. The presence of preoperative cervical deformity in adult spinal deformity patients is a strong predictor of inferior outcomes and failure to reach MCID at 2 year follow up: analysis of 235 patients. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
741. \***Smith JS**, Lafage V, Shaffrey CI, Schwab FJ, Hostin R, Boachie-Adjei O, Akbarnia BA, Klineberg E, Gupta MC, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Outcomes of operative and nonoperative treatment for adult spinal deformity: A prospective, multi-center matched and unmatched cohort assessment with minimum 2-year follow-up. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
742. \*Lau D, Funao H, Clark AJ, **Smith JS**, Bess S, Shaffrey CI, Schwab FJ, Lafage V, Deviren V, Hart RA, Kebaish K, Ames CP, ISSG. Clinical impact correlation of the Hart ISSG proximal junctional kyphosis severity scale and HRQOL. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
743. \***Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Haid RW Jr, Protopsaltis TS, Klineberg TS, Klineberg E, Scheer JK, Deviren V, Hart RA, Bess S, Arnold P, Chapman J, Fehlings MG, Ames CP. Assessment of impact of long-cassette standing x-rays on surgical planning for lumbar pathology: an international survey of spine surgeons. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
744. Scheer JK, **Smith JS**, Mundis GM, Klineberg E, Hart R, Kelly MP, Deviren V, Nguyen S, McCarthy I, Bess S, Schwab FJ, Shaffrey CI, Lafage V, Ames CP, ISSG. The effect of patient age on recovery kinetics in 149 adult spinal deformity patients with two-year follow up: a novel area under the curve analysis. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.

745. Ames CP, Lafage V, Scheer JK, Kelly M, Hostin R, Hart R, Klineberg E, Protosaltis T, Deviren V, Sciubba D, Bess S, Shaffrey C, Schwab F, **Smith JS**. Magnitude, location, and factors related to regional and global correction loss in long adult deformity constructs. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
746. **Smith JS**, Lafage V, Scheer JK, Shaffrey CI, Lafage R, Klineberg E, Gupta M, Hostin RA, Kebaish K, Bess S, Schwab F, Ames CP. Spinal pelvic radiographic thresholds for regional lumbar disability are age dependent: analysis of multicenter database. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015. (Received Best e-poster Award)
747. Ames CP, Scheer JK, Mundis G, Klineberg E, Hart R, Kelly MP, Deviren V, Burton DC, McCarthy I, Bess S, Schwab F, Shaffrey CI, Lafage V, **Smith JS**. The effect of complications and reoperation on recovery kinetics in 149 adult spinal deformity patients with 2-year follow-up: an area under the curve analysis. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
748. **Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis TS, Klineberg E, Gupta MC, Hostin R, Fu K, Soroceanu A, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Comparison of best versus worst clinical outcomes for adult spinal deformity surgery: a prospective, multicenter assessment with minimum two-year follow up. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
749. Clark A, Oh T, Saigal D, Klineberg E, Hart R, Kim HJ, Schwab FJ, **Smith JS**, Protosaltis TS, Lafage V, Ames CP, ISSG. Assessing the impact of thoracolumbar deformity on cervical disability and pain: how the back affects the neck. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
750. Kim HJ, Scheer J, Lafage V, **Smith J**, Shaffrey C, Schwab F, Mundis G, Klineberg E, Gupta M, Cunningham M, Hart R, Burton D, Bess S, Ames C. Cervical lordosis, increases with age in adult spinal deformity- a cross sectional study of nonoperative patients. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
751. Sciubba DM, Scheer JK, **Smith JS**, Klineberg E, Gupta MC, Mundis GM, Protosaltis TS, Lafage V, Kim HJ, Koski T, Kebaish K, Shaffrey CI, Bess S, Hart R, Schwab FJ, Ames CP, ISSG. Elderly patients over 75 years undergoing reconstructive spinal deformity surgery have significantly improved health-related quality of life measures versus those managed non-operatively despite higher surgical complication rate. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
752. Passias PG, **Smith JS**, Soroceanu A, Boniello AJ, Scheer JK, Schwab Fj, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, Ames CP, ISSG. Post-operative cervical deformity in 215 thoracolumbar adult spinal deformity patients: prevalence, risk factors and impact on patient-reported outcome and satisfaction at two-year follow up. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
753. Soroceanu A, Passias PG, Boniello AJ, Scheer JK, Schwab FJ, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, **Smith JS**, Ames CP, ISSG. Risk of development of new onset postoperative cervical deformity in thoracolumbar adult spinal deformity and effect on clinical outcomes at two-year follow-up. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
754. Passias PG, Yang S, Soroceanu A, Scheer JK, Schwab FJ, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, **Smith JS**, Ames CP, ISSG. Preoperative cervical hyperlordosis and C2-T3 angle correlated to increased risk of post-op sagittal spinal pelvic malalignment in adult spinal deformity patients at 2 years follow-up. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
755. Lafage V, Matsumoto M, Hosogane N, **Smith J**, Protosaltis T, Yamato Y, Matsuyama Y, Taneichi H, Liu S, Ferrero E, Shaffrey C, Schwab F, Ames C. Impact of ethnicity on adult spinal deformity

- surgical outcomes: an analysis of Japanese and North American databases. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
756. Ames C, Matsumoto M, Hosogane N, **Smith J**, Protosaltis T, Yamato Y, Matsuyama Y, Taneichi H, Liu S, Ferrero E, Shaffrey C, Schwab F, Lafage V. Geographic and ethnic variation in radiographic disability thresholds: analysis of North American and Japanese operative adult spinal deformity populations. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
757. Challier V, **Smith JS**, Shaffrey CI, Kim HJ, Arnold P, Lu S, Scheer JK, Chapman J, Protosaltis TS, Lafage V, Schwab FJ, Massicotte E, Yoon ST, Ames CP, Fehlings MG. Area under the curve: analysis of approach related recovery time in 165 operative cervical spondylotic myelopathy patients with two-year follow up. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
758. Ames CP, **Smith JS**, Liu S, Shaffrey CI, Kim HJ, Arnold P, Challier V, Chapman J, Protosaltis TS, Schwab FJ, Scheer JK, Massicotte E, Yoon ST, Lafage V, Fehlings MF. Correlation of myelopathy to regional neck disability: a surgical approach-specific analysis in 217 patients. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
759. Fehlings MF, **Smith JS**, Challier V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Protosaltis TS, Lafage V, Liu S, Lafage R, Schwab FJ, Massicotte E, Yoon ST, Ames CP. Cervical spondylotic myelopathy: does surgical approach influence post-operative sagittal alignment and outcomes? Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
760. **Smith JS**, Eastlack RK, Blaskiewicz DJ, Shaffrey CI, Schwab FJ, Bess S, Kim HJ, Mundis GM, Klineberg E, Gupta MC, O'Brien MF, Hostin R, Scheer JK, Protosaltis TS, Fu KG, Hart RA, Albert TJ, Riew KD, Fehlings MG, Lafage VC, Ames CP, ISSG. Reliability assessment of a novel cervical deformity classification. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
761. Robinson C, Hostin R, O'Brien M, McCarthy I, Gupta M, Lafage V, Hart R, Schwab F, **Smith JS**, Ames C. Efficiency in adult spinal deformity surgery: a multi-center comparison of resource use. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
762. McCarthy I, Robinson C, Hostin R, O'Brien M, Ames C, Gupta M, Lafage V, Hart R, **Smith J**, Schwab F. Long term cost-effectiveness of adult spinal deformity surgery. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
763. Robinson C, Hostin R, McCarthy I, O'Brien M, Gupta M, Ames C, **Smith J**, Lafage V, Schwab F, Hart R, Klineberg E, Shaffrey C. Incremental cost-effectiveness of adult spinal deformity surgery by classification of deformity. Global Spine Congress. Buenos Aires, Argentina. May 20-23, 2015.
764. \*Scheer JK, **Smith JS**, Lafage V, Shaffrey CI, Lafage R, Klineberg E, Gupta M, Hostin RA, Kebaish K, Bess S, Schwab F, Ames CP. Spinal pelvic radiographic thresholds for regional lumbar disability are age dependent: analysis of multicenter database. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
765. **Smith JS**, Lafage V, Shaffrey CI, Schwab FJ, Hostin R, Boachie-Adjei O, Akbarnia BA, Klineberg E, Gupta MC, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Outcomes of operative and nonoperative treatment for adult spinal deformity: A prospective, multi-center matched and unmatched cohort assessment with minimum 2-year follow-up. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
766. Ailon T, **Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Haid RW Jr, Protosaltis TS, Klineberg TS, Klineberg E, Scheer JK, Deviren V, Hart RA, Bess S, Arnold P, Chapman J, Fehlings MG, Ames CP. Assessment of impact of long-cassette standing x-rays on surgical planning for lumbar pathology: an international survey of spine surgeons. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.

767. **Smith JS**, Eastlack RK, Blaskiewicz DJ, Shaffrey CI, Schwab FJ, Bess S, Kim HJ, Mundis GM, Klineberg E, Gupta MC, O'Brien MF, Hostin R, Scheer JK, Protopsaltis TS, Fu KG, Hart RA, Albert TJ, Riew KD, Fehlings MG, Lafage VC, Ames CP, ISSG. Reliability assessment of a novel cervical deformity classification. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
768. \*Hostin R, Robinson C, O'Brien M, **Smith JS**, Ames CP, Lafage V, Schwab F, Gupta M, Burton D, Bess S, McCarthy I. Efficiency in adult spinal deformity surgery: a multi-center comparison of resource use. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
769. Challier V, **Smith JS**, Shaffrey CI, Kim HJ, Arnold P, Lu S, Scheer JK, Chapman J, Protopsaltis TS, Lafage V, Schwab FJ, Massicotte E, Yoon ST, Ames CP, Fehlings MG. Area under the curve: analysis of approach related recovery time in 165 operative cervical spondylotic myelopathy patients with two-year follow up. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
770. Clark A, Oh T, Saigal D, Klineberg E, Hart R, Kim HJ, Schwab FJ, **Smith JS**, Protopsaltis TS, Lafage V, Ames CP, ISSG. Assessing the impact of thoracolumbar deformity on cervical disability and pain: how the back affects the neck. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
771. Fehlings MF, **Smith JS**, Challier V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Protopsaltis TS, Lafage V, Liu S, Lafage R, Schwab FJ, Massicotte E, Yoon ST, Ames CP. Cervical spondylotic myelopathy: does surgical approach influence post-operative sagittal alignment and outcomes? American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
772. Lau D, Funao H, Clark AJ, **Smith JS**, Bess S, Shaffrey CI, Schwab FJ, Lafage V, Deviren V, Hart RA, Kebaish K, Ames CP, ISSG. Clinical impact correlation of the Hart ISSG proximal junctional kyphosis severity scale and HRQOL. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
773. Ames CP, **Smith JS**, Liu S, Shaffrey CI, Kim HJ, Arnold P, Challier V, Chapman J, Protopsaltis TS, Schwab FJ, Scheer JK, Massicotte E, Yoon ST, Lafage V, Fehlings MF. Correlation of myelopathy to regional neck disability: a surgical approach-specific analysis in 217 patients. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
774. Liu S, Lafage R, **Smith JS**, Arnold PM, Chapman JR, Massicotte E, Yoon ST, Fehlings MF, Ames CP. Dynamic alignment, motion, and center of rotation in cervical spondylotic myelopathy. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
775. Protopsaltis TS, Fehlings MG, Liu S, **Smith JS**, Lafage V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Lafage R, Challier V, Schwab FJ, Massicotte E, Yoon ST, Ames CP. Impact of regional and focal cervical alignment on myelopathy severity: report of 151 patients. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
776. **Smith JS**, Robinson C, Hostin RA Jr, O'Brien MF, Ames CP, Schwab F, Lafage V, Gupta M, Klineberg E, Hart R, McCarthy I. Incremental cost-effectiveness of adult spinal deformity surgery by classification of deformity. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
777. **Smith JS**, Robinson C, Hostin R, O'Brien MF, Ames CP, Gupta MC, Lafage V, Schwab FJ, Klineberg E, Hart RA, McCarthy I, ISSG. Long-term cost-effectiveness of adult deformity surgery. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.

778. Scheer JK, Lafage V, Kelly MP, Hostin RA Jr, Hart R, Klineberg E, Protosaltis T, Deviren V, Sciubba DM, Bess S, Shaffrey CI, Schwab F, **Smith JS**, Ames CP. Magnitude, location, and factors related to regional and global correction loss in long adult deformity constructs. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
779. Scheer JK, Smith JS, Passias PG, Soroceanu A, Boniello A, Schwab F, Shaffrey CI, Kim HJ, Protosaltis T, Mundis G, Gupta M, Klineberg E, Lafage V, Ames CP. Preoperative cervical deformity as a strong predictor of inferior outcomes in adult spinal deformity patients. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
780. Ames CP, Scheer JK, Mundis GM, Klineberg E, Hart R, Kelly MP, Deviren V, Nguyen S, McCarthy I, Bess S, Schwab FJ, Shaffrey CI, Lafage V, **Smith JS**, ISSG. The effect of patient age on recovery kinetics in 149 adult spinal deformity patients with two-year follow up: a novel area under the curve analysis. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
781. Ames CP, Scheer JK, Mundis G, Klineberg E, Hart R, Kelly MP, Deviren V, Burton DC, McCarthy I, Bess S, Schwab F, Shaffrey CI, Lafage V, **Smith JS**. The effect of complications and reoperation on recovery kinetics in 149 adult spinal deformity patients. American Association of Neurological Surgeons Annual Meeting. Washington, D.C. May 2-6, 2015.
782. \***Smith JS**, Lafage V, Shaffrey CI, Schwab F, Scheer JK, Deviren V, Hart R, Bess S, Ames CP. Outcomes of operative and nonoperative treatment for adult spinal deformity: A prospective, multi-center matched and unmatched cohort assessment with minimum 2-year follow-up. American Association of Orthopedic Surgeons Annual Meeting. Las Vegas, NV. March 24-28, 2015.
783. \*Liu S, Lafage R, **Smith JS**, Arnold PM, Chapman JR, Massicotte E, Yoon ST, Fehlings MF, Ames CP. Dynamic alignment, motion, and center of rotation in cervical spondylotic myelopathy. American Association of Orthopedic Surgeons Annual Meeting. Las Vegas, NV. March 24-28, 2015.
784. \*Bess S, Hamilton DK, Hart R, Hiratzka J, Hiratzka S, Lafage V, Schwab F, **Smith JS**, ISSG. Adverse events have limited impact on clinical outcome following surgery for adult spinal deformity. American Association of Orthopedic Surgeons Annual Meeting. Las Vegas, NV. March 24-28, 2015.
785. Ames C, Bess R, Hart R, Hostin R, Lafage V, Liu S, Mundis G, Schwab F, **Smith JS**. Non-operative benefit in spinal deformity: predictors for reaching a minimal clinically important difference. American Association of Orthopedic Surgeons Annual Meeting. Las Vegas, NV. March 24-28, 2015.
786. Ames C, Burton D, Gupta M, Kim HJ, Klineberg E, Lafage V, Schwab F, **Smith JS**, ISSG. Surgical correction with or without interbody in matched curves for adult spinal deformity. American Association of Orthopedic Surgeons Annual Meeting. Las Vegas, NV. March 24-28, 2015.
787. \***Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis TS, Klineberg E, Gupta MC, Hostin R, Fu K, Soroceanu A, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Comparison of best versus worst clinical outcomes for adult spinal deformity surgery: a prospective, multicenter assessment with minimum two-year follow up. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015. (selected as a "Top Oral Paper")
788. \***Smith JS**, Lafage V, Shaffrey CI, Schwab FJ, Hostin R, Boachie-Adjei O, Akbarnia BA, Klineberg E, Gupta MC, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Outcomes of operative and non-operative treatment for adult spinal deformity: a prospective, multicenter matched and unmatched cohort assessment with minimum two-year follow up. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
789. \*Liu S, Lafage R, **Smith JS**, Protosaltis TS, Lafage V, Challier V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Schwab FJ, Massicotte E, Yoon TS, Fehlings MG, Ames CP. The impact of dynamic

- alignment, motion and center of rotation on myelopathy grade and regional disability in cervical spondylotic myelopathy. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 790.\*Sciubba DM, Scheer JK, **Smith JS**, Klineberg E, Gupta MC, Mundis GM, Protosaltis TS, Lafage V, Kim HJ, Koski T, Kebaish K, Shaffrey CI, Bess S, Hart R, Schwab FJ, Ames CP, ISSG. Elderly patients over 75 years undergoing reconstructive spinal deformity surgery have significantly improved health-related quality of life measures versus those managed non-operatively despite higher surgical complication rate. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 791.\*Hostin RA Jr, Robinson C, O'Brien MF, Ames CP, Lafage V, Schwab F, Gupta M, **Smith JS**, Burton DC, Bess S, Shaffrey CI, McCarthy I. Comparison of resource use and health-related quality of life outcomes across multiple centers performing adult spinal deformity surgeries. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 792.\*Scheer JK, Lafage V, Kelly MP, Hostin RA Jr, Hart R, Klineberg E, Protosaltis T, Deviren V, Sciubba DM, Bess S, Shaffrey CI, Schwab F, **Smith JS**, Ames CP. Regional and global correction loss in long adult deformity constructs: magnitude, location, and factors from 183 patients with two-year follow-up. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 793.\*Clark A, Oh T, Saigal D, Klineberg E, Hart R, Kim HJ, Schwab FJ, **Smith JS**, Protosaltis TS, Lafage V, Ames CP, ISSG. Assessing the impact of thoracolumbar deformity on cervical disability and pain: how the back affects the neck. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 794.\*Scheer JK, Mundis G, Klineberg E, Hart R, Kelly MP, Deviren V, Burton DC, McCarthy I, Bess S, Schwab F, Shaffrey CI, Lafage V, **Smith JS**, Ames CP. Recovery kinetics in 149 adult spinal deformity patients with two-year follow-up: the effect of complications and reoperation using an area under the curve analysis. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 795.\*Protosaltis TS, Fehlings MG, Liu S, **Smith JS**, Lafage V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Lafage R, Challier V, Schwab FJ, Massicotte E, Yoon ST, Ames CP. Impact of regional and focal cervical alignment on myelopathy severity: report of 151 patients. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 796.\*Scheer JK, **Smith JS**, Passias PG, Soroceanu A, Boniello A, Schwab F, Shaffrey CI, Kim HJ, Protosaltis T, Mundis G, Gupta M, Klineberg E, Lafage V, Ames CP. Adult spinal deformity patients with concomitant preoperative cervical deformity have inferior outcomes at two-year follow-up. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 797.\*Robinson C, Hostin RA Jr, O'Brien MF, Ames CP, Schwab F, **Smith JS**, Lafage V, Gupta M, Klineberg E, Hart R, McCarthy I. Estimating incremental cost-effectiveness of adult spinal deformity surgery using the SRS-Schwab classification system. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 798.\*Ailon T, **Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Haid RW Jr, Protosaltis TS, Klineberg TS, Klineberg E, Scheer JK, Deviren V, Hart RA, Bess S, Arnold P, Chapman J, Fehlings MG, Ames CP. Assessment of impact of long-cassette standing x-rays on surgical planning for lumbar pathology: an international survey of spine surgeons. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.



- 799.\*Lau D, Funao H, Clark AJ, **Smith JS**, Bess S, Shaffrey CI, Schwab FJ, Lafage V, Deviren V, Hart RA, Kebaish K, Ames CP, ISSG. Clinical impact correlation of the Hart ISSG proximal junctional kyphosis severity scale and HRQOL. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 800.**Smith JS**, Eastlack RK, Blaskiewicz DJ, Shaffrey CI, Schwab FJ, Bess S, Kim HJ, Mundis GM, Klineberg E, Gupta MC, O'Brien MF, Hostin R, Scheer JK, Protopsaltis TS, Fu KG, Hart RA, Albert TJ, Riew KD, Fehlings MG, Lafage VC, Ames CP, ISSG. Reliability assessment of a novel cervical deformity classification. AANS/CNS 31<sup>st</sup> Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves. Phoenix, AZ. March 4-7, 2015.
- 801.\*Lafage VC, Ferrero E, Lafage R, Challier V, Liabaud B, Diebo BG, Liu S, Klineberg EO, Passias P, Ames CP, **Smith JS**, Protopsaltis TS, Errico TJ, Schwab FJ. Maintaining chin brow vertical angle (CBVA) and horizontal gaze in lumbar flatback deformity: full body analysis of the chain of compensation from the cervical spine to the feet. Cervical Spine Research Society 42nd Annual Meeting. Orlando, FL. December 3-6, 2014.
- 802.\*Rhee JJM, Chapman JR, Norvell DC, **Smith JS**, Sherry NA, Riew D. Special Projects Committee Report- Radiologic determination of post-operative cervical fusion: a systematic review. Cervical Spine Research Society 42nd Annual Meeting. Orlando, FL. December 3-6, 2014.
- 803.\*Kim HJ, Protopsaltis TS, Nguyen S, Cunningham ME, Passias PG, **Smith JS**, Shaffrey CI, Schwab FJ, Mundis GM, Klineberg E, Gupta MC, Hart RA, Burton DC, Bess S, Ames CP, ISSG. High post-operative C2-7 SVA is associated with proximal junctional kyphosis. Cervical Spine Research Society 42nd Annual Meeting. Orlando, FL. December 3-6, 2014. (presented in Best Papers session)
- 804.Challier V, Lafage R, Ferrero E, Liabaud B, Diebo B, Liu S, **Smith JS**, Ames CP, Klineberg EO, Passias P, Protopsaltis TS, Errico TJ, Schwab FJ, Lafage VC. Full body EOS analysis of the maintenance of functional CBVA and horizontal gaze among hypo-lordotic vs hyper-lordotic patients. Cervical Spine Research Society 42nd Annual Meeting. Orlando, FL. December 3-6, 2014. (recipient of Best Poster Award for meeting)
- 805.Lafage R, Challier V, Ferrero E, Liabaud BM Diebo B, Liu S, Klineberg EO, Passias P, Ames CP, **Smith JS**, Protopsaltis TS, Errico TJ, Schwab FJ, Lafage VC. Validation and correlation between chin brow vertical angle (CBVA), slope of line of sight (SLS), and McGregor's slope (McGS) for cervical disability. Cervical Spine Research Society 42nd Annual Meeting. Orlando, FL. December 3-6, 2014.
- 806.**Smith JS**, Eastlack RK, Blaskiewicz DJ, Shaffrey CI, Schwab FJ, Bess S, Kim HJ, Mundis GM, Klineberg E, Gupta MC, O'Brien MF, Hostin R, Scheer JK, Protopsaltis TS, Fu KG, Hart RA, Albert TJ, Riew KD, Fehlings MG, Lafage VC, Ames CP, ISSG. Reliability assessment of a novel cervical deformity classification. Cervical Spine Research Society 42nd Annual Meeting. Orlando, FL. December 3-6, 2014.
- 807.Challier V, **Smith JS**, Shaffrey CI, Kim HJ, Arnold P, Lu S, Scheer JK, Chapman J, Protopsaltis TS, Lafage V, Schwab FJ, Massicotte E, Yoon ST, Ames CP, Fehlings MG. Area under the curve: analysis of approach related recovery time in 165 operative cervical spondylotic myelopathy patients with two-year follow up. Cervical Spine Research Society 42nd Annual Meeting. Orlando, FL. December 3-6, 2014. Cervical Spine Research Society 42nd Annual Meeting. Orlando, FL. December 3-6, 2014.
- 808.Boniello AJ, Protopsaltis TS, Challier V, Amati A, Lafage R, Trimba Y, Liabaud B, Mith ML, Passias P, Kim Y, Razi AE, Schwab FJ, Lafage VC, Moskovich R. Full spine analysis of posterior cervical decompression and fusion vs laminoplasty correlated to HRQOL. Cervical Spine Research Society 42nd Annual Meeting. Orlando, FL. December 3-6, 2014.

- 809.\*Ames CP, Scheer JK, Mundis GM, Klineberg E, Hart R, Kelly MP, Deviren V, Nguyen S, McCarthy I, Bess S, Schwab FJ, Shaffrey CI, Lafage V, **Smith JS**, ISSG. The effect of patient age on recovery kinetics in 149 adult spinal deformity patients with two-year follow up: a novel area under the curve analysis. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 810.\*Sciubba DM, Scheer JK, **Smith JS**, Klineberg E, Gupta MC, Mundis GM, Protosaltis TS, Lafage V, Kim HJ, Koski T, Kebaish K, Shaffrey CI, Bess S, Hart R, Schwab FJ, Ames CP, ISSG. Elderly patients over 75 years undergoing reconstructive spinal deformity surgery have significantly improved health-related quality of life measures versus those managed non-operatively despite higher surgical complication rate. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 811.\*McCarthy I, O'Brien MF, Robinson C, Gupta MC, Ames CP, Lafage V, Hart RA, Bess S, Shaffrey CI, Schwab FJ, Kebaish K, **Smith JS**, Klineberg E, Hostin R, ISSG. Efficiency in adult spinal deformity surgery: a multicenter comparison of resource use. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 812.\*Maier SP, Bianco K, **Smith JS**, Hostin R, Shaffrey CI, Boachie-Adjei O, Mundis GM, Ames CP, Burton DC, Bess S, Hart RA, Protosaltis TS, Schwab FJ, Lafage V, ISSG. Inter-center variability in adult spinal deformity outcomes at 2 years post-treatment: a retrospective analysis from 6 surgical centers. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 813.\***Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis TS, Klineberg E, Gupta MC, Hostin R, Fu K, Soroceanu A, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Comparison of best versus worst clinical outcomes for adult spinal deformity surgery: a prospective, multicenter assessment with minimum two-year follow up. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 814.\*Passias PG, **Smith JS**, Soroceanu A, Boniello AJ, Scheer JK, Schwab FJ, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, Ames CP, ISSG. Post-operative cervical deformity in 215 thoracolumbar adult spinal deformity patients: prevalence, risk factors and impact on patient-reported outcome and satisfaction at two-year follow up. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 815.\*Ames CP, Passias PG, Soroceanu A, Boniello AJ, Scheer JK, Schwab FJ, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, **Smith JS**, ISSG. The presence of preoperative cervical deformity in adult spinal deformity patients is a strong predictor of inferior outcomes and failure to reach MCID at two-year follow up: analysis of 235 patients. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 816.\*Ames CP, Lafage V, Oh T, Scheer JK, Eastlack RK, Kelly MP, Klineberg E, Hostin R, Deviren V, McCarthy I, Schwab FJ, Bess S, Shaffrey CI, **Smith JS**, ISSG. Cervical mal-alignment persists following adult thoracic deformity correction: a multicenter experience of 81 patients with 2-year follow-up. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 817.\*Kim HJ, Protosaltis TS, Nguyen S, Cunningham ME, Passias PG, **Smith JS**, Shaffrey CI, Schwab FJ, Mundis GM, Klineberg E, Gupta MC, Hart RA, Burton DC, Bess S, Ames CP, ISSG. High post-operative C2-7 SVA is associated with proximal junctional kyphosis. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 818.\*Passias PG, Yang S, Soroceanu A, **Smith JS**, Shaffrey CI, Boachie-Adjei O, Mundis GM, Ames CP, Burton DC, Bess S, Klineberg E, Hart RA, Schwab FJ, Lafage V. Predictors of revision surgery in

- adult spinal deformity and impact on patient-reported outcomes and satisfaction two-year follow-up. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 819.\*Fu KG, Bess S, Lafage V, Ames CP, Akbarnia BA, Boachie-Adjei O, Burton D, Deviren V, Hart R, Gupta M, Klineberg E, Errico T, Mundis G, Hostin R, O'Brien M, Kebaish K, Schwab FJ, Shaffrey CI, **Smith JS**. Operative treatment of adult spinal deformity improves disease state and physical function regardless of age and deformity type, while nonoperative treatment has no impact: a 2 year prospective analysis. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 820.\***Smith JS**, Lafage V, Shaffrey CI, Schwab FJ, Hostin R, Boachie-Adjei O, Akbarnia BA, Klineberg E, Gupta MC, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Outcomes of operative and non-operative treatment for adult spinal deformity: a prospective, multicenter matched and unmatched cohort assessment with minimum two-year follow up. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 821.\*Ames CP, Matsumoto M, Hosogane N, **Smith JS**, Protosaltis TS, Yamamoto Y, Matsuyama Y, Taneishi H, Lafage R, Ferrero E, Shaffrey CI, Lafage V, ISSG. Geographic and ethnic variation in radiographic disability thresholds: analysis of North American and Japanese operative adult spinal deformity populations. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 822.\*Liu S, Libaud B, **Smith JS**, Hostin R, Shaffrey CI, Cunningham ME, Mundis GM, Ames CP, Burton DC, Bess S, Akbarnia BA, Hart RA, Schwab FJ, Lafage V, ISSG. Reaching minimal clinically important difference through non-operative treatment of adult spinal deformity. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 823.**Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Haid RW Jr, Protosaltis TS, Klineberg TS, Klineberg E, Scheer JK, Deviren V, Hart RA, Bess S, Arnold P, Chapman J, Fehlings MG, Ames CP. Assessment of impact of long-cassette standing x-rays on surgical planning for lumbar pathology: an international survey of spine surgeons. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 824.Clark A, Oh T, Saigal D, Klineberg E, Hart R, Kim HJ, Schwab FJ, **Smith JS**, Protosaltis TS, Lafage V, Ames CP, ISSG. Assessing the impact of thoracolumbar deformity on cervical disability and pain: how the back affects the neck. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 825.McCarthy I, Robinson C, O'Brien MF, Gupta MC, Ames CP, Lafage V, Hart RA, Bess S, Shaffrey CI, Mundis GM, Schwab FJ, Kebaish K, **Smith JS**, Hostin R, ISSG. Long-term cost-effectiveness of adult deformity surgery. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 826.Robinson C, McCarthy I, O'Brien MF, Gupta MC, Ames CP, Lafage V, Hart RA, Bess S, Shaffrey CI, Mundis GM, Schwab FJ, Kebaish K, **Smith JS**, Hostin R, ISSG. Role of implant costs in the long term cost-effectiveness of surgical treatment of adult spinal deformity. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 827.Klineberg E, Gupta MC, Nguyen S, Ames CP, Burton DC, Hart RA, Protosaltis TS, Akbarnia BA, Shaffrey CI, **Smith JS**, Schwab FJ, Deviren V, Kim HJ, Bess S, ISSG. Posterior surgical correction with or without interbody in matched curves: no difference in correction or fusion rates. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
- 828.Soroceanu A, Passias PG, Boniello AJ, Scheer JK, Schwab FJ, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, **Smith JS**, Ames CP, ISSG. Risk of development of new onset postoperative cervical deformity in thoracolumbar adult spinal deformity and effect on

- clinical outcomes at two-year follow-up. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
829. Passias PG, Yang S, Soroceanu A, Scheer JK, Schwab FJ, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, **Smith JS**, Ames CP, ISSG. Preoperative cervical hyperlordosis and C2-T3 angle correlated to increased risk of post-op sagittal spinal pelvic malalignment in adult spinal deformity patients at 2 years follow-up. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
830. Liu S, Lafage R, **Smith JS**, Protosaltis TS, Lafage V, Challier V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Schwab FJ, Massicotte E, Yoon TS, Fehlings MG, Ames CP. The impact of dynamic alignment, motion and center of rotation on myelopathy grade and regional disability in cervical spondylotic myelopathy. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
831. Fehlings MF, **Smith JS**, Challier V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Protosaltis TS, Lafage V, Liu S, Lafage R, Schwab FJ, Massicotte E, Yoon ST, Ames CP. Cervical spondylotic myelopathy: does surgical approach influence post-operative sagittal alignment and outcomes? North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
832. Ames CP, Scheer JK, Mundis GM, Klineberg E, Hart RA, Kelly MP, Deviren V, Burton DC, McCarthy I, Bess S, Schwab FJ, Shaffrey CI, Lafage V, **Smith JS**, ISSG. The effect of complications and reoperation on recovery kinetics in 149 adult spinal deformity patients with two-year follow up: an area under the curve analysis. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
833. Soroceanu A, Burton DC, **Smith JS**, Deviren V, Shaffrey CI, Boachie-Adjei O, Akbarnia BA, Ames CP, Errico TJ, Bess S, Hostin R, Hart RA, Schwab FJ, Lafage V, ISSG. Incidence of radiographic and implant-related complications in adult spinal deformity surgery, patient factors and impact on HRQOL. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
834. Protosaltis T, Maier SP, **Smith JS**, Hostin R, Shaffrey CI, Boachie-Adjei O, Mundis GM, Ames CP, Errico TJ, Bess S, Klineberg E, Hart RA, Schwab FJ, Lafage V, ISSG. Should our elderly spinal deformity patients have the same targets for correction and is there an optimal alignment target that results in less PJK? North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
835. Liabaud B, Ferrero E, Ames CP, Kebaish K, Mundis GM, Hostin R, Gupta MC, Boachie-Adjei O, **Smith JS**, Hart RA, Diebo BG, Protosaltis TS, Schwab FJ, Lafage V, ISSG. Sagittal alignment following lumbar three-column osteotomy: does level of resection matter? North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
836. Liu S, Ferrero E, Ames CP, Kebaish K, Obeid I, Hostin R, Klineberg E, Boachie-Adjei O, **Smith JS**, Mundis GM, Maier SP, Protosaltis TS, Schwab FJ, Lafage V, ISSG. Revisions and junctional failures of short versus long fusions for adult spinal deformity treated by three-column osteotomy. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
837. Liabaud B, Lafage V, Schwab FJ, **Smith JS**, Hamilton DK, Hirtzka JR, Deviren V, Ames CP, Kim HJ, Bess S, Mundis GM, Klineberg E, Hu S, Hart RA, ISSG. How much lordosis is required for sagittal alignment in patients with high or low pelvic incidence? North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.
838. Schwab FJ, Lafage R, Liabaud B, Diebo BG, **Smith JS**, Hostin R, Shaffrey CI, Boachie-Adjei O, Scheer JK, Burton DC, Bess S, Gupta MC, Protosaltis TS, Lafage V, ISSG. Does one size fit all? Defining spino-pelvic alignment thresholds based on age. North American Spine Society 29<sup>th</sup> Annual Meeting. San Francisco, CA. November 12-15, 2014.

- 839.\*Soroceanu A, Passias PG, Boniello AJ, Scheer JK, Schwab FJ, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, **Smith JS**, Ames CP, ISSG. Risk of development of new onset postoperative cervical deformity in thoracolumbar adult spinal deformity and effect on clinical outcomes at two-year follow-up. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 18-22, 2014.
- 840.\*Scheer JK, **Smith JS**, Lafage V, Shaffrey CI, Lafage R, Klineberg E, Gupta M, Hostin RA, Kebaish K, Bess S, Schwab F, Ames CP. Spinal pelvic radiographic thresholds for regional lumbar disability are age dependent: analysis of multicenter database of 833 patients. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 18-22, 2014.
- 841.\*Bess S, Line B, Lafage V, Ames CP, Boachie-Adjei O, Burton DC, Hart RA, Gupta MC, Klineberg E, Mundis GM, Hostin R, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Intermediate dosing of recombinant human bone morphogenetic protein-2 improves fusion rates with no increase in major complications but does not improve health related quality of life for adult spinal deformity at minimum two years: a prospective, multicenter analysis. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 18-22, 2014.
- 842.\***Smith JS**, Lafage V, Shaffrey CI, Schwab FJ, Hostin R, Boachie-Adjei O, Akbarnia BA, Klineberg E, Gupta MC, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Outcomes of operative and non-operative treatment for adult spinal deformity: a prospective, multicenter matched and unmatched cohort assessment with minimum two-year follow up. Congress of Neurological Surgeons Annual Meeting. Boston, MA. October 18-22, 2014.
- 843.\***Smith JS**, Shaffrey CI, Lafage V, Schwab F, Ames CP, ISSG. Outcomes of operative and non-operative treatment for adult spinal deformity: a prospective, multicenter matched and unmatched cohort assessment with minimum two-year follow up. American Academy of Neurological Surgery Annual Meeting. Santa Rosa Beach, FL. September 17-20, 2014.
- 844.\*McCarthy I, Robinson C, O'Brien MF, Gupta MC, Ames CP, Lafage V, Hart RA, Bess S, Shaffrey CI, Mundis GM, Schwab FJ, Kebaish K, **Smith JS**, Hostin R, ISSG. Long-term cost-effectiveness of adult deformity surgery. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 845.\*Soroceanu A, Passias PG, Boniello AJ, Scheer JK, Schwab FJ, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, **Smith JS**, Ames CP, ISSG. Risk of development of new onset postoperative cervical deformity in thoracolumbar adult spinal deformity and effect on clinical outcomes at two-year follow-up. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 846.\*Ames CP, Passias PG, Soroceanu A, Boniello AJ, Scheer JK, Schwab FJ, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, **Smith JS**, ISSG. The presence of preoperative cervical deformity in adult spinal deformity patients is a strong predictor of inferior outcomes and failure to reach MCID at two-year follow up: analysis of 235 patients. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 847.\*Bess S, Line B, Lafage V, Ames CP, Boachie-Adjei O, Burton DC, Hart RA, Gupta MC, Klineberg E, Mundis GM, Hostin R, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Intermediate dosing of recombinant human bone morphogenetic protein-2 improves fusion rates with no increase in major complications but does not improve health related quality of life for adult spinal deformity at minimum two years: a prospective, multicenter analysis. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 848.\***Smith JS**, Lafage V, Shaffrey CI, Schwab FJ, Hostin R, Boachie-Adjei O, Akbarnia BA, Klineberg E, Gupta MC, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Outcomes of operative and

- non-operative treatment for adult spinal deformity: a prospective, multicenter matched and unmatched cohort assessment with minimum two-year follow up. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 849.\*Sciubba DM, Scheer JK, **Smith JS**, Lafage V, Klineberg E, Gupta MC, Mundis GM, Protopsaltis TS, Kim HJ, Koski T, Hamilton DK, Shaffrey CI, Bess S, Hart RA, Ames CP, ISSG. Patients with instrumented fusions to the ilium report greater impairment of perineal care with construct extension to the upper thoracic versus extension to the thoracolumbar junction with two year follow up. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 850.\*Soroceanu A, Burton DC, **Smith JS**, Deviren V, Shaffrey CI, Boachie-Adjei O, Akbarnia BA, Ames CP, Errico TJ, Bess S, Hostin R, Hart RA, Schwab FJ, Lafage V, ISSG. Incidence of radiographic and implant-related complications in adult spinal deformity surgery, patient factors and impact on HRQOL. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 851.\*Hart RA, Ames CP, Hiratzka JR, Hamilton DK, Bess S, Schwab FJ, Shaffrey CI, Kelly MP, Gates ML, Rahm MD, Gupta MC, **Smith JS**, Hostin R, Klineberg E, ISSG. When does proximal junctional failure require a revision? Validation and utility of the PJF severity score. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 852.\*Crawford CH, Ledonio CGT, Bess S, Buchowski JM, Burton DC, Hu S, Lonner BS, Polly DW, **Smith JS**, Sanders JO. Current evidence regarding the surgical and non-surgical treatment of pediatric lumbar spondylolysis: a report from the Scoliosis Research Society Evidence-Based Medicine Committee. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 853.**Smith JS**, Lafage V, Scheer JK, Shaffrey CI, Lafage R, Klineberg E, Gupta M, Hostin RA, Kebaish K, Bess S, Schwab F, Ames CP. Spinal pelvic radiographic thresholds for regional lumbar disability are age dependent: analysis of multicenter database of 833 patients. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 854.Ames CP, Lafage V, Scheer JK, Kelly M, Hostin R, Hart R, Klineberg E, Protopsaltis TS, Deviren V, Sciubba D, Bess S, Shaffrey CI, Schwab FJ, **Smith JS**, ISSG. Magnitude, location and factors related to regional and global correction loss in long adult deformity constructs: report of 183 patients with 2 year follow up. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 855.Sciubba DM, Scheer JK, **Smith JS**, Klineberg E, Gupta MC, Mundis GM, Protopsaltis TS, Lafage V, Kim HJ, Koski T, Kebaish K, Shaffrey CI, Bess S, Hart R, Schwab FJ, Ames CP, ISSG. Elderly patients over 75 years undergoing reconstructive spinal deformity surgery have significantly improved health-related quality of life measures versus those managed non-operatively despite higher surgical complication rate. 49<sup>th</sup> Annual Meeting of the Scoliosis Research Society. Anchorage, AK. September 10-13, 2014.
- 856.\*Liu S, Challier V, Lafage V, Fehlings MG, **Smith JS**, Ames CP, ISSG. Chain of correlation related to spino-pelvic mismatch: a complete standing axis investigation including the lower extremities. Society of Military Orthopedic Surgeons. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Scottsdale, AZ. December 15-19, 2014.
- 857.\*Protopsaltis T, Maier SP, **Smith JS**, Hostin R, Shaffrey CI, Boachie-Adjei O, Mundis GM, Ames CP, Errico TJ, Bess S, Klineberg E, Hart RA, Schwab FJ, Lafage V, ISSG. Should our elderly spinal deformity patients have the same targets for correction and is there an optimal alignment target that results in less PJK? 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014. (Nominated for Whitecloud Award for Best Clinical Paper, 9 nominees from >1,000 total submissions).

- 858.\*Robinson C, McCarthy I, O'Brien MF, Gupta MC, Ames CP, Lafage V, Hart RA, Burton DC, Bess S, Shaffrey CI, Schwab FJ, Kebaish K, **Smith JS**, Hostin R, ISSG. Role of implant costs in the long-term cost effectiveness of surgical treatment of adult spinal deformity. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014. (Nominated for Whitecloud Award for Best Basic Research Paper, 6 nominees from >1,000 total submissions).
- 859.\*McCarthy I, O'Brien MF, Robinson C, Gupta MC, Ames CP, Lafage V, Hart RA, Bess S, Shaffrey CI, Schwab FJ, Kebaish K, **Smith JS**, Klineberg E, Hostin R, ISSG. Incremental cost effectiveness of adult spinal deformity surgery by classification of deformity. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014. (Nominated for Whitecloud Award for Best Basic Research Paper, 6 nominees from >1,000 total submissions).
- 860.\*Bess S, Line B, Lafage V, Ames CP, Boachie-Adjei O, Burton DC, Hart RA, Akbarnia BA, Klineberg E, Mundis GM, Hostin R, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Peak timing and associated risk factors for specific complications following adult spinal deformity are identifiable: a guide for surgeons and patients. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 861.\*Passias PG, Yang S, Soroceanu A, **Smith JS**, Shaffrey CI, Boachie-Adjei O, Mundis GM, Ames CP, Burton DC, Bess S, Klineberg E, Hart RA, Schwab FJ, Lafage V. Predictors of revision surgery in adult spinal deformity and impact on patient-reported outcomes and satisfaction two-year follow-up. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 862.\*Challier V, Liu S, Ames CP, Kebaish K, Obeid I, Hostin R, Klineberg E, Boachie-Adjei O, **Smith JS**, Akbarnia B, Bianco K, Protosaltis TS, Schwab FJ, Lafage V, ISSG. Three-column osteotomies in elderly patients: is it worth it? 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 863.\*Liu S, Ferrero E, Ames CP, Kebaish K, Obeid I, Hostin R, Klineberg E, Boachie-Adjei O, **Smith JS**, Mundis GM, Maier SP, Protosaltis TS, Schwab FJ, Lafage V, ISSG. Revisions and junctional failures of short versus long fusions for adult spinal deformity treated by three-column osteotomy. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 864.\*Lafage V, Schwab FJ, Scheer JK, Klineberg E, Sciubba DM, Zebala LP, Hostin R, Obeid I, Koski T, Kelly MP, Bess S, Shaffrey CI, **Smith JS**, Ames CP, ISSG. Adult spinal deformity surgeons are unable to accurately predict post-operative spinal alignment: initial analysis of a three-phase study. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 865.\*Liabaud B, Ferrero E, Ames CP, Kebaish K, Mundis GM, Hostin R, Gupta MC, Boachie-Adjei O, **Smith JS**, Hart RA, Diebo BG, Protosaltis TS, Schwab FJ, Lafage V, ISSG. Sagittal alignment following lumbar three-column osteotomy: does level of resection matter? 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 866.\*Soroceanu A, Burton DC, **Smith JS**, Hostin R, Shaffrey CI, Boachie-Adjei O, Akbarnia BA, Ames CP, Errico TJ, Bess S, Gupta MC, Deviren V, Schwab FJ, Lafage V, ISSG. Predictors of infections and medical complications in the setting of adult spinal deformity surgery. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 867.\*Ames CP, Scheer JK, Mundis GM, Klineberg E, Hart RA, Kelly MP, Deviren V, Burton DC, McCarthy I, Bess S, Schwab FJ, Shaffrey CI, Lafage V, **Smith JS**, ISSG. The effect of complications and reoperation on recovery kinetics in 149 adult spinal deformity patients with two-year follow up: an area under the curve analysis. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 868.Hiratzka JR, Hamilton DK, Klineberg E, Ames CP, **Smith JS**, Shaffrey CI, Bess S, Scheer JK, Lafage V, Schwab FJ, Burton DC, Hostin R, McCarthy I, Hiratzka S, Hart RA, ISSG. Readmission,

- reoperation and index length of stay resulting from specific complications following adult deformity surgery. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 869.\*Bess S, Line B, Lafage V, Ames CP, Boachie-Adjei O, Burton DC, Hart RA, Akbarnia BA, Klineberg E, Mundis GM, Hostin R, Schwab FJ Shaffrey CI, **Smith JS**, ISSG. Prospective analysis of RhBMP-2 use in adult spinal deformity surgery does not correlate with site specific complications and generates greater fusion rates at minimum two-year follow up. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 870.\*Naik BI, **Smith JS**, Durieux M, Nemergut E, Pajewski T, Bogdonoff DL, Zuo Z, Clark P, Shaffrey CI. Effect of ROTEM-guided hemostatic therapy in adult deformity surgery. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 871.\*Ledonio CGT, Crawford CH, Bess S, Buchowski JM, Burton DC, Hu S, Lonner BS, Polly DW, **Smith JS**, Sanders JO. Current evidence regarding diagnostic methods for pediatric lumbar spondylolysis: report from the Scoliosis Research Society Evidence-Based Medicine Committee. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 872.\***Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis TS, Klineberg E, Gupta MC, Hostin R, Fu K, Soroceanu A, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Comparison of best versus worst clinical outcomes for adult spinal deformity surgery: a prospective, multicenter assessment with minimum two-year follow up. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 873.\*Protosaltis TS, Boniello AJ, **Smith JS**, Passias PG, Shaffrey CI, Boachie-Adjei O, Mundis GM, Ames CP, Errico TJ, Bess S, Gupta MC, Hart RA, Schwab FJ, Lafage V, ISSG. Are established targets for spinal deformity correction valid? Pre- to post-operative analysis using the T1 pelvic angle (TPS), a novel radiographic parameters of sagittal deformity. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 874.\*Ames CP, Scheer JK, Mundis GM, Klineberg E, Hart R, Kelly MP, Deviren V, Nguyen S, McCarthy I, Bess S, Schwab FJ, Shaffrey CI, Lafage V, **Smith JS**, ISSG. The effect of patient age on recovery kinetics in 149 adult spinal deformity patients with two-year follow up: a novel area under the curve analysis. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 875.\***Smith JS**, Eastlack RK, Blaskiewicz DJ, Shaffrey CI, Schwab FJ, Bess S, Kim HJ, Klineberg E, O'Brien MF, Albert TJ, Fehlings MF, Lafage V, Ames CP, Riew KD, ISSG. Reliability assessment of a novel cervical deformity classification. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 876.\*Passias PG, **Smith JS**, Soroceanu A, Boniello AJ, Scheer JK, Schwab FJ, Shaffrey CI, Kim HJ, Protosaltis TS, Mundis GM, Gupta MC, Klineberg E, Lafage V, Ames CP, ISSG. Post-operative cervical deformity in 215 thoracolumbar adult spinal deformity patients: prevalence, risk factors and impact on patient-reported outcome and satisfaction at two-year follow up. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 877.\*Lafage R, Lafage V, **Smith JS**, Hostin R, Shaffrey CI, Kim HJ, Mundis GM, Ames CP, Errico TJ, Bess S, Gupta MC, Hart RA, Schwab FJ, Protosaltis TS, ISSG. Upper cervical compensation and maintenance of horizontal gaze un 150 thoracolumbar deformity patients with and without deformity. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 878.\*Ames CP, **Smith JS**, Liu S, Shaffrey CI, Kim HJ, Arnold P, Challier V, Chapman J, Protosaltis TS, Schwab FJ, Scheer JK, Massicotte E, Yoon ST, Lafage V, Fehlings MF. Correlation of myelopathy to



- regional neck disability: a surgical approach-specific analysis in 217 patients. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 879.\*Fehlings MF, **Smith JS**, Challier V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Protosaltis TS, Lafage V, Liu S, Lafage R, Schwab FJ, Massicotte E, Yoon ST, Ames CP. Cervical spondylotic myelopathy: does surgical approach influence post-operative sagittal alignment and outcomes? 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 880.\*Liu S, Lafage R, **Smith JS**, Protosaltis TS, Lafage V, Challier V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Schwab FJ, Massicotte E, Yoon TS, Fehlings MG, Ames CP. The impact of dynamic alignment, motion and center of rotation on myelopathy grade and regional disability in cervical spondylotic myelopathy. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 881.\*Protosaltis TS, Fehlings MG, Liu S, **Smith JS**, Lafage V, Shaffrey CI, Kim HJ, Arnold P, Chapman J, Lafage R, Challier V, Schwab FJ, Massicotte E, Yoon ST, Ames CP. Impact of regional and focal cervical alignment on myelopathy severity: report of 151 patients. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 882.\*Challier V, **Smith JS**, Shaffrey CI, Kim HJ, Arnold P, Lu S, Scheer JK, Chapman J, Protosaltis TS, Lafage V, Schwab FJ, Massicotte E, Yoon ST, Fehlings MG, Ames CP. Area under the curve: analysis of approach related recovery time in 165 operative cervical spondylotic myelopathy patients with two-year follow up. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 883.\*Schwab FJ, Diebo BG, **Smith JS**, Hostin R, Shaffrey CI, Cunningham ME, Mundis GM, Ames CP, Burton DC, Bess S, Gupta MC, Hart RA, Protosaltis TS, Lafage V, ISSG. Fine-tuned surgical planning in adult spinal deformity: determining the lumbar lordosis necessary by accounting for both thoracic kyphosis and pelvic incidence. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 884.\*Klineberg E, Gupta MC, Nguyen S, Ames CP, Burton DC, Hart RA, Protosaltis TS, Akbarnia BA, Shaffrey CI, **Smith JS**, Schwab FJ, Deviren V, Kim HJ, Bess S, ISSG. Posterior surgical correction with or without interbody in matched curves provides similar correction in adult deformity. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 885.\*Soroceanu A, Burton DC, **Smith JS**, Hostin R, Shaffrey CI, Boachie-Adjei O, Mundis GM, Deviren V, Errico TJ, Bess S, Gupta MC, Hart RA, Schwab FJ, Lafage V, ISSG. Impact of obesity on complications and patient-reported outcomes in adult spinal deformity surgery. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 886.\*Kim HJ, Protosaltis TS, Nguyen S, Cunningham ME, Passias PG, **Smith JS**, Shaffrey CI, Schwab FJ, Mundis GM, Klineberg E, Gupta MC, Hart RA, Burton DC, Bess S, Ames CP, ISSG. High post-operative C2-7 SVA is associated with proximal junctional kyphosis. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 887.\*Hamilton DK, Kiratzka JR, Hiratzka S, Ames CP, **Smith JS**, Shaffrey CI, Akbarnia BA, Boachie-Adjei O, Bess S, Scheer JK, Lafage V, Schwab FJ, Hart RA, ISSG. Adverse events have limited impact on clinical outcome following surgery for adult spinal deformity. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 888.\*Hamilton DK, Kiratzka JR, Hiratzka S, Ames CP, **Smith JS**, Shaffrey CI, Akbarnia BA, Boachie-Adjei O, Bess S, Scheer JK, Lafage V, Schwab FJ, Hart RA, ISSG. Perioperative complications do not affect patient satisfaction following adult spinal deformity surgery. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.

- 889.\*Soroceanu A, Errico TJ, **Smith JS** Shaffrey CI, Akbarnia BA, Boachie-Adjei O, Bess S, Scheer JK, Lafage V, Schwab FJ, Hart RA, ISSG. The effect of antifibrinolytic therapy on complications, blood product utilization and fusion in adult spinal deformity. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 890.\*Protosaltis TS, Bianco K, **Smith JS**, Passias PG, Shaffrey CI, Kim HJ, Mundis GM, Ames CP, Burton DC, Bess S, Klineberg E, Hart RA, Schwab FJ, Lafage V, ISSG. The lumbar pelvic angle (LPA), the lumbar component of the fan of spinopelvic alignment, correlates with HRQOL and PI-LL mismatch and predicts global alignment. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 891.\***Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Haid RW Jr, Protosaltis TS, Klineberg TS, Klineberg E, Scheer JK, Deviren V, Hart RA, Bess S, Arnold P, Chapman J, Fehlings MG, Ames CP. Assessment of impact of long-cassette standing x-rays on surgical planning for lumbar pathology: an international survey of spine surgeons. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 892.\*McCarthy I, O'Brien MF, Robinson C, Gupta MC, Ames CP, Lafage V, Hart RA, Bess S, Shaffrey CI, Schwab FJ, Kebaish K, **Smith JS**, Klineberg E, Hostin R, ISSG. Efficiency in adult spinal deformity surgery: a multicenter comparison of resource use. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 893.\*Lafage V, Matsumoto M, Hosogane N, **Smith JS**, Protosaltis TS, Yamato Y, Matsuyama Y, Taneichi H, Liu S, Ferrero E, Shaffrey CI, Schwab FJ, Ames CP, ISSG. Impact of ethnicity on adult spinal deformity surgical outcomes: an analysis of Japanese and North American databases. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 894.\*Klineberg E, Gupta MC, Nguyen S, Ames CP, Burton DC, Kelly MP, Mundis GM, Shaffrey CI, **Smith JS**, Schwab FJ, Errico TJ, Hostin R, Kim HJ, Bess S, ISSG. Anterior posterior versus posterior-only correction in adult spinal deformity matched curves: similar correction with more intra-operative, but fewer late implant complications. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 895.\***Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis TS, Klineberg E, Gupta MC, Fu K, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Prospective, multicenter assessment of non-operative treatment outcomes and conversion to operative treatment for adult spinal deformity: minimum two-year follow-up. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 896.Bianco K, Maier SP, **Smith JS**, Hostin R, Shaffrey CI, Cunningham ME, Mundis GM, Ames CP, Burton DC, Bess S, Gupta MC, Protosaltis TS, Schwab FJ, Lafage V, ISSG. Inter-center variability in treatment and surgical outcomes of sagittal adult spinal deformity surgery: a retrospective analysis from five surgical centers. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 897.Lau D, Funao H, Clark AJ, **Smith JS**, Bess S, Shaffrey CI, Schwab FJ, Lafage V, Deviren V, Hart RA, Kebaish K, Ames CP, ISSG. Clinical impact correlation of the Hart ISSG proximal junctional kyphosis severity scale and HRQOL. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
- 898.Kelly MP, Bess S, Mundis GM, Klineberg E, Zebala L, Shaffrey CI, **Smith JS**, Kim HJ, Kebaish K, Lafage V, Schwab FJ, Burton DC, Cunningham ME, Soroceanu A, ISSG. Allogenic blood transfusions in adult spinal deformity surgery: trends and complications from 428 patients. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.

899. Barthelemy L, Lafage V, Schwab FJ, **Smith JS**, Hamilton DK, Hiratzka JR, Deviren V, Ames CP, Kim HJ, Bess S, Mundis GM, Klineberg E, Hu S, Hart RA, ISSG. How much lordosis is required for sagittal alignment in patients with high or low pelvic incidence? 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
900. Ames CP, Matsumoto M, Hosogane N, **Smith JS**, Protosaltis TS, Yamamoto Y, Matsuyama Y, Taneichi H, Lafage R, Ferrero E, Shaffrey CI, Lafage V, ISSG. Geographic and ethnic variation in radiographic disability thresholds: analysis of North American and Japanese operative adult spinal deformity populations. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
901. Liu S, Libaud B, **Smith JS**, Hostin R, Shaffrey CI, Cunningham ME, Mundis GM, Ames CP, Burton DC, Bess S, Akbarnia BA, Hart RA, Schwab FJ, Lafage V, ISSG. Reaching minimal clinically important difference through non-operative treatment of adult spinal deformity. 21<sup>st</sup> Annual International Meeting for Advanced Spine Techniques. Valencia, Spain. July 16-19, 2014.
902. \*Soroceanu A, Passias P, Schwab F, Protosaltis T, Lafage V, Shaffrey CI, **Smith JS**, Ames CP. Risk of development of new onset postoperative cervical deformity (CD) in thoracolumbar adult spinal deformity (ASD) and effect on clinical outcomes at 2 year follow up. 30<sup>th</sup> Annual Meeting of the European Section of the Cervical Spine Research Society. Pamplona, Spain. June 25-27, 2014.
903. \*Ames CP, Passias P, Soroceanu A, Schwab F, Shaffrey CI, Protosaltis T, Lafage V, **Smith JS**. The presence of preoperative cervical in adult spinal deformity patients is a strong predictor of inferior outcomes and failure to reach MCID at 2 year follow up: analysis of 235 patients. 30<sup>th</sup> Annual Meeting of the European Section of the Cervical Spine Research Society. Pamplona, Spain. June 25-27, 2014.
904. \*Challier V, Lafage R, **Smith JS**, Protosaltis T, Lafage V, Liu S, Shaffrey C, Ames CP. The impact of dynamic alignment, motion and center of rotation on myelopathy grade and regional disability in cervical spondylotic myelopathy: AOSNA CSM database. 30<sup>th</sup> Annual Meeting of the European Section of the Cervical Spine Research Society. Pamplona, Spain. June 25-27, 2014.
905. \***Smith JS**, Challier V, Shaffrey C, Protosaltis T, Lafage V, Liu S, Lafage R, Ames CP. Cervical spondylotic myelopathy: does surgical approach influence post-operative sagittal alignment and outcomes? 30<sup>th</sup> Annual Meeting of the European Section of the Cervical Spine Research Society. Pamplona, Spain. June 25-27, 2014.
906. \*Liu S, **Smith JS**, Shaffrey C, Challier V, Protosaltis T, Lafage V, Schwab F, Ames CP. Area under the curve: analysis of approach related recovery time in 165 operative cervical spondylotic myelopathy patients with 2 year follow-up. 30<sup>th</sup> Annual Meeting of the European Section of the Cervical Spine Research Society. Pamplona, Spain. June 25-27, 2014.
907. Passias P, **Smith JS**, Soroceanu A, Schwab F, Shaffrey C, Protosaltis T, Lafage V, Ames CP. Postoperative cervical deformity in 215 thoracolumbar adult spinal deformity patients: prevalence risk factors and impact on patient-reported outcome and satisfaction at 2 year follow up. 30<sup>th</sup> Annual Meeting of the European Section of the Cervical Spine Research Society. Pamplona, Spain. June 25-27, 2014.
908. \*Daniels AH, Ames CP, DePasse JM, **Smith JS**, Hart RA. Variability in spine procedures performed during orthopedic and neurological surgery residency training: An analysis of ACGME case log data. Lumbar Spine Research Society Annual Meeting. Chicago, IL. May 1-2, 2014.
909. \*Bianco K, Norton R, Schwab F, **Smith JS**, Klineberg E, Obeid I, Mundis G, Shaffrey C, Kebaish K, Hostin R, Burton D, Ames C, Boachie-Adjei O, Protosaltis T, Lafage V, ISSG. Complications and inter-center variability of three column osteotomies for spinal deformity surgery: a retrospective

- review of 423 patients. International Society for the Advancement of Spine Surgery. Miami Beach, FL. April 30 – May 2, 2014. (Received Best Podium Award)
910. Klineberg E, Fu K, Terran J, **Smith JS**, Lafage V, Schwab FJ, Bess S, Hart RA, Kebaish K, Burton DC, Shaffrey CI, Ames CP, Hostin R, Mundis GM, Gupta MC, ISSG. Impact of major and minor complications on health related quality of life following adult spinal deformity surgery: multicenter prospective database. International Society for the Advancement of Spine Surgery. Miami Beach, FL. April 30 – May 2, 2014. (Received Best Poster Award)
911. \*Ames CP, McCarthy I, O'Brien MF, Errico TJ, Kim HJ, **Smith JS**, Schwab FJ, Klineberg E, Shaffrey CI, Gupta M, Hostin R, ISSG. Incremental cost-effectiveness of adult spinal deformity surgery: Observed QALYs with surgery compared to predicted QALYs without surgery. American Academy of Orthopedic Surgeons Annual Meeting. New Orleans, LA. March 11-15, 2014.
912. \***Smith JS**, Klineberg E, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis TS, Deviren V, Bess S, Ames CP, ISSG. Prevalence and type of cervical deformity among 470 adults with thoracolumbar deformity. American Association of Neurological Surgeons Annual Meeting. San Francisco, CA. April 5-9, 2014.
913. \***Smith JS**, Klineberg EO, Shaffrey CI, Lafage V, Schwab F, Protosaltis T, Deviren V, Bess RS, Ames CP. Surgical treatment of pathological loss of lumbar lordosis (flatback) in the setting of normal SVA. American Academy of Orthopedic Surgeons Annual Meeting. New Orleans, LA. March 11-15, 2014.
914. **Smith JS**, Klineberg E, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis TS, Deviren V, Bess S, Ames CP, ISSG. Prevalence and type of cervical deformity among 470 adults with thoracolumbar deformity. American Academy of Orthopedic Surgeons Annual Meeting. New Orleans, LA. March 11-15, 2014.
915. Protosaltis TS, Bronsard N, Terran JS, **Smith JS**, Mundis G, Kim HJ, Hostin RA, Ames CP, Lafage V. Cervical sagittal deformity develops after PJK in adult thoracolumbar deformity correction. American Academy of Orthopedic Surgeons Annual Meeting. New Orleans, LA. March 11-15, 2014.
916. Hiratzka J, Hamilton DK, Bess RS, Schwab FJ, Shaffrey CI, Klineberg EO, **Smith JS**, Hart RA, ISSG. Stiffness after pan-lumbar fusion for adult spinal deformity does not limit activities of daily living. American Academy of Orthopedic Surgeons Annual Meeting. New Orleans, LA. March 11-15, 2014.
917. \*Bess S, Line B, Klineberg E, Lafage V, Schwab FJ, Ames CP, Boachie-Adjei O, Burton DC, Kebaish K, Hart RA, Mundis GM, Hostin R, **Smith JS**, Shaffrey CI, ISSG. Two-year prospective, multi-center analysis of consecutive adult spinal deformity patients demonstrates higher fusion grade, lower implant failures and greater improvement in SRS-22r scores for patients treated with recombinant human bone morphogenetic protein-2 (BMP). AANS/CNS Spine Joint Section Annual Meeting. Orlando. FL. March 5-8, 2014.
918. \*Hamilton DK, Hiratzka JR, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Mundis GM, Lafage V, Deviren V, **Smith JS**, Klineberg E, Akbarnia BA, Burton DC, Hart RA, ISSG. HRQOL scores and radiographic parameters do not drive patient satisfaction after adult spinal deformity surgery. AANS/CNS Spine Joint Section Annual Meeting. Orlando. FL. March 5-8, 2014.
919. McCarthy I, O'Brien MF, Ames CP, Ki H, **Smith JS**, Boachie-Adjei O, Schwab FJ, Klineberg E, Shaffrey CI, Gupta MC, Polly DW Jr, Hostin R, ISSG. Total hospital costs of surgical treatment for adult spinal deformity: An extended follow-up study. AANS/CNS Spine Joint Section Annual Meeting. Orlando. FL. March 5-8, 2014.
920. Hart RA, Hamilton DK, Hiratzka JR, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Lafage V, Mummaneni PV, **Smith JS**, Klineberg E, McCarthy I, Burton DC, Hostin R, ISSG. Prospective

- analysis of risk factors for proximal junctional failure in adult deformity patients. AANS/CNS Spine Joint Section Annual Meeting. Orlando. FL. March 5-8, 2014.
921. \***Smith JS**, Lafage V, Ryan DJ, Shaffrey CI, Schwab F, Patel A, Brodke DS, Arnold PM, Riew KD, Traynelis VC, Radcliff K, Vaccaro AR, Fehlings MG, Ames CP. Association of myelopathy scores with cervical sagittal balance and normalized spinal cord volume: Analysis of 56 preoperative cases from the AOSpine North America myelopathy study. Cervical Spine Research Society Annual Meeting. Los Angeles, CA. December 5-7, 2013.
922. \***Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Protopsaltis TS, Klineberg E, Scheer JK, Fu KG, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Prevalence and type of cervical deformity among 470 adults with thoracolumbar deformity. Cervical Spine Research Society Annual Meeting. Los Angeles, CA. December 5-7, 2013.
923. \*Protopsaltis TS, Scheer JK, Terran JS, **Smith JS**, Kim HJ, Mundis GM, Hart RA, McCarthy I, Klineberg E, Lafage V, Bess S, Schwab FJ, Shaffrey CI, Ames CP, ISSG. How the neck affects the back: Changes in regional cervical sagittal alignment correlate to HRQL improvement in adult thoracolumbar deformity patients in two-year follow-up. Cervical Spine Research Society Annual Meeting. Los Angeles, CA. December 5-7, 2013.
924. \*Protopsaltis TS, Terran JS, Bronsard N, **Smith JS**, Klineberg E, Munds GM, Kim HJ, Hostin R, Hart RA, Shaffrey CI, Bess S, Ames CP, Schwab FJ, Lafage V, ISSG. T1 slope minus cervical lordosis (T1S-CL), the cervical analog of PI-LL, defines cervical sagittal deformity in patients undergoing thoracolumbar osteotomy. Cervical Spine Research Society Annual Meeting. Los Angeles, CA. December 5-7, 2013.
925. **Smith JS**, Scheer J, Shaffrey C, Lafage V, Deviren V, Moal B, Protopsaltis T, Mummaneni P, Mundis G, Hostin R, Klineberg E, Burton D, Hart R, Schwab F, Ames C, ISSG. A standardized nomenclature for cervical spinal soft tissue release and osteotomy for deformity correction. Cervical Spine Research Society Annual Meeting. Los Angeles, CA. December 5-7, 2013.
926. Ryan DJ, Protopsaltis T, Terran J, Ames C, Li CM, **Smith JS**, McCarthy I, Hart RA, Errico TJ, Lafage V. You scratch my neck, I'll scratch your back: Towards a total disability assessment model. Cervical Spine Research Society Annual Meeting. Los Angeles, CA. December 5-7, 2013.
927. Protopsaltis TS, Lafage R, **Smith JS**, Klineberg E, Gupta M, Kim HJ, Eastlack R, Terran JS, Mundis G, Fu KG, Schwab F, Errico T, Ames C, Lafage V, ISSG. Upper cervical compensation for maintenance of horizontal gaze in 150 thoracolumbar deformity patients with and without cervical sagittal deformity: Analysis of craniocervical relationships including CBVA and a novel parameter, the slope of the line of sight (SLS). Cervical Spine Research Society Annual Meeting. Los Angeles, CA. December 5-7, 2013.
928. \*Tang J, Shaffrey CI, Schwab F, Scheer JK, **Smith JS**, Bess S, Ames CP. The relationship between T1 slope and cervical alignment following adult cervical fusion procedures. Cervical Spine Research Society Annual Meeting. Los Angeles, CA. December 5-7, 2013.
929. Shimer AL, Shaffrey CI, **Smith JS**, Lenke LG, Ames CP, Schwab FJ, Lafage V, Kelly MP. Retrospective, multi-center analysis of the efficacy of antifibrinolytics on intraoperative blood loss during complex adult deformity surgery. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
930. Clark A, Ames CP, Keefe M, Koski TR, Rosner MK, **Smith JS**, Cheng JS, Shaffrey CI, McCormick PC. Results of the AANS membership survey of adult spinal deformity knowledge: Impact of training, practice experience and assessment of potential areas for improved education. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.

931. Tabaraee E, Theologis AA, Funao H, Bess RS, Klineberg EO, **Smith JS**, Kebaish K, Deviren V, Ames CP. A report of 41 cases of three-column osteotomies of the upper thoracic spine and cervicothoracic junction: Complications, outcomes and differential impact on spinal pelvic parameters, cervical sagittal alignment and general health status. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
932. Poorman CE, Slobodyanyuk K, **Smith JS**, Protopsaltis TS, Hostin R, Bess S, Mundis GM, Schwab FJ, Lafage V, ISSG. Clinical improvement through nonoperative treatment of adult spinal deformity: Who is likely to benefit? North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
933. \*Maier SP, Lafage V, **Smith JS**, Obeid I, Mundis GM, Klineberg E, Kebaish K, Hostin R, Hart RA, Burton DC, Boachie-Adjei O, Ames CP, Protopsaltis TS, Schwab FJ, ISSG. Revision surgery after three-column osteotomy (3CO) in 355 adult spinal deformity (ASD) patients: Inter-center variability and risk factors. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
934. \*Bianco K, Schwab FJ, **Smith JS**, Klineberg E, Obeid I, Mundis GM, Kebaish K, Hostin R, Hart RA, Burton DC, Ames CP, Boachie-Adjei O, Protopsaltis TS, Lafage V, ISSG. Complications and inter-center variability of three column osteotomies for spinal deformity surgery: A retrospective review of 423 patients. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
935. \*Protopsaltis TS, Bronsard N, Terran JS, **Smith JS**, Klineberg E, Mundis GM, Kim H, Hostin R, Hart RA, Ames CP, Shaffrey CI, Bess S, Schwab FJ, Lafage V, ISSG. Cervical sagittal deformity develops after PJK in adult thoracolumbar deformity correction: Radiographic analysis utilizing a novel global sagittal parameter, the CTPA. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
936. \*Devos P, Terran JS, Hostin R, Hart RA, Ames CP, Boachie-Adjei O, **Smith JS**, Klineberg E, Obeid I, Mundis GM, Kebaish K, Protopsaltis TS, Schwab FJ, Lafage V, ISSG. Three column spinal osteotomies for adult spinal deformity: Inter-center analysis of variability in technique and alignment impact. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
937. \*Protopsaltis TS, Scheer JK, Terran JS, **Smith JS**, Kim HJ, Mundis GM, Hart RA, McCarthy I, Klineberg E, Lafage V, Bess S, Schwab FJ, Shaffrey CI, Ames CP, ISSG. How the neck affects the back: Changes in regional cervical sagittal alignment correlate to HRQL improvement in adult thoracolumbar deformity patients in two-year follow-up. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
938. \*Hart RA, Hiratzka JR, Hamilton DK, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Lafage V, **Smith JS**, Mummaneni PV, Klineberg E, McCarthy I, Burton DC, Hostin R, ISSG. Proximal junctional failure in adult deformity patients results in higher rate of revision but limited impact on clinical outcome. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
939. Hamilton DK, Hiratzka JR, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Mundis GM, Lafage V, Deviren V, **Smith JS**, Klineberg E, Akbarnia BA, Burton DC, Hart RA, ISSG. HRQOL scores and radiographic parameters do not drive patient satisfaction after adult spinal deformity surgery. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
940. \*Hiratzka JR, Hamilton DK, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Mundis GM, Lafage V, Deviren V, **Smith JS**, Klineberg E, Boachie-Adjei O, Burton DC, Hart RA, ISSG. Stiffness after fusion for adult spinal deformity does not significantly impact patients' functional status or satisfaction. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.

941. Bess S, Line B, Hart RA, Klineberg E, Ames CP, Akbarnia BA, Boachie-Adjei O, Burton DC, Hostin R, Kebaish K, Lafage V, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Return to surgery does not worsen health related quality of life or patient satisfaction at two years: An analysis of incidence and risk factors for secondary surgery in adult spinal deformity. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
942. Klineberg E, Lafage V, Terran JS, Ames CP, Burton DC, Hart RA, **Smith JS**, Shaffrey CI, Boachie-Adjei O, Fu KG, Protosaltis TS, Schwab FJ, Kebaish K, Gupta MC, ISSG. Early and late thoracic kyphosis following 104 lumbar pedicle subtraction osteotomies (LPSO) with unfused thoracic spine. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
943. \*Gupta MC, Boachie-Adjei O, Cunningham ME, Protosaltis TS, Deviren V, Mundis GM, Ames CP, Hostin R, Lafage V, Klineberg E, **Smith JS**, Terran JS, ISSG. Coronal imbalance may be neglected in patients undergoing majority sagittal deformity correction. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
944. \*Protosaltis TS, Schwab FJ, Bronsard N, **Smith JS**, Klineberg E, Mundis GM, Hostin R, Hart RA, Burton DC, Ames CP, Shaffrey CI, Bess S, Errico TJ, Lafage V, ISSG. The T1 pelvic angle (TPA), a novel radiographic measure of global sagittal deformity, accounts for both pelvic retroversion and truncal inclination and correlates strongly with HRQOL. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
945. \*Ibrahimi DM, **Smith JS**, Klineberg E, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis TS, Gupta MC, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Prospective, multi-center assessment of risk factors for early rod fracture following surgery for adult spinal deformity. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
946. Terran JS, Schwab FJ, Mundis GM, Klineberg E, Buchowski JM, Hart RA, Hostin R, Gupta MC, Ames CP, **Smith JS**, Shaffrey CI, Lafage V, Bess S, Burton DC, ISSG. Poor psychological profile reported by SF36, SRS22r and DRAM does not predict outcome following adult spinal deformity surgery. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
947. **Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis TS, Klineberg E, Scheer JK, Fu KG, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Prevalence and type of cervical deformity among 470 adults with thoracolumbar deformity. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
948. \*Saigal R, Clark AJ, Scheer JK, **Smith JS**, Bess S, Mummaneni PV, McCarthy I, Hart RA, Kebaish K, Klineberg E, Deviren V, Schwab FJ, Shaffrey CI, Ames CP, ISSG. Adult deformity surgery (ASD) patients recall fewer than 50 percent of the risks discussed in the informed consent process preoperatively and the recall rate worsens significantly in the postoperative period. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
949. Bess S, Fu KG, Lafage V, Schwab FJ, Shaffrey CI, Ames CP, Hart RA, Klineberg E, Mundis GM, Hostin R, Burton DC, Gupta MC, Boachie-Adjei O, **Smith JS**, ISSG. Disease state correlates for type and severity of adult spinal deformity. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
950. Scheer JK, Protosaltis TS, Kim H, Hostin R, Kebaish K, **Smith JS**, Mundis GM, Schwab FJ, Lafage V, Hart RA, Bess S, Shaffrey CI, Deviren V, Ames CP, ISSG. Health impact comparison of cervical sagittal deformity and thoracolumbar sagittal deformity on baseline disability and surgical outcomes: Cervical PSO versus Lumbar PSO. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.

951. Bess S, Line B, Shaffrey CI, Klineberg E, Lafage V, Schwab FJ, Ames CP, Boachie-Adjei O, Burton DC, Gupta MC, Hart RA, Mundis GM, Hostin R, **Smith JS**, ISSG. Recombinant human bone morphogenetic protein-2 (rhBMP-2) use in adult spinal deformity does not increase major, infectious or neurologic complications and may decrease return to surgery at one year: A prospective, multi-center analysis. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
952. \*Bess S, Line B, Shaffrey C, Klineberg E, Lafage V, Schwab F, Ames C, Boachie-Adjei O, Burton D, Gupta M, Hart R, Mundis G, Hostin R, **Smith JS**, ISSG. Complications are different for recombinant human bone morphogenetic protein-2 (BMP) versus no BMP use in adult spinal deformity: An analysis of complication timing, profile and consequences. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
953. Eastlack RK, Scheer JK, Kim H, Boachie-Adjei O, Deviren V, **Smith JS**, Hart RA, Bess S, Mundis GM, Lafage V, Schwab FJ, Shaffrey CI, Burton DC, Ames CP, ISSG. Do operative outcomes for adults with spinal deformity differ based on the relative severity of back and leg pain prior to surgery? North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
954. Singh M, **Smith JS**, Klineberg E, Shaffrey CI, Lafage V, Schwab FJ, Protosaltis TS, Mundis GM, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Surgical treatment of pathological loss of lumbar lordosis (flatback) in the setting of normal sagittal vertical axis (SVA) achieves similar clinical improvement as surgical treatment for elevated SVA. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
955. \*Kim HJ, Boachie-Adjei O, Scheer JK, Hostin R, Kebaish K, **Smith JS**, Mundis GM, Schwab FJ, Lafage V, Hart RA, Bess S, Deviren V, Shaffrey CI, Ames CP, ISSG. Upper thoracic versus lower thoracic upper instrumented vertebrae endpoints have similar outcomes and complications in adult scoliosis at two-year follow-up. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
956. \*McCarthy I, O'Brien MF, Ames CP, Ki H, **Smith JS**, Boachie-Adjei O, Schwab FJ, Klineberg E, Shaffrey CI, Gupta MC, Polly DW Jr, Hostin R, ISSG. Total hospital costs of surgical treatment for adult spinal deformity: An extended follow-up study. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
957. McCarthy I, O'Brien MF, Ames CP, Errico TJ, Kim HJ, **Smith JS**, Schwab FJ, Klineberg E, Shaffrey CI, Gupta MC, Polly DW Jr, Hostin R, ISSG. Incremental cost effectiveness of adult spinal deformity surgery: Observed QALYs with surgery compared to predicted QALYs without surgery. North American Spine Society 28<sup>th</sup> Annual Meeting. New Orleans, LA. October 9-12, 2013.
958. Anand N, Mundis G, Mummaneni P, Okonkwo D, Kanter A, LaMarca F, Park P, Fessler R, **Smith JS**, Fu KG, Wang M, Uribe J, Terran J, Akbarnia B, Deviren V, ISSG. Comparison of complication rate between hybrid and circumferential MIS techniques in the correction of adult spinal deformity. Society of Minimally Invasive Spine Surgery Annual Meeting. Las Vegas, NV. November 1-3, 2013.
959. **Smith JS**, Lafage V, Ryan DJ, Shaffrey CI, Schwab F, Patel A, Brodke DS, Arnold PM, Riew KD, Traynelis VC, Radcliff K, Vaccaro AR, Fehlings MG, Ames CP. Association of myelopathy scores with cervical sagittal balance and normalized spinal cord volume: Analysis of 56 preoperative cases from the AOSpine North America myelopathy study. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
960. Poorman CE, Slobodyanyuk K, **Smith JS**, Protosaltis TS, Hostin R, Bess S, Mundis GM, Schwab FJ, Lafage V, ISSG. Clinical improvement through nonoperative treatment of adult spinal deformity: Who is likely to benefit? Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.



961. Maier SP, Lafage V, **Smith JS**, Obeid I, Mundis GM, Klineberg E, Kebaish K, Hostin R, Hart RA, Burton DC, Boachie-Adjei O, Ames CP, Protopsaltis TS, Schwab FJ, ISSG. Revision surgery after three-column osteotomy (3CO) in 355 adult spinal deformity (ASD) patients: Inter-center variability and risk factors. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
962. Bianco K, Schwab FJ, **Smith JS**, Klineberg E, Obeid I, Mundis GM, Kebaish K, Hostin R, Hart RA, Burton DC, Ames CP, Boachie-Adjei O, Protopsaltis TS, Lafage V, ISSG. Complications and inter-center variability of three column osteotomies for spinal deformity surgery: A retrospective review of 423 patients. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
963. Protopsaltis TS, Bronsard N, Terran JS, **Smith JS**, Klineberg E, Mundis GM, Kim H, Hostin R, Hart RA, Ames CP, Shaffrey CI, Bess S, Schwab FJ, Lafage V, ISSG. Cervical sagittal deformity develops after PJK in adult thoracolumbar deformity correction: Radiographic analysis utilizing a novel global sagittal parameter, the CTPA. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
964. Hart RA, Hamilton DK, Hiratzka JR, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Lafage V, Mummaneni PV, **Smith JS**, Klineberg E, McCarthy I, Burton DC, Hostin R, ISSG. Prospective analysis of risk factors for proximal junctional failure in adult deformity patients. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
965. Hart RA, Hiratzka JR, Hamilton DK, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Lafage V, **Smith JS**, Mummaneni PV, Klineberg E, McCarthy I, Burton DC, Hostin R, ISSG. Proximal junctional failure in adult deformity patients results in higher rate of revision but limited impact on clinical outcome. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
966. Hiratzka JR, Hamilton DK, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Mundis GM, Lafage V, Deviren V, **Smith JS**, Klineberg E, Boachie-Adjei O, Burton DC, Hart RA, ISSG. Stiffness after fusion for adult spinal deformity does not significantly impact patients' functional status or satisfaction. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
967. Bess S, Line B, Hart RA, Klineberg E, Ames CP, Akbarnia BA, Boachie-Adjei O, Burton DC, Hostin R, Kebaish K, Lafage V, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Return to surgery does not worsen health related quality of life or patient satisfaction at two years: An analysis of incidence and risk factors for secondary surgery in adult spinal deformity. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
968. Mummaneni P, Wang M, Lafage V, Ziewacz J, Okonkwo D, Uribe J, Eastlack R, Anand N, Haque R, Fessler R, Kanter A, Deviren V, Park P, LaMarca F, **Smith JS**, Shaffrey CI, Mundis G, ISSG. Comparison of 3 minimally invasive surgery strategies to treat adult spinal deformity. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
969. Gupta MC, Terran JS, Mundis GM, **Smith JS**, Shaffrey CI, Kim HJ, Boachie-Adjei O, Lafage V, Bess S, Hostin R, Burton DC, Ames CP, Kebaish K, Klineberg E, ISSG. Pedicle subtraction osteotomy (PSO) in the revision versus primary adult spinal deformity (ASD) patient: Is there a difference in correction and complications? Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
970. Protopsaltis TS, Schwab FJ, Bronsard N, **Smith JS**, Klineberg E, Mundis GM, Hostin R, Hart RA, Burton DC, Ames CP, Shaffrey CI, Bess S, Errico TJ, Lafage V, ISSG. The T1 pelvic angle (TPA), a novel radiographic measures of global sagittal deformity, accounts for both pelvic retroversion and truncal inclination and correlates strongly with HRQOL. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.

971. Ibrahimi DM, **Smith JS**, Klineberg E, Shaffrey CI, Lafage V, Schwab FJ, Protopsaltis TS, Gupta MC, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Prospective, multi-center assessment of risk factors for early rod fracture following surgery for adult spinal deformity. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
972. **Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Protopsaltis TS, Klineberg E, Scheer JK, Fu KG, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Prevalence and type of cervical deformity among 470 adults with thoracolumbar deformity. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
973. \*Saigal R, Clark AJ, Scheer JK, **Smith JS**, Bess S, Mummaneni PV, McCarthy I, Hart RA, Kebaish K, Klineberg E, Deviren V, Schwab FJ, Shaffrey CI, Ames CP, ISSG. Adult deformity surgery (ASD) patients recall fewer than 50 percent of the risks discussed in the informed consent process preoperatively and the recall rate worsens significantly in the postoperative period. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
974. Bess S, Fu KG, Lafage V, Schwab FJ, Shaffrey CI, Ames CP, Hart RA, Klineberg E, Mundis GM, Hostin R, Burton DC, Gupta MC, Boachie-Adjei O, **Smith JS**, ISSG. Disease state correlates for type and severity of adult spinal deformity. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
975. Scheer JK, Protopsaltis TS, Kim H, Hostin R, Kebaish K, **Smith JS**, Mundis GM, Schwab FJ, Lafage V, Hart RA, Bess S, Shaffrey CI, Deviren V, Ames CP, ISSG. Health impact comparison of cervical sagittal deformity and thoracolumbar sagittal deformity on baseline disability and surgical outcomes: Cervical PSO versus Lumbar PSO. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
976. Bess S, Line B, Klineberg E, Lafage V, Schwab FJ, Ames CP, Boachie-Adjei O, Burton DC, Kebaish K, Hart RA, Mundis GM, Hostin R, **Smith JS**, Shaffrey CI, ISSG. Two-year prospective, multi-center analysis of consecutive adult spinal deformity patients demonstrates higher fusion grade, lower implant failures and greater improvement in SRS-22r scores for patients treated with recombinant human bone morphogenetic protein-2 (BMP). Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
977. Singh M, **Smith JS**, Klineberg E, Shaffrey CI, Lafage V, Schwab FJ, Protopsaltis TS, Mundis GM, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Surgical treatment of pathological loss of lumbar lordosis (flatback) in the setting of normal sagittal vertical axis (SVA) achieves similar clinical improvement as surgical treatment for elevated SVA. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
978. Kim H, Shaffrey CI, Boachie-Adjei O, Schwab FJ, Lafage V, Deviren V, **Smith JS**, Cunningham ME, Bess S, Hostin R, Kebaish K, Ames CP, ISSG. Adult spinal deformity patients have distinct baseline characteristics based on idiopathic versus degenerative scoliosis type. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
979. Kim HJ, Boachie-Adjei O, Scheer JK, Hostin R, Kebaish K, **Smith JS**, Mundis GM, Schwab FJ, Lafage V, Hart RA, Bess S, Deviren V, Shaffrey CI, Ames CP, ISSG. Upper thoracic versus lower thoracic upper instrumented vertebrae endpoints have similar outcomes and complications in adult scoliosis at two-year follow-up. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 19-23, 2013.
980. \*Protopsaltis TS, Terran JS, Bronsard N, **Smith JS**, Klineberg E, Mundis GM, Kim HJ, Hostin R, Hart RA, Shaffrey CI, Bess S, Ames CP, Schwab FJ, Lafage V, ISSG. T1 slope minus cervical lordosis (T1S-CL), the cervical analog of PI-LL, defines cervical sagittal deformity in patients undergoing

- thoracolumbar osteotomy. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
981. \***Smith JS**, Shaffrey CI, Lafage V, Schwab FJ, Protopsaltis TS, Klineberg E, Scheer JK, Fu KG, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Prevalence and type of cervical deformity among 470 adults with thoracolumbar deformity. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
982. \*Protopsaltis TS, Scheer JK, Terran JS, **Smith JS**, Kim HJ, Mundis GM, Hart RA, McCarthy I, Klineberg E, Lafage V, Bess S, Schwab FJ, Shaffrey CI, Ames CP, ISSG. How the neck affects the back: Changes in regional cervical sagittal alignment correlate to HRQL improvement in adult thoracolumbar deformity patients in two-year follow-up. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
983. \*Maier SP, Lafage V, **Smith JS**, Obeid I, Mundis GM, Klineberg E, Kebaish K, Hostin R, Hart RA, Burton DC, Boachie-Adjei O, Ames CP, Protopsaltis TS, Schwab FJ, ISSG. Revision surgery after three-column osteotomy (3CO) in 355 adult spinal deformity (ASD) patients: Inter-center variability and risk factors. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
984. \*Gupta MC, Terran JS, Mundis GM, **Smith JS**, Shaffrey CI, Kim HJ, Boachie-Adjei O, Lafage V, Bess S, Hostin R, Burton DC, Ames CP, Kebaish K, Klineberg E, ISSG. Pedicle subtraction osteotomy (PSO) in the revision versus primary adult spinal deformity (ASD) patient: Is there a difference in correction and complications? 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
985. \*Devos P, Terran JS, Hostin R, Hart RA, Ames CP, Boachie-Adjei O, **Smith JS**, Klineberg E, Obeid I, Mundis GM, Kebaish K, Protopsaltis TS, Schwab FJ, Lafage V, ISSG. Three column spinal osteotomies for adult spinal deformity: Inter-center analysis of variability in technique and alignment impact. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
986. \*Bess S, Line B, Klineberg E, Lafage V, Schwab FJ, Ames CP, Boachie-Adjei O, Burton DC, Kebaish K, Hart RA, Mundis GM, Hostin R, **Smith JS**, Shaffrey CI, ISSG. Two-year prospective, multi-center analysis of consecutive adult spinal deformity patients demonstrates higher fusion grade, lower implant failures and greater improvement in SRS-22r scores for patients treated with recombinant human bone morphogenetic protein-2 (BMP). 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013. (Nominated for the Hibbs Award for best clinical presentation)
987. \*Bess S, Line B, Shaffrey CI, Klineberg E, Lafage V, Schwab FJ, Ames CP, Boachie-Adjei O, Burton DC, Gupta MC, Hart RA, Mundis GM, Hostin R, **Smith JS**, ISSG. Recombinant human bone morphogenetic protein-2 (rhBMP-2) use in adult spinal deformity does not increase major, infectious or neurologic complications and may decrease return to surgery at one year: A prospective, multi-center analysis. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013. (Nominated for the Hibbs Award for best clinical presentation)
988. \*Shaffrey E, **Smith JS**, Ibrahim DM, Singh M, Lenke LG, Polly DW Jr, Chen CJ, Coe JD, Broadstone PA, Glassman SD, Vaccaro AR, Ames CP, Shaffrey CI. Defining rates and causes of mortality associated with spine surgery using a Scoliosis Research Society (SRS) registry-based system: Does collection of less data improve compliance? 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
989. \*Kim HJ, Boachie-Adjei O, Scheer JK, Hostin R, Kebaish K, **Smith JS**, Mundis GM, Schwab FJ, Lafage V, Hart RA, Bess S, Deviren V, Shaffrey CI, Ames CP, ISSG. Upper thoracic versus lower thoracic upper instrumented vertebrae endpoints have similar outcomes and complications in adult

- scoliosis at two-year follow-up. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
- 990.\*Kelly MP, Lenke LG, Shaffrey CI, Shimer AL, Shaffrey CI, **Smith JS**, Lewis SJ, Ames CP, Carreon LY, Glassman SD, Fehlings MG, Schwab FJ, Lafage V. Comparing prospective to retrospective acute neurologic complication rates in complex adult spinal deformity procedures: Is there a difference? 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
- 991.\*Klineberg E, Buchowski JM, Fu KG, **Smith JS**, Boachie-Adjei O, Lafage V, Schwab FJ, Bess S, Burton DC, Shaffrey CI, Ames CP, Hostin R, Mundis GM, Gupta MC, ISSG. Variance in complications rate reporting among high volume spinal deformity centers: Analysis of a multi-center prospective database. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
- 992.\*Kelly MP, Lenke LG, Shaffrey CI, **Smith JS**, Ames CP, Glassman SD, Carreon LY, Lafage V, Schwab FJ, Shimer AL. Three column spine reconstructions are not associated with higher rates of complication or new neurologic deficit: A retrospective Scolio-Risk 1 study. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
- 993.\* Saigal R, Clark AJ, Scheer JK, **Smith JS**, Bess S, Mummaneni PV, McCarthy I, Hart RA, Kebaish K, Klineberg E, Deviren V, Schwab FJ, Shaffrey CI, Ames CP, ISSG. Adult deformity surgery (ASD) patients recall fewer than 50 percent of the risks discussed in the informed consent process preoperatively and the recall rate worsens significantly in the postoperative period. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
- 994.\*Protosaltis TS, Schwab FJ, Bronsard N, **Smith JS**, Klineberg E, Mundis GM, Hostin R, Hart RA, Burton DC, Ames CP, Shaffrey CI, Bess S, Errico TJ, Lafage V, ISSG. The T1 pelvic angle (TPA), a novel radiographic measures of global sagittal deformity, accounts for both pelvic retroversion and truncal inclination and correlates strongly with HRQOL. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
- 995.\*Hart RA, Hiratzka JR, Hamilton DK, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Lafage V, **Smith JS**, Mummaneni PV, Klineberg E, McCarthy I, Burton DC, Hostin R, ISSG. Proximal junctional failure in adult deformity patients results in higher rate of revision but limited impact on clinical outcome. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
- 996.\*Bianco K, Schwab FJ, **Smith JS**, Klineberg E, Obeid I, Mundis GM, Kebaish K, Hostin R, Hart RA, Burton DC, Ames CP, Boachie-Adjei O, Protosaltis TS, Lafage V, ISSG. Complications and inter-center variability of three column osteotomies for spinal deformity surgery: A retrospective review of 423 patients. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
- 997.\*Kelly MP, Lenke LG, Shaffrey CI, **Smith JS**, Ames CP, Glassman SD, Carreon LY, Lafage V, Schwab FJ, Shimer AL. Three column spine reconstructions are not associated with higher rates of complication or new neurologic deficit: A retrospective Scolio-Risk 1 study. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
- 998.Crawford CH, Ledonio CGT, Bess S, Buchowski JM, Burton DC, Hu SS, Lonner BS, Polly DW Jr, **Smith JS**, Sanders JO. The current state of evidence regarding pediatric spondylolysis: A report from the SRS Evidence Based Medicine Committee. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
- 999.McCarthy I, O'Brien MF, Ames CP, Errico TJ, Kim HJ, **Smith JS**, Schwab FJ, Klineberg E, Shaffrey CI, Gupta MC, Polly DW Jr, Hostin R, ISSG. Incremental cost effectiveness of adult spinal deformity surgery: Observed QALYs with surgery compared to predicted QALYs without surgery. 48<sup>th</sup> Annual

- Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.  
(Nominated for the Goldstein Award for best poster)
1000. Kim H, Shaffrey CI, Boachie-Adjei O, Schwab FJ, Lafage V, Deviren V, **Smith JS**, Cunningham ME, Bess S, Hostin R, Kebaish K, Ames CP, ISSG. Adult spinal deformity patients have distinct baseline characteristics based on idiopathic versus degenerative scoliosis type. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
1001. Kim H, Mundis GM, Eastlack RK, Burton DC, Scheer JK, Boachie-Adjei O, Cunningham ME, **Smith JS**, Bess S, Shaffrey CI, Ames CP, ISSG. Severity and treatment response of back and leg pain differ by curve location in adult spinal deformity. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013.
1002. Broadstone PA, Burton DC, Goytan MJ, **Smith JS**, Choma TJ, Samdani AF, Kim Y, Heary RF, Place HM, Fuller JE, Rathjen KE, Dimar JR. Using the Scoliosis Research Society 2011 M&M database to determine significant difference in case volume and membership status to occurrence of complications. 48<sup>th</sup> Annual Meeting and Course of the Scoliosis Research Society. Lyon, France. September 18-21, 2013. (Recipient of the Goldstein Award for Best Clinical Poster)
1003. \*Singh M, **Smith JS**, Klineberg E, Shaffrey CI, Lafage V, Schwab FJ, Protopsaltis TS, Mundis GM, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Surgical treatment of pathological loss of lumbar lordosis (flatback) in the setting of normal sagittal vertical axis (SVA) achieves similar clinical improvement as surgical treatment for elevated SVA. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013. Nominated for the Whitecloud Award- Best Clinical Paper.
1004. \*Hart RA, Hamilton DK, Hiratzka JR, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Lafage V, Mummaneni PV, **Smith JS**, Klineberg E, McCarthy I, Burton DC, Hostin R, ISSG. Prospective analysis of risk factors for proximal junctional failure in adult deformity patients. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013. Nominated for the Whitecloud Award- Best Clinical Paper.
1005. \*Ibrahimi DM, **Smith JS**, Klineberg E, Shaffrey CI, Lafage V, Schwab FJ, Protopsaltis TS, Gupta MC, Hostin R, Deviren V, Hart RA, Burton DC, Bess S, Ames CP, ISSG. Prospective, multi-center assessment of risk factors for early rod fracture following surgery for adult spinal deformity. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1006. \*Bess S, Fu KG, Lafage V, Schwab FJ, Shaffrey CI, Ames CP, Hart RA, Klineberg E, Mundis GM, Hostin R, Burton DC, Gupta MC, Boachie-Adjei O, **Smith JS**, ISSG. Disease state correlates for type and severity of adult spinal deformity. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1007. \*Hamilton DK, Hiratzka JR, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Mundis GM, Lafage V, Deviren V, **Smith JS**, Klineberg E, Akbarnia BA, Burton DC, Hart RA, ISSG. HRQOL scores and radiographic parameters do not drive patient satisfaction after adult spinal deformity surgery. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1008. \***Smith JS**, Gursukhman SS, Maltenfort M, Shaffrey CI, Vaccaro AR. Operative and nonoperative treatment approaches for lumbar degenerative disc disease have similar long-term clinical outcomes among patients with positive discography. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1009. \*Kim H, Mundis GM, Eastlack RK, Burton DC, Scheer JK, Boachie-Adjei O, Cunningham ME, **Smith JS**, Bess S, Shaffrey CI, Ames CP, ISSG. Severity and treatment response of back and leg pain

- differ by curve location in adult spinal deformity. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1010. \* Scheer JK, Protopsaltis TS, Kim H, Hostin R, Kebaish K, **Smith JS**, Mundis GM, Schwab FJ, Lafage V, Hart RA, Bess S, Shaffrey CI, Deviren V, Ames CP, ISSG. Health impact comparison of cervical sagittal deformity and thoracolumbar sagittal deformity on baseline disability and surgical outcomes: Cervical PSO versus Lumbar PSO. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1011. \*Protopsaltis TS, Bronsard N, Terran JS, **Smith JS**, Klineberg E, Mundis GM, Kim H, Hostin R, Hart RA, Ames CP, Shaffrey CI, Bess S, Schwab FJ, Lafage V, ISSG. Cervical sagittal deformity develops after PJK in adult thoracolumbar deformity correction: Radiographic analysis utilizing a novel global sagittal parameter, the CTPA. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1012. \*Poorman CE, Slobodyanyuk K, **Smith JS**, Protopsaltis TS, Hostin R, Bess S, Mundis GM, Schwab FJ, Lafage V, ISSG. Clinical improvement through nonoperative treatment of adult spinal deformity: Who is likely to benefit? 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1013. \*Klineberg E, Fu KG, **Smith JS**, Lafage V, Schwab FJ, Bess S, Hart RA, Kebaish K, Burton DC, Shaffrey CI, Ames CP, Hostin R, Mundis GM, Gupta MC, ISSG. Impact of major and minor complications on health related quality of life following adult spinal deformity surgery: Multi-center prospective database. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1014. \* Gupta MC, Boachie-Adjei O, Cunningham ME, Protopsaltis TS, Deviren V, Mundis GM, Ames CP, Hostin R, Lafage V, Klineberg E, **Smith JS**, Terran JS, ISSG. Coronal imbalance may be neglected in patients undergoing majority sagittal deformity correction. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1015. \*Klineberg E, Lafage V, Terran JS, Ames CP, Burton DC, Hart RA, **Smith JS**, Shaffrey CI, Boachie-Adjei O, Fu KG, Protopsaltis TS, Schwab FJ, Kebaish K, Gupta MC, ISSG. Early and late thoracic kyphosis following 104 lumbar pedicle subtraction osteotomies (LPSO) with unfused thoracic spine. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1016. \*Bess S, Line B, Hart RA, Klineberg E, Ames CP, Akbarnia BA, Boachie-Adjei O, Burton DC, Hostin R, Kebaish K, Lafage V, Schwab FJ, Shaffrey CI, **Smith JS**, ISSG. Return to surgery does not worsen health related quality of life or patient satisfaction at two years: An analysis of incidence and risk factors for secondary surgery in adult spinal deformity. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1017. \* Eastlack RK, Scheer JK, Kim H, Boachie-Adjei O, Deviren V, **Smith JS**, Hart RA, Bess S, Mundis GM, Lafage V, Schwab FJ, Shaffrey CI, Burton DC, Ames CP, ISSG. Do operative outcomes for adults with spinal deformity differ based on the relative severity of back and leg pain prior to surgery? 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1018. \*Hiratzka JR, Hamilton DK, Bess S, Schwab FJ, Shaffrey CI, Ames CP, Mundis GM, Lafage V, Deviren V, **Smith JS**, Klineberg E, Boachie-Adjei O, Burton DC, Hart RA, ISSG. Stiffness after fusion for adult spinal deformity does not significantly impact patients' functional status or satisfaction. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.

1019. \*Shimer AL, Shaffrey CI, **Smith JS**, Lenke LG, Ames CP, Schwab FJ, Lafage V, Kelly MP. Retrospective, multi-center analysis of the efficacy of antifibrinolytics on intraoperative blood loss during complex adult deformity surgery. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1020. \*Ryan DJ, Protosaltis TS, Ames CP, Hostin R, Klineberg E, Mundis GM, Obeid I, Kebaish K, **Smith JS**, Boachie-Adjei O, Burton DC, Hart RA, Schwab FJ, Lafage V, ISSG. Does T1 Pelvic Angle (TPA) effectively assess sagittal imbalance and can it predict sustainable correction? 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1021. \*Mummaneni PV, Ghogawal Z, Ziewacz J, Shaffrey CI, Heary RF, Cheng JS, Asher AL, **Smith JS**, Malhotra NR, Whitmore RG, Magge S, Kaiser M, Knightly J, Abbed K, Resnick D. Establishing the efficacy of lumbar discectomy and single level fusion for spondylolisthesis: Experience with the AANS Neuropoint SD Registry. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1022. \*McCarthy I, O'Brien MF, Ames CP, Ki H, **Smith JS**, Boachie-Adjei O, Schwab FJ, Klineberg E, Shaffrey CI, Gupta MC, Polly DW Jr, Hostin R, ISSG. Total hospital costs of surgical treatment for adult spinal deformity: An extended follow-up study. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1023. \*Kim H, Shaffrey CI, Boachie-Adjei O, Schwab FJ, Lafage V, Deviren V, **Smith JS**, Cunningham ME, Bess S, Hostin R, Kebaish K, Ames CP, ISSG. Adult spinal deformity patients have distinct baseline characteristics based on idiopathic versus degenerative scoliosis type. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1024. Terran JS, Schwab FJ, Mundis GM, Klineberg E, Buchowski JM, Hart RA, Hostin R, Gupta MC, Ames CP, **Smith JS**, Shaffrey CI, Lafage V, Bess S, Burton DC, ISSG. Poor psychological profile reported by SF36, SRS22r and DRAM does not predict outcome following adult spinal deformity surgery. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1025. Broadstone PA, Burton DC, Goytan MJ, **Smith JS**, Choma TJ, Samdani AF, Kim Y, Heary RF, Place HM, Fuller JE, Rathjen KE, Dimar JR. Using the Scoliosis Research Society 2011 M&M data base to determine significant difference in case volume and membership status to occurrence of complications. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1026. Crawford CH, Ledonio CGT, Bess S, Buchowski JM, Burton DC, Hu SS, Lonner BS, Polly DW Jr, **Smith JS**, Sanders JO. The current state of evidence regarding pediatric spondylolysis: A report from the SRS Evidence Based Medicine Committee. 20<sup>th</sup> International Meeting for Advanced Spine Techniques. Vancouver, British Columbia, Canada. July 10-13, 2013.
1027. \***Smith JS**, Lafage V, Protosaltis T, Ames CP. A comprehensive classification for cervical spinal soft tissue release and osteotomy for deformity correction. 29<sup>th</sup> Annual Meeting of the European Cervical Spine Research Society. Bordeaux, France. May 30-31, 2013. Oral poster (nominated for the Mario Boni Award).
1028. \***Smith JS**, Lafage V, Protosaltis T, Ames CP. Prevalence and type of cervical deformity among 470 adults with thoracolumbar deformity. 29<sup>th</sup> Annual Meeting of the European Cervical Spine Research Society. Bordeaux, France. May 30-31, 2013.
1029. \*Protosaltis T, **Smith JS**, Lafage V, Ames CP. How the neck affects the back: changes in cervical sagittal alignment correlate to HRQL improvement in adult thoracolumbar deformity patients. 29<sup>th</sup> Annual Meeting of the European Cervical Spine Research Society. Bordeaux, France. May 30-31, 2013.

1030. **Smith JS**, Scheer JK, Lafage V, Ames CP. Health impact comparison of cervical sagittal deformity and thoracolumbar sagittal deformity on baseline disability and surgical outcomes: cervical PSO vs lumbar PSO. 29<sup>th</sup> Annual Meeting of the European Cervical Spine Research Society. Bordeaux, France. May 30-31, 2013.
1031. Ha Y, Schwab F, Lafage V, Mundis G, Shaffrey C, **Smith JS**, Bess S, Nam CM, Ames CP. Reciprocal changes in cervical spine alignment after corrective thoracolumbar deformity surgery. 29<sup>th</sup> Annual Meeting of the European Cervical Spine Research Society. Bordeaux, France. May 30-31, 2013.
1032. \*Kasliwal MK, Reames D, **Smith JS**, Hamilton DK, Arlet V, Shaffrey CI. Time to development, clinical and radiographic characteristics, and management of proximal junctional kyphosis in adult thoracolumbar instrumented fusion. Lumbar Spine Research Society. Chicago, IL. April 11-12, 2013.
1033. \*Hart R, Hostin R, Protosaltis T, Bess S, Schwab F, Lafage V, Mummaneni P, Ames C, Shaffrey C, **Smith JS**, Boachie-Adjei O, Klineberg E, Burton D, Gupta M, ISSG. Age, sagittal deformity and operative correction are risk factors for proximal junctional failure (PJF) following adult spinal deformity surgery. Lumbar Spine Research Society. Chicago, IL. April 11-12, 2013.
1034. Ledonio C, Polly D, Duval S, Yson S, Larson N, Santos E, Sembrano J, **Smith JS**. Meta-analysis of adult degenerative scoliosis surgical treatment outcomes: Results of University of Minnesota and Scoliosis Research Society Evidence-Based Medicine Task Force. Lumbar Spine Research Society. Chicago, IL. April 11-12, 2013.
1035. \*Barry S, Fehlings M, Kopjar B, Yoon S, Arnold P, Massicotte E, Vaccaro A, Brodke D, Shaffrey C, **Smith J**, Woodard E, Banco R, Chapman J, Janssen M, Bono C, Sasso R, Dekutoski M, Gokaslan Z. Anterior vs posterior approaches to treat cervical spondylotic myelopathy: outcomes of the prospective multicenter AOSpine North America CSM study in 278 patients. American Association of Neurological Surgeons Annul Meeting. New Orleans, LA. April 28-31, 2013. (Plenary I Session Presentation)
1036. \*Lafage V, **Smith JS**, Schwab F, Shaffrey CI, Klineberg E, Ames CP, Hostin R, Fu KG, Mummaneni P, Kebaish K, Deviren V, Boachie-Adjei O, Hart R, Bess S. Likelihood of reaching minimal clinically important difference (MCID) in health related quality of life (HRQOL) measures: Prospective analysis of operative and non-operative treatment of adult spinal deformity. American Association of Neurological Surgeons Annul Meeting. New Orleans, LA. April 28-31, 2013.
1037. \*Fu KG, Bess S, Schwab F, Shaffrey CI, Lafage V **Smith JS**, Ames CP, Boachie-Adjei O, Burton DC, Hart RA, Klineberg E, Hostin R, Mundis GM, Mummaneni PV, and the ISSG. Health impact comparison of different disease states and population norms to adult spinal deformity: A call for medical attention. American Association of Neurological Surgeons Annul Meeting. New Orleans, LA. April 28-31, 2013.
1038. Lafage V, Schwab F, Shaffrey CI, **Smith JS**, Moal B, Ames CP, Fu KG, Mummaneni PV, Burton DC, Gupta MC, Deviren V, Mundis GM, Hart RA, Bess S, and the ISSG. Assessment and clinical correlations of the SRS-Schwab adult spinal deformity classification based on a prospective operative and non-operative cohort. American Association of Neurological Surgeons Annul Meeting. New Orleans, LA. April 28-31, 2013.
1039. **Smith JS**, Lafage V, Schwab F, Ames C, Moal B, Hostin R, Mummaneni P, Kebaish K, Deviren V, Shaffrey C, Klineberg E, Bess S, ISSG. Prevalence and risk factors for proximal junctional kyphosis following realignment surgery by pedicle subtraction osteotomy: A multicenter review. American Association of Neurological Surgeons Annul Meeting. New Orleans, LA. April 28-31, 2013.



1040. Ames C, Scheer J, **Smith JS**, Klineberg E, Hart R, Mundis G, Burton D, Hostin R, O'Brien M, Shaffrey C, Bess S, Schwab F, Kebaish K, Deviren V, ISSG. Reoperation rates and impact on outcome in a large prospective multicenter adult spinal deformity database. American Association of Neurological Surgeons Annul Meeting. New Orleans, LA. April 28-31, 2013.
1041. **Smith JS**, Klineberg E, Schwab F, Shaffrey CI, Moal B, Ames CP, Hostin R, Fu KG, Burton DC, Akbarnia BA, Gupta MC, Hart RA, Bess S, Lafage V, and the ISSG. Change in classification grade by the SRS-Schwab adult spinal deformity classification predicts impact on health related quality of life measures: Prospective analysis of operative and nonoperative treatment. American Association of Neurological Surgeons Annul Meeting. New Orleans, LA. April 28-31, 2013.
1042. \***Smith JS**, Bess S, Line B, Boachie-Adjei O, Hart R, Lafage V, Schwab F, Akbarnia B, Ames C, Burton D, Hostin R, Klineberg E, Mundis G, Shaffrey C, ISSG. Does recombinant human bone morphogenetic protein-2 (BMP) use in adult spinal deformity increase complications and are complications does related? A prospective, multicenter study of 257 consecutive patients. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1043. **Smith JS**, Lafage V, Schwab F, Ames C, Moal B, Hostin R, Mummaneni P, Kebaish K, Deviren V, Shaffrey C, Klineberg E, Bess S, ISSG. Prevalence and risk factors for proximal junctional kyphosis following realignment surgery by pedicle subtraction osteotomy: A multicenter review. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1044. \*Ames C, Scheer J, **Smith JS**, Klineberg E, Hart R, Mundis G, Burton D, Hostin R, O'Brien M, Shaffrey C, Bess S, Schwab F, Kebaish K, Deviren V, ISSG. Reoperation rates and impact on outcome in a large prospective multicenter adult spinal deformity database. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1045. \*Tang JA, Leasure J, **Smith JS**, Buckley J, Kondrashov D, Ames CP. Applying posterior vertebral column resection to efficiently and safely correct severe rigid spinal deformities. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1046. \*Bess S, Fu KG, Schwab F, Shaffrey CI, Lafage V, **Smith JS**, Ames CP, Boachie-Adjei O, Burton DC, Hart RA, Klineberg E, Hostin R, Mundis GM, Mummaneni PV, and the ISSG. Health impact comparison of different disease states and population norms to adult spinal deformity: A call for medical attention. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1047. \*Kebaish K, Klineberg E, El Dafrawy M, Ames C, Bess S, Deviren V, **Smith JS**, Hart R, Gupta M. Primary versus revision surgery: multi-center analysis of clinical and functional outcomes following surgery for adult spinal deformity. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1048. \*Lafage V, **Smith JS**, Schwab F, Shaffrey CI, Klineberg E, Ames CP, Hostin R, Fu KG, Mummaneni P, Kebaish K, Deviren V, Boachie-Adjei O, Hart R, Bess S. Likelihood of reaching minimal clinically important difference (MCID) in health related quality of life (HRQOL) measures: Prospective analysis of operative and non-operative treatment of adult spinal deformity. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1049. \*Hostin R, O'Brien M, McCarthy I, Fleming N, Ogola G, Kudyakov R, Richter K, Rajiv K, Berven S, Deviren V, **Smith JS**, Ames C. Analysis of the cost-effectiveness of surgical treatment for adult spinal deformity. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1050. \*Clark AJ, Saigal R, Scheer JK, Shaffrey CI, **Smith JS**, Bess S, Mummaneni PV, McCarthy I, Hart R, Obrien MF, Hostin RA, Kebaish KM, Klineberg EO, Gupta M, Lafage V, Deviren V, Schwab F, Ames CO. Retention of key portions of informed consent in the adult deformity patient; interim report of a prospective study. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.

1051. **Smith JS**, Klineberg E, Schwab F, Shaffrey CI, Moal B, Ames CP, Hostin R, Fu KG, Burton DC, Akbarnia BA, Gupta MC, Hart RA, Bess S, Lafage V, and the ISSG. Change in classification grade by the SRS-Schwab adult spinal deformity classification predicts impact on health related quality of life measures: Prospective analysis of operative and nonoperative treatment. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1052. Ames CP, Scheer JK, **Smith JS**, Gupta MC, Klineberg E, Hart RA, Burton DC, Hostin R, O'Brien MF, Shaffrey CI, Bess S, Schwab F, Deviren V, Kebaish K, and the ISSG. Outcomes following three-column spinal osteotomies: Impact on HRQOL and age on two-year follow-up. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1053. Ames CP, Scheer JK, Deviren V, **Smith JS**, Bess S, Hostin R, Klineberg E, Hart RA, Mundis GM, O'Brien MF, Shaffrey CI, Lafage V, Kebaish K, Schwab F, and the ISSG. Effect of upper instrumented vertebra on adult spinal deformity correction, maintenance of correction, and health related quality of life following lumbar pedicle subtraction osteotomy. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1054. Ames CP, Hostin R, McCarthy I, Fleming N, Ogola G, Kudyakov R, Richter K, Rajiv S, Berven S, Deviren V, Smith JS, O'Brien M. Analysis of health related quality of life improvements among patients with adult spinal deformity. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1055. Hart RA, Bess S, Burton DC, Shaffrey CI, Protopsaltis T, Boachie-Adjei O, Ames CP, Deviren V, Hostin R, Klineberg E, Mummaneni PV, Mundis GM, **Smith JS**, Schwab F, and the ISSG. Proximal junctional failure classification and severity scale: Developmental and validation of a standardized system. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1056. Lafage V, Schwab F, Shaffrey CI, **Smith JS**, Moal B, Ames CP, Fu KG, Mummaneni PV, Burton DC, Gupta MC, Deviren V, Mundis GM, Hart RA, Bess S, and the ISSG. Assessment and clinical correlations of the SRS-Schwab adult spinal deformity classification based on a prospective operative and non-operative cohort. Global Spine Congress Meeting. Hong Kong. April 4-6, 2013.
1057. Hart RA, Hostin RA, Bess RS, Schwab FJ, Lafage V, Mummaneni PV, Ames C, **Smith JS**, Boachie-Adjei O. Age, sagittal balance and operative correction are risk factors for proximal junctional failure in adult deformity. American Academy of Orthopedic Surgeons Annual Meeting. Chicago, IL. March 19-23, 2013.
1058. Heller JE, **Smith JS**, Cho W, Fu KG, Shaffrey CI. Long adult spinal deformity fusion to sacrum using low dose rhBMP-2. American Academy of Orthopedic Surgeons Annual Meeting. Chicago, IL. March 19-23, 2013.
1059. \*El Dafrawy MH, Lafage V, Hostin RA, Ames C, **Smith JS**, Deviren V, Schwab FJ, Kebaish KM. Longitudinal radiographic assessment of maintenance of sagittal plane correction after 3-column spinal osteotomy. American Academy of Orthopedic Surgeons Annual Meeting. Chicago, IL. March 19-23, 2013.
1060. \*Moal B, Schwab FJ, Ames C, **Smith JS**, Terran JS, Hart RA, Shaffrey CI, Lafage V. Clinical improvement through surgery for adult spinal deformity: Who is likely to benefit most? American Academy of Orthopedic Surgeons Annual Meeting. Chicago, IL. March 19-23, 2013.
1061. \***Smith JS**, Lafage V, Schwab F, Ames C, Moal B, Hostin R, Mummaneni P, Kebaish K, Deviren V, Shaffrey C, Klineberg E, Bess S, ISSG. Prevalence and risk factors for proximal junctional kyphosis following realignment surgery by pedicle subtraction osteotomy: A multicenter review. AANS/CNS Spine Joint Section Annual Meeting. Phoenix, AZ. March 6-9, 2013.
1062. \***Smith JS**, Ames C, Scheer J, Klineberg E, Hart R, Mundis G, Burton D, Hostin R, O'Brien M, Shaffrey C, Bess S, Schwab F, Kebaish K, Deviren V, ISSG. Reoperation rates and impact on outcome

- in a large prospective multicenter adult spinal deformity database. AANS/CNS Spine Joint Section Annual Meeting. Phoenix, AZ. March 6-9, 2013.
1063. Ames CP, Scheer JK, Deviren V, **Smith JS**, Bess S, Hostin R, Klineberg E, Hart RA, Mundis GM, Obrien MF, Shaffrey CI, Lafage V, Kebaish K, Schwab F, and the ISSG. Effect of upper instrumented vertebra on adult spinal deformity correction, maintenance of correction, and health related quality of life following lumbar pedicle subtraction osteotomy. AANS/CNS Spine Joint Section Annual Meeting. Phoenix, AZ. March 6-9, 2013.
1064. \*Lafage V, **Smith JS**, Schwab F, Shaffrey CI, Klineberg E, Ames CP, Hostin R, Fu KG, Mummaneni P, Kebaish K, Deviren V, Boachie-Adjei O, Hart R, Bess S. Likelihood of reaching minimal clinically important difference (MCID) in health related quality of life (HRQOL) measures: Prospective analysis of operative and non-operative treatment of adult spinal deformity. AANS/CNS Spine Joint Section Annual Meeting. Phoenix, AZ. March 6-9, 2013.
1065. \*Fu KG, Bess S, Schwab F, Shaffrey CI, Lafage V **Smith JS**, Ames CP, Boachie-Adjei O, Burton DC, Hart RA, Klineberg E, Hostin R, Mundis GM, Mummaneni PV, and the ISSG. Health impact comparison of different disease states and population norms to adult spinal deformity: A call for medical attention. AANS/CNS Spine Joint Section Annual Meeting. Phoenix, AZ. March 6-9, 2013.
1066. \*Bess S, Line B, Boachie-Adjei O, Hart R, Lafage V, Schwab F, Akbarnia B, Ames C, Burton D, Hostin R, Klineberg E, Mundis G, Shaffrey C, **Smith JS**, ISSG. Does recombinant human bone morphogenetic protein-2 (BMP) use in adult spinal deformity increase complications and are complications does related? A prospective, multicenter study of 257 consecutive patients. International Meeting on Advanced Spine Techniques. AANS/CNS Spine Joint Section Annual Meeting. Phoenix, AZ. March 6-9, 2013.
1067. \*Schwab F, Lafage V, Shaffrey CI, **Smith JS**, Moal B, Ames CP, Fu KG, Mummaneni PV, Burton DC, Gupta MC, Deviren V, Mundis GM, Hart RA, Bess S, and the ISSG. The SRS-Schwab adult spinal deformity classification: Assessment and clinical correlations based on a prospective operative and non-operative cohort. AANS/CNS Spine Joint Section Annual Meeting. Phoenix, AZ. March 6-9, 2013.
1068. \*Ames CP, Scheer JK, **Smith JS**, Gupta MC, Klineberg E, Hart RA, Burton DC, Hostin R, Obrien MF, Shaffrey CI, Bess S, Schwab F, Deviren V, Kebaish K, and the ISSG. Outcomes following three-column spinal osteotomies: Impact on HRQOL and age on two-year follow-up. AANS/CNS Spine Joint Section Annual Meeting. Phoenix, AZ. March 6-9, 2013.
1069. \*Fu KG, Hart RA, Bess S, Burton DC, Shaffrey CI, Protosaltis T, Boachie-Adjei O, Ames CP, Deviren V, Hostin R, Klineberg E, Mummaneni PV, Mundis GM, **Smith JS**, Schwab F, and the ISSG. Proximal junctional failure classification and severity scale: Developmental and validation of a standardized system. AANS/CNS Spine Joint Section Annual Meeting. Phoenix, AZ. March 6-9, 2013.
1070. \***Smith JS**, Klineberg E, Schwab F, Shaffrey CI, Moal B, Ames CP, Hostin R, Fu KG, Burton DC, Akbarnia BA, Gupta MC, Hart RA, Bess S, Lafage V, and the ISSG. Change in classification grade by the SRS-Schwab adult spinal deformity classification predicts impact on health related quality of life measures: Prospective analysis of operative and nonoperative treatment. AANS/CNS Spine Joint Section Annual Meeting. Phoenix, AZ. March 6-9, 2013.
1071. \*Chapman J, **Smith JS**, Kopjar B, Vaccaro A, Arnold PM, Shaffrey CI, Fehlings MG. The AOSpine North America geriatric odontoid fracture study: A retrospective review of mortality outcomes for operative versus nonoperative treatment in 322 patients with long-term follow-up. Cervical Spine Research Society. Chicago, IL. December 6-8, 2012.

1072. \***Smith JS**, Kepler CK, Kopjar , Harrop JS, Arnold PM, Chapman J, Fehlings MG, Vaccaro AR, Shaffrey CI. The effect of type II odontoid fracture nonunion on outcome among elderly patients treated without surgery: Subgroup analysis of the AOSpine North America geriatric odontoid fracture study. Cervical Spine Research Society. Chicago, IL. December 6-8, 2012.
1073. \***Smith JS**, Shaffrey CI, Ames CP, Fu KG, Mummaneni P, Schwab F, Lafage V, Bess S, and the ISSG. The SRS-Schwab adult spinal deformity classification: Assessment and clinical correlations based on a prospective operative and non-operative cohort. American Academy of Neurological Surgery. Cape Cod, MA. October 17-20, 2012.
1074. **Smith JS**, Klineberg E, Schwab F, Shaffrey CI, Moal B, Ames CP, Hostin R, Fu KG, Burton DC, Akbarnia BA, Gupta MC, Hart RA, Bess S, Lafage V, and the ISSG. Change in classification grade by the SRS-Schwab adult spinal deformity classification predicts impact on health related quality of life measures: Prospective analysis of operative and nonoperative treatment. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1075. Kasliwal MK, **Smith JS**, Saulle D, Chen CJ, Lenke L, Polly DW Jr, Broadstone PA, Glassman SD, Vaccaro AR, Ames CP, Shaffrey CI. Rates and causes of mortality associated with spine surgery based on 108,419 procedures: A review of the Scoliosis Research Society morbidity and mortality database. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1076. \*. Bess S, Line B, Boachie-Adjei O, Hart RA, Ames CP, Lafage V, Schwab F, Akbarnia BA, Burton DC, Hostin R, Klineberg E, Mundis GM, **Smith JS**, Shaffrey CI, and the ISSG. Operative time and patient age, rather than recombinant human bone morphogenetic protein-2 use, increase major complications in adult spinal deformity surgery. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1077. Moal B, Lafage V, **Smith JS**, Ames CP, Mummaneni PV, Mundis GM, Terran JS, Klineberg E, Hart RA, Boachie-Adjei O, Shaffrey CI, Schwab F, and the ISSG. Clinical improvement through surgery for adult spinal deformity: What can be expected and who is likely to benefit the most? Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1078. Hart RA, Bess S, Burton DC, Shaffrey CI, Protopsaltis T, Boachie-Adjei O, Ames CP, Deviren V, Hostin R, Klineberg E, Mummaneni PV, Mundis GM, **Smith JS**, Schwab F, and the ISSG. Proximal junctional failure classification and severity scale: Developmental and validation of a standardized system. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1079. Ames CP, Scheer JK, **Smith JS**, Gupta MC, Klineberg E, Hart RA, Burton DC, Hostin R, O'Brien MF, Shaffrey CI, Bess S, Schwab F, Deviren V, Kebaish K, and the ISSG. Outcomes following three-column spinal osteotomies: Impact on HRQOL and age on two-year follow-up. Scoliosis Research Society. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1080. \*Schwab F, Lafage V, Shaffrey CI, **Smith JS**, Moal B, Ames CP, Fu KG, Mummaneni PV, Burton DC, Gupta MC, Deviren V, Mundis GM, Hart RA, Bess S, and the ISSG. The SRS-Schwab adult spinal deformity classification: Assessment and clinical correlations based on a prospective operative and non-operative cohort. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1081. Ames CP, Scheer JK, Deviren V, **Smith JS**, Bess S, Hostin R, Klineberg E, Hart RA, Mundis GM, O'Brien MF, Shaffrey CI, Lafage V, Kebaish K, Schwab F, and the ISSG. Effect of upper instrumented vertebra on adult spinal deformity correction, maintenance of correction, and health related quality of life following lumbar pedicle subtraction osteotomy. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1082. Fu KG, Bess S, Schwab F, Shaffrey CI, Lafage V **Smith JS**, Ames CP, Boachie-Adjei O, Burton DC, Hart RA, Klineberg E, Hostin R, Mundis GM, Mummaneni PV, and the ISSG. Health impact

- comparison of different disease states and population norms to adult spinal deformity: A call for medical attention. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1083. Ames C, Scheer J, **Smith JS**, Klineberg E, Hart R, Mundis G, Burton D, Hostin R, O'Brien M, Shaffrey C, Bess S, Schwab F, Kebaish K, Deviren V, ISSG. Reoperation rates and impact on outcome in a large prospective multicenter adult spinal deformity database. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1084. \*Mundis G, Lafage V, Schwab F, Ames C, Moal B, Hostin R, Mummaneni P, Kebaish K, **Smith JS**, Deviren V, Shaffrey C, Klineberg E, Bess S, ISSG. Prevalence and risk factors for proximal junctional kyphosis following realignment surgery by pedicle subtraction osteotomy: A multicenter review. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1085. Fu KG, Bess S, Shaffrey CI, **Smith JS**, Lafage V, Schwab F, Burton DC, Akbarnia BA, Ames CP, Boachie-Adjei O, Hart RA, Klineberg E, Gupta MC, Mummaneni PV, and the ISSG. Operatively treated young adult spinal deformity patients (<50 years of age) have larger scoliosis and worse quality of life than nonoperative patients despite normal sagittal alignment. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1086. Lafage V, Moal B, Schwab F, Ames CP, **Smith JS**, Mummaneni PV, Mundis G, Terran J, Klineberg E, Hart R, Boachie-Adjei O, Bess S, Shaffrey CI, ISSG. Radiographic outcomes of spinal deformity correction in adult patients: A critical analysis of variability and failures across deformity patterns. Congress of Neurological Surgeons Annual Meeting. Chicago, IL. October 6-10, 2012.
1087. \***Smith JS**, Saulle D, Chen CJ, Lenke LG, Polly DW Jr, Kasliwal MK, Broadstone PA, Glassman SD, Vaccaro AR, Ames CP, Shaffrey CI. Rates and causes of mortality associated with spine surgery based on 108,419 procedures: A review of the Scoliosis Research Society Morbidity and Mortality Database. Scoliosis Research Society. Chicago, IL. September 5-8, 2012. (Nominated for the Hibbs Award for best Clinical Presentation, 1 of 10 nominees)
1088. \***Smith JS**, Klineberg E, Schwab F, Shaffrey CI, Moal B, Ames CP, Hostin R, Fu KG, Burton DC, Akbarnia BA, Gupta MC, Hart RA, Bess S, Lafage V, and the ISSG. Change in classification grade by the SRS-Schwab adult spinal deformity classification predicts impact on health related quality of life measures: Prospective analysis of operative and nonoperative treatment. Scoliosis Research Society. Chicago, IL. September 5-8, 2012. (Nominated for the Hibbs Award for best Clinical Presentation, 1 of 10 nominees)
1089. \* Bess S, Line B, Boachie-Adjei O, Hart RA, Ames CP, Lafage V, Schwab F, Akbarnia BA, Burton DC, Hostin R, Klineberg E, Mundis GM, **Smith JS**, Shaffrey CI, and the ISSG. Operative time and patient age, rather than recombinant human bone morphogenetic protein-2 use, increase major complications in adult spinal deformity surgery. Scoliosis Research Society. Chicago, IL. September 5-8, 2012. (Nominated for the Hibbs Award for best Clinical Presentation, 1 of 10 nominees)
1090. \*Moal B, Lafage V, **Smith JS**, Ames CP, Mummaneni PV, Mundis GM, Terran JS, Klineberg E, Hart RA, Boachie-Adjei O, Shaffrey CI, Schwab F, and the ISSG. Clinical improvement through surgery for adult spinal deformity: What can be expected and who is likely to benefit the most? Scoliosis Research Society. Chicago, IL. September 5-8, 2012.
1091. \*Fu KG, Bess S, Shaffrey CI, **Smith JS**, Lafage V, Schwab F, Burton DC, Akbarnia BA, Ames CP, Boachie-Adjei O, Hart RA, Klineberg E, Gupta MC, Mummaneni PV, and the ISSG. Operatively treated adult spinal deformity patients report worse health related quality of life than nonoperative, regardless of age; However, radiographic deformity differs between age groups. Scoliosis Research Society. Chicago, IL. September 5-8, 2012.

1092. \*Kebaish K, Klineberg E, El Dafrawy MH, Ames CP, Bess S, Deviren V, **Smith JS**, Hart R, Gupta MC, and the ISSG. Primary vs revision surgery: Multi-center analysis of clinical and functional outcomes following surgery for adult spinal deformity. Scoliosis Research Society. Chicago, IL. September 5-8, 2012.
1093. \*Hart RA, Bess S, Burton DC, Shaffrey CI, Protopsaltis T, Boachie-Adjei O, Ames CP, Deviren V, Hostin R, Klineberg E, Mummaneni PV, Mundis GM, **Smith JS**, Schwab F, and the ISSG. Proximal junctional failure classification and severity scale: Developmental and validation of a standardized system. Scoliosis Research Society. Chicago, IL. September 5-8, 2012.
1094. \*Fu KG, Bess S, Schwab F, Shaffrey CI, Lafage V **Smith JS**, Ames CP, Boachie-Adjei O, Burton DC, Hart RA, Klineberg E, Hostin R, Mundis GM, Mummaneni PV, and the ISSG. Health impact comparison of different disease states and population norms to adult spinal deformity: A call for medical attention. Scoliosis Research Society. Chicago, IL. September 5-8, 2012.
1095. \*Ames CP, Scheer JK, **Smith JS**, Gupta MC, Klineberg E, Hart RA, Burton DC, Hostin R, Obrien MF, Shaffrey CI, Bess S, Schwab F, Deviren V, Kebaish K, and the ISSG. Outcomes following three-column spinal osteotomies: Impact on HRQOL and age on two-year follow-up. Scoliosis Research Society. Chicago, IL. September 5-8, 2012.
1096. \*Schwab F, Lafage V, Shaffrey CI, **Smith JS**, Moal B, Ames CP, Fu KG, Mummaneni PV, Burton DC, Gupta MC, Deviren V, Mundis GM, Hart RA, Bess S, and the ISSG. The SRS-Schwab adult spinal deformity classification: Assessment and clinical correlations based on a prospective operative and non-operative cohort. Scoliosis Research Society. Chicago, IL. September 5-8, 2012.
1097. Ledonio CGT, Polly DW Jr, Duval S, Crawford CH, Yson SC, Larson N, Santos ERG, Sembrano JN, Buchowski JM, **Smith JS**. Meta-analysis of adult degenerative scoliosis surgical treatment outcomes. Scoliosis Research Society. Chicago, IL. September 5-8, 2012.
1098. Hostin R, Obrien MF, McCarthy I, Ames CP, **Smith JS**, Gupta MC, Hart RA, Burton DC, Shaffrey CI, Bess S, Schwab F, Lafage V, Deviren V, Kebaish K, and the ISSG. Impact of restored global sagittal alignment on outcomes of three-column osteotomy. Scoliosis Research Society. Chicago, IL. September 5-8, 2012.
1099. Ames CP, Scheer JK, Deviren V, **Smith JS**, Bess S, Hostin R, Klineberg E, Hart RA, Mundis GM, Obrien MF, Shaffrey CI, Lafage V, Kebaish K, Schwab F, and the ISSG. Effect of upper instrumented vertebra on adult spinal deformity correction, maintenance of correction, and health related quality of life following lumbar pedicle subtraction osteotomy. Scoliosis Research Society. Chicago, IL. September 5-8, 2012.
1100. \***Smith JS**, Klineberg E, Schwab F, Shaffrey CI, Moal B, Ames CP, Hostin R, Fu KG, Burton DC, Akbarnia BA, Gupta MC, Hart RA, Bess S, Lafage V, and the ISSG. Change in classification grade by the SRS-Schwab adult spinal deformity classification predicts impact on health related quality of life measures: Prospective analysis of operative and nonoperative treatment. Scoliosis Research Society. Chicago, IL. September 5-8, 2012. (Nominated for the Hibbs Award for best Clinical Presentation, 1 of 10 nominees)
1101. \* Bess S, Line B, Boachie-Adjei O, Hart RA, Ames CP, Lafage V, Schwab F, Akbarnia BA, Burton DC, Hostin R, Klineberg E, Mundis GM, **Smith JS**, Shaffrey CI, and the ISSG. Operative time and patient age, rather than recombinant human bone morphogenetic protein-2 use, increase major complications in adult spinal deformity surgery. Scoliosis Research Society. Chicago, IL. September 5-8, 2012. (Nominated for the Hibbs Award for best Clinical Presentation, 1 of 10 nominees)
1102. \*Tang JA, Scheer JK, **Smith JS**, Deviren V, Bess S, Hart RA, Lafage V, Shaffrey, CI, Schwab F, Ames CP, and the ISSG. The impact of standing regional cervical sagittal alignment on outcomes in

- posterior cervical fusion surgery. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1103. \*Blondel B, Schwab F, Ames C, Le Huec JC, **Smith JS**, Shaffrey CI, Bess S, Demakakos J, Moal B, Tropiano P, Farcy JP, Lafage V, ISSG. The crucial role of cervical alignment in regulating sagittal spino-pelvic alignment in human standing posture. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1104. \*Bess S, Line B, Boachie-Adjei O, Hart R, Lafage V, Schwab F, Akbarnia B, Ames C, Burton D, Hostin R, Klineberg E, Mundis G, Shaffrey C, **Smith JS**, ISSG. Does recombinant human bone morphogenetic protein-2 (BMP) use in adult spinal deformity increase complications and are complications does related? A prospective, multicenter study of 257 consecutive patients. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1105. \*Hart R, Hostin R, Protosaltis T, Bess S, Schwab F, Lafage V, Mummaneni P, Ames CP, Shaffrey CI, **Smith JS**, Boachie-Adjei O, Klineberg E, Burton D, Gupta M, ISSG. Age, sagittal deformity and operative correction are risk factors for proximal junctional failure following adult spinal deformity surgery. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1106. \*Ames C, Scheer J, **Smith JS**, Klineberg E, Hart R, Mundis G, Burton D, Hostin R, O'Brien M, Shaffrey C, Bess S, Schwab F, Kebaish K, Deviren V, ISSG. Reoperation rates and impact on outcome in a large prospective multicenter adult spinal deformity database. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1107. \*Hostin R, O'Brien M, McCarthy I, Ames C, Kebaish K, Burton D, Lafage V, Schwab F, Shaffrey C, **Smith JS**, Wood K, Hart R, Line B, Deviren V, ISSG. Identification of decision criteria for revision surgery among patients with acute proximal junctional failure following surgical treatment for spinal deformity. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1108. \*O'Brien M, Hostin R, McCarthy I, Ames C, **Smith JS**, Gupta M, Hart R, Burton D, Shaffrey C, Bess S, Schwab F, Lafage V, Kebaish K, Deviren V, ISSG. The effect of complications on health outcomes among patients undergoing pedicle subtraction osteotomy surgery. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1109. \*Lafage V, Schwab F, Ames C, Moal B, Hostin R, Mummaneni P, Kebaish K, **Smith JS**, Deviren V, Shaffrey C, Klineberg E, Bess S, ISSG. Prevalence and risk factors for proximal junctional kyphosis following realignment surgery by pedicle subtraction osteotomy: A multicenter review. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1110. Hostin R, O'Brien M, McCarthy I, Ames C, **Smith JS**, Gupta M, Hart R, Burton D, Shaffrey CI, Bess S, Schwab F, Lafage V, Deviren V, Kebaish K, ISSG. The impact of restored global sagittal alignment on outcomes of pedicle subtraction osteotomy. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1111. Moal B, Schwab F, Ames C, **Smith JS**, Mummaneni P, Mundis G, Terran J, Klineberg E, Hart R, Boachie-Adjei O, Shaffrey CI, Lafage V, ISSG. Radiographic outcomes of spinal deformity correction in adult patients: A critical analysis of variability and failures across deformity patterns. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1112. Ames C, Scheer J, Deviren V, **Smith JS**, Bess S, Hostin R, Klineberg E, Hart R, Mundis G, O'Brien M, Shaffrey C, Lafage V, Kebaish K, Schwab F, ISSG. Effect of upper instrumented vertebra on adult spinal deformity correction, maintenance of correction, and health related quality of life following lumbar pedicle subtraction osteotomy. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.

1113. El Dafrawy M, Lafage V, Hostin R, Ames C, **Smith JS**, Terran J, Deviren V, O'Brien M, Schwab F, Kebaish K, ISSG. Positive cervical sagittal alignment negatively impacts outcomes following adult cervical fusion procedures. International Meeting on Advanced Spine Techniques. Istanbul, Turkey. July 16-22, 2012.
1114. \*Blondel B, Schwab F, Hostin R, Shaffrey C, **Smith JS**, Akbarnia B, Mundis G, Kebaish K, Hart R, Farcy JP, Lafage V. Combined assessment of pelvic tilt, pelvic incidence/lumbar lordosis mismatch and sagittal vertical axis predicts disability in adult spinal deformity: A prospective analysis. Eurospine Spine Week. Amsterdam, Netherlands. May 28-June 1, 2012
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1116. \*Blondel B, Schwab F, Moal B, Bess S, Hostin R, Shaffrey C, **Smith JS**, Burton D, Akbarnia B, Mundis G, Ames C, Kebaish K, Hart R, Farcy JP, Lafage V. Can different surgical strategies result in satisfactory post-operative sagittal alignment? Eurospine Spine Week. Amsterdam, Netherlands. May 28-June 1, 2012
1117. \*Moal B, Schwab F, Blondel B, Demakakos J, **Smith JS**, Bridwell K, Glassman S, Shaffrey C, Farcy JP, Lafage V. Limited benefit of the coronal Cobb angle correction: A health related quality of life assessment on two year outcomes. Eurospine Spine Week. Amsterdam, Netherlands. May 28-June 1, 2012
1118. \*Blondel B, Schwab F, Chay E, Demakakos J, Moal B, Lenke L, Tropiano P, Ames C, **Smith JS**, Shaffrey C, Glassman S, Gaines R, Farcy JP, Lafage V. The comprehensive anatomical spinal osteotomy classification. Eurospine Spine Week. Amsterdam, Netherlands. May 28-June 1, 2012
1119. \*Hart RA, Hostin R, Bess S, Line B, Ames CP, Kebaish K, Burton D, Lafage V, O'Brien MF, Schwab FJ, Shaffrey CI, **Smith JS**, Wood Kirkham. Acute proximal junctional failure following long posterior fusion for spinal deformity: Risk factors and radiographic analysis comparing thoracolumbar to upper thoracic failures. Eurospine Spine Week. Amsterdam, Netherlands. May 28-June 1, 2012
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1122. \*Schwab F, Lafage V, Shaffrey CI, **Smith JS**, Blondel B, Ames C, Fu MG, Mummaneni P, Burton D, Gupta M, Deviren V, Mundis G, Hart R, Bess S. The Schwab-SRS Adult Deformity Classification: Assessment and clinical correlations based on a prospective operative and non-operative cohort. The Lumbar Spine Research Society. Chicago, IL. April 26-27, 2012.
1123. \*Lafage V, **Smith JS**, Schwab F, Shaffrey CI, Klineberg E, Ames CP, Hostin R, Fu KG, Mummaneni P, Kebaish K, Deviren V, Boachie-Adjei O, Hart R, Bess S. Likelihood of reaching minimal clinically important difference (MCID) in health related quality of life (HRQOL) measures: Prospective analysis of operative and non-operative treatment of adult spinal deformity. The Lumbar Spine Research Society. Chicago, IL. April 26-27, 2012.



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1125. **Smith JS**, Saulle D, Chen CJ, Lenke L, Polly DW Jr, Kasliwal MK, Broadstone PA, Glassman SD, Vaccaro AR, Ames CP, Shaffrey CI. Rates and causes of mortality associated with spine surgery based on 108,419 procedures: A review of the Scoliosis Research Society morbidity and mortality database. The Lumbar Spine Research Society. Chicago, IL. April 26-27, 2012.
1126. \*Tang JA, Scheer JK, **Smith JS**, Deviren V, Bess S, Hart RA, Lafage V, Shaffrey, CI, Schwab F, Ames CP, and the ISSG. Positive cervical sagittal alignment negatively impacts outcomes following adult cervical fusion procedures. American Association of Neurological surgeons Annual Meeting. Miami, FL. April 14-18, 2012.
1127. \***Smith JS**, Ames CP, Schwab F, Bess S, Blondel B, Hostin R, Boachie-Adjei O, Burton D, Akbarnia B, Mundis G, Kebaish K, Hart R, Lafage V, Shaffrey CI. How the assessment of pelvic tilt, pelvic incidence/lumbar lordosis mismatch and sagittal vertical axis predicts disability in adult spinal deformity: A prospective analysis. American Association of Neurological surgeons Annual Meeting. Miami, FL. April 14-18, 2012.
1128. **Smith JS**, Shaffrey CI, Ungar B, Schwab F, Lafage V, Blondel B, Buchowski J, Coe J, Mehdian H, Tribus T. Validation of the SRS-Schwab Adult Deformity Classification. American Association of Neurological surgeons Annual Meeting. Miami, FL. April 14-18, 2012.
1129. Groff MW, Heller JE, Potts EA, Mummaneni PV, Shaffrey CI, **Smith JS**. The scope and impact of wrong-level lumbar spine surgery: A survey of the Joint Section on Disorders of the Spine and Peripheral Nerves. American Association of Neurological surgeons Annual Meeting. Miami, FL. April 14-18, 2012.
1130. Groff MW, Heller JE, Potts EA, Mummaneni PV, Shaffrey CI, **Smith JS**. Current practices for intraoperative localization of lumbar spinal levels: A survey of the Joint Section on Disorders of the Spine and Peripheral Nerves. American Association of Neurological surgeons Annual Meeting. Miami, FL. April 14-18, 2012. (Top Ten Meeting Poster Abstract)
1131. Saulle D, Fu KG, **Smith JS**, Shaffrey CI. Incidence of and factors associated with severe dysphagia following circumferential cervical spine surgery. American Association of Neurological surgeons Annual Meeting. Miami, FL. April 14-18, 2012.
1132. **Smith JS**, Saulle D, Ames CP, Lenke L, Glassman SD, Broadstone PA, Polly, DW Jr, Shaffrey CI. Rates and causes of mortality associated with spine surgery based on 108,419 procedures: A review of the Scoliosis Research Society Morbidity and Mortality database. American Association of Neurological surgeons Annual Meeting. Miami, FL. April 14-18, 2012. (Top Ten Meeting Poster Abstract)
1133. **Smith JS**, Ames CP, Lafage V, Klineberg E, Schwab F, Mundis G, Hart R, Bess S, Hostin RA, Burton DC, Gupta M, Deviren V, Shaffrey CI. Correction of sagittal malalignment following pedicle subtraction osteotomy improves cervical lordosis. American Association of Neurological surgeons Annual Meeting. Miami, FL. April 14-18, 2012.
1134. Kasliwal MK, **Smith JS**, Shaffrey CI, Saulle D, Lenke L, Polly DW Jr, Ames CP, Perra J. Short-term complications associated with surgery for high-grade spondylolisthesis in adults and pediatric patients: A report from the Scoliosis Research Society Morbidity and Mortality database. American Association of Neurological surgeons Annual Meeting. Miami, FL. April 14-18, 2012. (Top Ten Meeting Poster Abstract)

1135. \*Tang JA, Scheer JK, **Smith JS**, Deviren V, Bess S, Hart RA, Lafage V, Shaffrey, CI, Schwab F, Ames CP, and the ISSG. Positive cervical sagittal alignment negatively impacts outcomes following adult cervical fusion procedures. International Society for the Advancement of Spine Surgery. Barcelona, Spain. March 20-23, 2012.
1136. \***Smith JS**, Saulle D, Ames CP, Lenke L, Glassman SD, Broadstone PA, Polly, DW Jr, Shaffrey CI. Rates and causes of mortality associated with spine surgery based on 108,419 procedures: A review of the Scoliosis Research Society Morbidity and Mortality database. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1137. \***Smith JS**, Ames CP, Lafage V, Klineberg E, Schwab F, Mundis G, Hart R, Bess S, Hostin RA, Burton DC, Gupta M, Deviren V, Shaffrey CI. Correction of sagittal malalignment following pedicle subtraction osteotomy improves cervical lordosis. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1138. \***Smith JS**, Ames CP, Gupta M, Klineberg E, Lafage V, Bess S, Schwab F, Boachie-Adjei O, Kebaish K, Wood K, Akbarnia BA, Mundis G, O'Brien MF, Hostin RA, Shaffrey CI. Pedicle subtraction osteotomy with extension of fusion to the pelvis: Does anterior interbody support at L5-S1 improve sagittal and pelvic parameters? Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1139. \***Smith JS**, Ames CP, Schwab F, Bess S, Blondel B, Hostin RA, Boachie-Adjei O, Burton DC, Akbarnia BA, Mundis G, Kebaish K, Hart R, Lafage V, Shaffrey CI. How the assessment of pelvic tilt, pelvic incidence/lumbar lordosis mismatch and sagittal vertical axis predicts disability in adult spinal deformity: A prospective analysis. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1140. \***Smith JS**, Ames CP, Lafage V, Schwab F, Hostin RA, Hart R, Deviren V, Akbarnia BA, Demakakos J, Kebaish K, Burton DC, Bess S, Shaffrey CI. The impact of different surgical strategies in achieving satisfactory post-operative sagittal alignment. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1141. \*Kasliwal MK, **Smith JS**, Shaffrey CI, Saulle D, Lenke L, Polly DW Jr, Ames CP, Perra J. Short-term complications associated with surgery for high-grade spondylolisthesis in adults and pediatric patients: A report from the Scoliosis Research Society Morbidity and Mortality database. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1142. \*Ha Y, **Smith JS**, Schwab F, Mundis G, Shaffrey CI, Bess S, Nam CM, Lafage V, Ames CP. Prediction of reciprocal changes in cervical spine lordosis after corrective thoracolumbar deformity surgery. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1143. \*Tang JA, Scheer JK, **Smith JS**, Deviren V, Bess S, Hart R, Lafage V, Shaffrey CI, Schwab F, Ames CP. The impact of positive regional sagittal alignment on outcomes in posterior cervical fusion surgery. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1144. \*Ghogawala Z, Shaffrey CI, Asher AL, Malhotra NR, Dante S, Hurlbert RJ, Douglas AF, Magge SN, Mummaneni PV, Cheng JS, **Smith JS**, Kaiser MG, Heary RF, Abbed KM, Sciubba DM, Resnick DK. The design and development of the Neuropoint SD Spine Registry for Lumbar Discectomy and Single-Level Fusion for Spondylolisthesis. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.

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1146. \*Groff MW, Heller JE, Potts EA, Mummaneni PV, Shaffrey CI, **Smith JS**. The scope and impact of wrong-level lumbar spine surgery: A survey of the Joint Section on Disorders of the Spine and Peripheral Nerves. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1147. \*Groff MW, Heller JE, Potts EA, Mummaneni PV, Shaffrey CI, **Smith JS**. Current practices for intraoperative localization of lumbar spinal levels: A survey of the Joint Section on Disorders of the Spine and Peripheral Nerves. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1148. \*Hood BJ, Hamilton DK, Smith JS, Dididzw M, Shaffrey CI, Levi AD. The use of allograft and recombinant bone morphogenetic protein for instrumented atlanto-axial fusions. \*10. Groff MW, Heller JE, Potts EA, Mummaneni PV, Shaffrey CI, **Smith JS**. The scope and impact of wrong-level lumbar spine surgery: A survey of the Joint Section on Disorders of the Spine and Peripheral Nerves. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1149. **Smith JS**, Ames CP, Bess S, Yaszay B, Line BG, Gupta M, Schwab F, Lonner B, Lafage V, Burton DC, Akbarnia BA, Boachie-Adjei O, Hart R, Hostin RA, Shaffrey CI. Comparison of surgically treated adult and adolescent main thoracic scoliosis demonstrates similar acute perioperative outcomes: A prospective, matched cohort evaluation. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1150. Saulle D, Fu KG, **Smith JS**, Shaffrey CI. Incidence of and factors associated with severe dysphagia following circumferential cervical spine surgery. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1151. **Smith JS**, Shaffrey CI, Ungar B, Schwab F, Lafage V, Blondel B, Buchowski J, Coe J, Mehdian H, Tribus C. Validation of the SRS-Schwab Adult Deformity Classification. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. March 7-10, 2012.
1152. \*Lafage V, Schwab FJ, Blondel B, **Smith JS**, Demakakos J, Bridwell KH, Glassman SD, Shaffrey CI. The limited benefit of coronal Cobb angle correction in the setting of adult spinal deformity. American Academy of Orthopedic Surgeons Annual Meeting. San Francisco, CA. February 7-11, 2012.
1153. \*Tang JA, Scheer JK, **Smith JS**, Deviren V, Bess S, Hart RA, Lafage V, Shaffrey, CI, Schwab F, Ames CP, and the ISSG. Positive cervical sagittal alignment negatively impacts outcomes following adult cervical fusion procedures. American Academy of Orthopedic Surgeons Annual Meeting. San Francisco, CA. February 7-11, 2012.
1154. Schwab FJ, Lafage V, Blondel B, **Smith JS**, Chay E, Bridwell KH, Glassman SD, Shaffrey CI. Sagittal plane spinal deformity: Correction thresholds and health related quality of life at two years follow-up. American Academy of Orthopedic Surgeons Annual Meeting. San Francisco, CA. February 7-11, 2012.

1155. Schwab FJ, Bess RS, Blondel B, Shaffrey CI, **Smith JS**, Hostin RA, Burton DC, Hart RA, Lafage V.  
Pelvic tilt, pelvic incidence/lumbar lordosis mismatch and sagittal alignment predict spinal disability. American Academy of Orthopedic Surgeons Annual Meeting. San Francisco, CA. February 7-11, 2012.
1156. Tang JA, Scheer JK, **Smith JS**, Deviren V, Bess S, Hart RA, Lafage V, Shaffrey, CI, Schwab F, Ames CP, and the ISSG. Positive cervical sagittal alignment negatively impacts outcomes following adult cervical fusion procedures. Orthopedic Research Society. San Francisco, CA. February 4, 2012. (Selected for Top 20 "Posters Live" Presentation).
1157. \***Smith JS**, Shaffrey C, Kopjar B, Arnold P, Yoon T, Vaccaro AR, Brodke D, Janssen ME, Chapman JR, , Sasso R, Woodard E, Banco R, Massicotte E, Dekutoski M, Gokaslan Z, Bono CM, Fehlings M. Perioperative and delayed complications associated with surgical treatment of cervical spondylotic myelopathy based on a prospective multicenter study of 302 patients. The Cervical Spine Research Society 39<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 8-10, 2011.
1158. \***Smith JS**, Shaffrey C, Kopjar B, Fehlings M, Arnold P, Yoon T, Vaccaro AR, Brodke D, Janssen ME, Chapman JR, , Sasso R, Woodard E, Banco R, Massicotte E, Dekutoski M, Gokaslan Z, Bono CM. Impact of Early and late complications on patient outcomes following surgical treatment of cervical spondylotic myelopathy based on a prospective multicenter study. The AOSpine North America CSM Study. The Cervical Spine Research Society 39<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 8-10, 2011.
1159. \*Tang JA, Scheer JK, **Smith JS**, Deviren V, Bess S, Hart RA, Lafage V, Shaffrey CI, Schwab F, Ames CP, International Spine Study Group. Positive sagittal alignment negatively impacts outcomes following adult posterior cervical fusion procedures. The Cervical Spine Research Society 39<sup>th</sup> Annual Meeting. Scottsdale, AZ. December 8-10, 2011.
1160. \***Smith JS**, Kopjar B, Fehlings M, Yoon T, Arnold P, Massicotte E, Vaccaro AR, Brodke D, Shaffrey C, Woodard E, Banco R, Chapman JR, Janssen ME, Bono CM, Sasso R, Dekutoski M, Gokaslan Z. The AOSpine North America cervical spondylotic myelopathy study: Perioperative complication rates associated with surgical treatment based on a prospective multicenter study of 302 patients. The North American Spine Society 26<sup>th</sup> Annual Meeting. Chicago, IL. November 2-5, 2011.
1161. \***Smith JS**, Lafage V, Klineberg E, Shaffrey C, Schwab F, Mundis G, Hart R, Bess S, Hostin R, Burton D, Gupta M, Deviren V, Ames C. Correction of sagittal malalignment with pedicle subtraction osteotomy results in reciprocal improvement of cervical lordosis. The North American Spine Society 26<sup>th</sup> Annual Meeting. Chicago, IL. November 2-5, 2011.
1162. \*Ungar B, Schwab F, Lafage V, Blondel B, **Smith JS**, Chay E, Bridwell K, Glassman SD, Shaffrey C. Sagittal plane spinal deformity: Correction thresholds and health related quality of life at two-year follow-up. The North American Spine Society 26<sup>th</sup> Annual Meeting. Chicago, IL. November 2-5, 2011.
1163. \*Blondel B, Schwab F, Bess S, Ames C, Hart R, **Smith JS**, Shaffrey C, Burton D, Boachie-Adjei O, Lafage V. Over-correction by osteotomy for sagittal plane deformity: It happens and here is why. The North American Spine Society 26<sup>th</sup> Annual Meeting. Chicago, IL. November 2-5, 2011.
1164. \*Ungar B, Lafage V, Schwab F, Blondel B, **Smith JS**, Demakakos J, Bridwell K, Glassman SD, Shaffrey C. The limited benefit of coronal Cobb angle correction in the setting of adult spinal deformity: A health related quality of life assessment on two year outcomes. The North American Spine Society 26<sup>th</sup> Annual Meeting. Chicago, IL. November 2-5, 2011.

1165. \*Fu KG, **Smith JS**, Shaffrey CI. Factors influencing the transition from nonoperative to operative treatment in elderly degenerative scoliosis patients. The North American Spine Society 26<sup>th</sup> Annual Meeting. Chicago, IL. November 2-5, 2011.
1166. Schwab F, Bess RS, Blondel B, Hostin R, Shaffrey C, Smith JS, Boachie-Adjei O, Burton D, Akbarnia B, Mundis G, Ames C, Deviren V, Hart R, Kebaish K, Wood KB, Gupta M, Klineberg E, Cunningham M, O'Brien M, Lafage V. Combined assessment of pelvic tilt, lumbar lordosis/pelvic incidence mismatch and sagittal vertical axis predicts disability in adult spinal deformity: A prospective analysis. The North American Spine Society 26<sup>th</sup> Annual Meeting. Chicago, IL. November 2-5, 2011.
1167. \***Smith JS** and Shaffrey CI. Impact of patient age on complication rates and two-year outcomes following surgical treatment for adult scoliosis. The American Academy of Neurological Surgeons 73<sup>rd</sup> Annual Meeting. Scottsdale, AZ. October 19-22, 2011.
1168. \***Smith JS**, Shaffrey CI, Ames CP, Deviren V, Fu KG, Schwab F, Lafage V, Bess S. Assessment of symptomatic rod fracture following posterior instrumented fusion for adult spinal deformity. Congress of Neurological Surgeons Annual Meeting. Washington, DC. October 1-6, 2011. **Selected as a Top Ten Best Abstract for the Spine Section.**
1169. \*Fehlings MG, **Smith JS**, Shaffrey CI, Kopjar B, Arnold PM, Yoon S, Vaccaro AR, Brodke DS, Janssen M, Chapman J, Sasso R, Woodard EJ, Banco RJ, Massicotte EM, Dekutowski M, Gokaslan Z. Impact of early and late complications on patient outcomes following surgical treatment of cervical spondylotic myelopathy based on a prospective multicenter study: The AOSpine North America Cervical Spondylotic Myelopathy Study. Congress of Neurological Surgeons Annual Meeting. Washington, DC. October 1-6, 2011. **Selected as a Top Ten Best Abstract for the Spine Section.**
1170. \***Smith JS**, Blondel B, Schwab F, Bess S, Ames CP, Hart RA, Shaffrey CI, Burton DC, Boachie-Adjei O, Lafage V. Over correction by osteotomy for sagittal plane deformity: It happens and here is why. Congress of Neurological Surgeons Annual Meeting. Washington, DC. October 1-6, 2011. **Selected as a Top Ten Best Abstract for the Spine Section.**
1171. Schwab FJ, Bess S, Blondel B, Hostin R, Shaffrey CI, **Smith JS**, Boachie-Adjei O, Burton DC, Akbarnia BA, Mundis G, Ames CP, Kebaish K, Hart RA. Combined assessment of pelvic tilt, pelvic incidence/lumbar lordosis mismatch and sagittal vertical axis predicts disability in adult spinal deformity: A prospective analysis. Congress of Neurological Surgeons Annual Meeting. Washington, DC. October 1-6, 2011.
1172. Mummaneni PV, Hart RA, Hostin RA, Shaffrey CI, **Smith JS**, Boachie-Adjei O, Burton DC, Akbarnia BA, Mundis GM, Lafage V, Schwab F, Ames CP, Bess S. Functional limitations due to lumbar stiffness correlate with pain related disability measures and sagittal imbalance among adult spinal deformity patients. Congress of Neurological Surgeons Annual Meeting. Washington, DC. October 1-6, 2011.
1173. **Smith JS**, Shaffrey CI, Fehlings MG, Kopjar B, Arnold PM, Yoon S, Vaccaro AR, Brodke DS, Janssen M, Chapman J, Sasso R, Woodard EJ, Banco RJ, Massicotte EM, Dekutowski M, Gokaslan Z. Perioperative and delayed complications associated with the treatment of cervical spondylotic myelopathy based on a prospective multicenter study of 302 patients. Congress of Neurological Surgeons Annual Meeting. Washington, DC. October 1-6, 2011.
1174. **Smith JS**, Lafage V, Klineberg E, Shaffrey CI, Schwab F, Mundis GM, Hart RA, Bess S, Hostin R, Burton DC, Gupta MC, Deviren V, Ames CP. Correction of sagittal malalignment following pedicle subtraction osteotomy improves cervical lordosis. Congress of Neurological Surgeons Annual Meeting. Washington, DC. October 1-6, 2011.

1175. Lafage V, Schwab F, Ames CP, Hostin R, Hart RA, Deviren V, Akbarnia BA, Demakakos J, **Smith JS**, Shaffrey CI, Kebaish K, Burton DC, Bess S. Can different surgical strategies result in satisfactory post-operative sagittal alignment? Congress of Neurological Surgeons Annual Meeting. Washington, DC. October 1-6, 2011.
1176. Mummaneni PV, Hart RA, Line B, Shaffrey CI, **Smith JS**, Boachie-Adjei O, Burton DC, Akbarnia BA, Mundis GM, Lafage V, Schwab F, Ames CP, Bess S, Wood KB. Self-reported functional limitations due to lumbar stiffness correlate with age and SRS-22r scores among asymptomatic volunteers. Congress of Neurological Surgeons Annual Meeting. Washington, DC. October 1-6, 2011.
1177. Burton DC, Lai SM, Akbarnia BA, Ames CP, Bess S, Deviren V, Hart RA, Kebaish K, Mundis GM, Shaffrey CI, **Smith JS**. The association between DRAM and SRS-22r: can we substitute the SRS-22r for the DRAM for assessing psychological distress? Congress of Neurological Surgeons Annual Meeting. Washington, DC. October 1-6, 2011.
1178. \*Knapp DR, Goytan MJ, Perra JH, Noordeen HH, **Smith JS**, Broadstone PA, Berven SH, Choma TJ, Ames CP, Roh MS, Kim YJ. Assessment of morbidity and mortality collection data 2009. Scoliosis Research Society Annual Meeting. Louisville, KY. September 14-17, 2011.
1179. \***Smith JS**, Shaffrey CI, Ames CP, Deviren V, Fu KG, Schwab F, Lafage V, Bess S. Assessment of symptomatic rod fracture following posterior instrumented fusion for adult spinal deformity. Scoliosis Research Society Annual Meeting. Louisville, KY. September 14-17, 2011.
1180. \*Schwab FJ, Bess S, Blondel B, Hostin R, Shaffrey CI, **Smith JS**, Boachie-Adjei O, Burton DC, Akbarnia BA, Mundis G, Ames CP, Kebaish K, Hart RA. Combined assessment of pelvic tilt, pelvic incidence/lumbar lordosis mismatch and sagittal vertical axis predicts disability in adult spinal deformity: A prospective analysis. Scoliosis Research Society Annual Meeting. Louisville, KY. September 14-17, 2011. **Nominated for the Russell A. Hibbs Award for Best Clinical Paper.**
1181. \***Smith JS**, Shaffrey CI, Fehlings MG, Kopjar B, Arnold PM, Yoon S, Vaccaro AR, Brodke DS, Janssen M, Chapman J, Sasso R, Woodard EJ, Banco RJ, Massicotte EM, Dekutowski M, Gokaslan Z. The AOSpine North America Cervical Spondylotic Myelopathy Study: Perioperative complication rates associated with surgical treatment based on a prospective multicenter study of 302 patients. International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011. **Recipient of Third Place Award for Best Clinical Paper for the meeting.**
1182. Burton DC, Lai SM, Akbarnia BA, Ames CP, Bess S, Deviren V, Hart RA, Kebaish K, Mundis GM, Shaffrey CI, **Smith JS**. The association between DRAM and SRS-22r: can we substitute the SRS-22r for the DRAM for assessing psychological distress? International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011.
1183. Hart RA, Mummaneni PV, Line B, Shaffrey CI, **Smith JS**, Boachie-Adjei O, Burton DC, Akbarnia BA, Mundis GM, Lafage V, Schwab F, Ames CP, Bess S, Wood KB. Self-reported functional limitations due to lumbar stiffness correlate with age and SRS-22r scores among asymptomatic volunteers. International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011.
1184. Lafage V, Schwab F, Ames CP, Hostin R, Hart RA, Deviren V, Akbarnia BA, Demakakos J, **Smith JS**, Shaffrey CI, Kebaish K, Burton DC, Bess S. Can different surgical strategies result in satisfactory post-operative sagittal alignment? International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011.
1185. **Smith JS**, Lafage V, Klineberg E, Shaffrey CI, Schwab F, Mundis GM, Hart RA, Bess S, Hostin R, Burton DC, Gupta MC, Deviren V, Ames CP. Correction of sagittal malalignment following

- pedicle subtraction osteotomy improves cervical lordosis. International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011.
1186. Lafage V, Schwab F, Blondel B, **Smith JS**, Demakakos J, Bridwell KH, Glassman SD. The limited benefit of coronal Cobb angle correction in the setting of adult spinal deformity: a health related quality of life assessment on two year outcomes. International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011.
1187. Schwab F, Lafage V, Blondel B, **Smith JS**, Chay E, Bridwell KH, Glassman SD. Sagittal plane spinal deformity: correction thresholds and health related quality of life at two years follow up. International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011.
1188. \***Smith JS**, Shaffrey CI, Fehlings MG, Kopjar B, Arnold PM, Yoon S, Vaccaro AR, Brodke DS, Janssen M, Chapman J, Sasso R, Woodard EJ, Banco RJ, Massicotte EM, Dekutoski M, Gokaslan Z. Factors associated with perioperative complications in the treatment of cervical spondylotic myelopathy based on 302 patients from the AOSpine North America Cervical Spondylotic Myelopathy Study. International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011.
1189. \***Smith JS**, Fehlings MG, Kopjar B, Yoon ST, Arnold P, Vaccaro AR, Brodke DS, Shaffrey CI, Woodard EJ, Banco R, Chapman JR, Janssen M, Sasso RC, Bono C, Dekutoski MB, Gokaslan ZL. Predictors of outcomes in surgical treatment for cervical spondylotic myelopathy: The AOSpine North America Multi-Center Prospective Study. International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011.
1190. \*Blondel B, Schwab F, Bess S, Ames CP, Hart RA, **Smith JS**, Shaffrey CI, Burton DC, Boachie-Adjei O, Lafage V. Over correction by osteotomy for sagittal plane deformity: It happens and here is why. International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011.
1191. \*Heller JE, **Smith JS**, Cho W, Fu KG, Shaffrey CI. Long adult spinal deformity fusion to sacrum using low dose rhBMP-2: A retrospective evaluation and comparison to reported high dose rhBMP-2 vs. autogenous iliac crest bone graft (ICBG). International Meeting for the Advancement of Spinal Techniques. Copenhagen, Denmark. July 13-16, 2011.
1192. \*Reames DL, **Smith JS**, Hamilton DK, Arlet V, Shaffrey CI. Time to development, clinical and radiographic characteristics, and management of proximal junctional kyphosis in adult thoracolumbar instrumented fusion. EuroSpine Annual Meeting. Milan, Italy. October 19-20, 2011.
1193. \*Reames DL, **Smith JS**, Hamilton DK, Arlet V, Shaffrey CI. Proximal junctional kyphosis in adult thoracolumbar instrumented fusion: time to development, clinical and radiographic characteristics, and management approach in 32 consecutive cases. Lumbar Spine Research Society. Chicago, IL. May 5-6, 2011.
1194. \*Fu KG, **Smith JS**, Shaffrey CI. Clinical and radiographic factors driving the transition from nonoperative to operative treatment in elderly adults with degenerative scoliosis. Lumbar Spine Research Society. Chicago, IL. May 5-6, 2011.
1195. \*Saulle D, Fu KG, **Smith JS**, Shaffrey CI. Infection and seroma rates in thoracolumbar fusions employing rh-BMP-2 and hemovac drainage. Lumbar Spine Research Society. Chicago, IL. May 5-6, 2011.
1196. \*Reames DL, **Smith JS**, Hamilton DK, Arlet V, Shaffrey CI. Time to development, clinical and radiographic characteristics, and management of proximal junctional kyphosis in adult thoracolumbar

- instrumented fusion based on 32 consecutive cases. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1197. \***Smith JS**, Shaffrey CI, Kopjar B, Arnold PM, Yoon S, Vaccaro AR, Brodke DS, Janssen M, Chapman J, Sasso R, Woodard EJ, Banco RJ, Massicotte EM, Dekutowski M, Gokaslan Z, Bono C, Fehlings MG. The AOSpine North America Cervical Spondylotic Myelopathy Study: Perioperative complication rates associated with surgical treatment based on a prospective multicenter study of 302 patients. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1198. \*Mummaneni PV, **Smith JS**, Shaffrey CI, Schwab F, Hawkinson N, Lafage V, Hart R, Mundis G, Burton D, Line B, Akbarnia B, Boachie-Adjei O, Hostin R, Wood K, Bess S. Risk factors for major perioperative complications in adult spinal deformity surgery. **Plenary I Session**. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1199. \***Smith JS**, Shaffrey CI, Kopjar B, Arnold PM, Yoon S, Vaccaro AR, Brodke DS, Janssen M, Chapman J, Sasso R, Woodard EJ, Banco RJ, Massicotte EM, Dekutowski M, Gokaslan Z, Bono C, Fehlings MG. Factors associated with the occurrence of perioperative complications in the treatment of cervical spondylotic myelopathy based on 302 patients from the AOSpine North America Cervical Spondylotic Myelopathy Study. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1200. Saulle D, Fu KG, **Smith JS**, Shaffrey CI. Infection and seroma rates in thoracolumbar fusions employing rh-BMP-2 and hemovac drainage. Poster presentation. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1201. **Smith JS**, Shaffrey CI, Lafage V, Bess S, Schwab F, Klineberg E, Hostin R, Burton D, International Spine Study Group. Risk factors for poor sagittal alignment following thoracic pedicle subtraction osteotomy. Poster presentation. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1202. Hamilton DK, **Smith JS**, Reames DL, Williams BJ, Chernavvsky DR, Shaffrey CI. Safety, efficacy, and dosing of recombinant human bone morphogenetic protein-2 (rhBMP-2) for posterior cervical and cervico-thoracic instrumented fusion with a minimum two-year follow-up. Poster presentation. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1203. **Smith JS**, Bess S, Shaffrey CI, Schwab F, Lafage V, Hostin R, Ames C, Klineberg E, Boachie-Adjei O, Burton D, Hart R, International Spine Study Group. Three column thoracic osteotomy for adult spinal deformity improves regional deformity and pelvic tilt. Poster presentation. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1204. **Smith JS**, Shaffrey CI, Bess S, Hostin R, Hart R, Boachie-Adjei O, Ames C, Schwab F, Wood K, Akbarnia B, International Spine Study Group. Acute proximal junctional failure following long posterior fusion for spinal deformity: risk factors and radiographic analysis comparing thoracolumbar to upper thoracic failures. Poster presentation. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1205. **Smith JS**, Shaffrey CI, Bess S, Klineberg E, Gupta M, Wood K, Burton D, Akbarnia B, Boachie-Adjei O, Cunningham M, Hart R, Hostin R, Mundis G, Schwab F, International Spine Study Group. Off label use of rhBMP2 in spinal surgery: significant variation in amount, location, and use in spine surgery. Poster presentation. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1206. **Smith JS**, Lafage V, Shaffrey CI, Klineberg E, Schwab F, Akbarnia B, Ames C, Boachie-Adjei O, Burton D, Hart R, Hostin R, Wood K, Bess S, International Spine Study Group. Increased thoracic



- kyphosis in unfused spinal segments negatively impacts sagittal alignment following lumbar pedicle subtraction osteotomy. Poster presentation. American Association of Neurological Surgeons Annual Meeting. Denver, CO. April 9-13, 2011.
1207. Shaffrey CI, **Smith JS**, Bess S, Burton D, Hart R, Hostin R, Klineberg E. Common mathematical formulas fail to predict postoperative sagittal alignment: Confirmation of a need for more advanced equations. Poster presentation. Global Spine Congress. Barcelona, Spain. March 23-26, 2011.
1208. \*Fu KG, **Smith JS**, Shaffrey CI. Clinical and radiographic factors driving the transition from nonoperative to operative treatment in elderly adults with degenerative scoliosis. Global Spine Congress. Barcelona, Spain. March 23-26, 2011.
1209. Shaffrey CI, **Smith JS**, Schwab FJ, Lafage VC, Hart RA, Burton DC, Bess S. Risk factors for major peri-operative complications in adult spinal deformity surgery: A multi-center review of 953 consecutive patients. Poster presentation. Global Spine Congress. Barcelona, Spain. March 23-26, 2011.
1210. \*Shaffrey CI, **Smith JS**, Glassman SD, Carreon LY, Schwab FJ, Lafage VC, Berven SH, Bridwell KH. Clinical and radiographic factors that distinguish between the best and worst outcomes of scoliosis surgery for adults 46-85 years old. Global Spine Congress. Barcelona, Spain. March 23-26, 2011.
1211. \*Fehlings MG, **Smith JS**, Shaffrey CI, Kopjar B, Arnold PM, Yoon S, Vaccaro AR, Brodke DS, Janssen M, Chapman J, Sasso R, Woodard EJ, Banco RJ, Massicotte EM, Dekutowski M, Bono C, Gokaslan Z. The AOSpine North America Cervical Spondylotic Myelopathy Study: Perioperative complication rates associated with surgical treatment based on a prospective multicenter study of 302 patients. Global Spine Congress. Barcelona, Spain. March 23-26, 2011. **Recipient of Best Clinical Paper for the meeting.**
1212. \*Reames DL, **Smith JS**, Hamilton DK, Arlet V, Shaffrey CI. Proximal junctional kyphosis in adult thoracolumbar instrumented fusion: time to development, clinical and radiographic characteristics, and management approach in 32 consecutive cases. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Phoenix, AZ. March 9-12, 2011.
1213. \*Saulle D, Fu KG, **Smith JS**, Shaffrey CI. Multiple-day drainage when using BMP for long segment thoraco-lumbar instrumented fusions results in low reoperation rates for infection and seroma. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Phoenix, AZ. March 9-12, 2011.
1214. Fu KG, **Smith JS**, Shaffrey CI. Clinical and radiographic factors driving the transition from nonoperative to operative treatment in elderly adults with degenerative scoliosis. Poster presentation. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Phoenix, AZ. March 9-12, 2011. **Received Second Place Award for Best e-Poster.**
1215. \***Smith JS**, Shaffrey CI, Kopjar B, Arnold PM, Yoon S, Vaccaro AR, Brodke DS, Janssen M, Chapman J, Sasso R, Woodard EJ, Banco RJ, Massicotte EM, Dekutowski M, Gokaslan Z, Bono C, Fehlings MG. The AOSpine North America Cervical Spondylotic Myelopathy Study: perioperative complication rates associated with surgical treatment based on a prospective multicenter study of 302 patients. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Phoenix, AZ. March 9-12, 2011.
1216. Reames DL, Hamilton DK, **Smith JS**, Williams BJ, Chernavsky DR, Shaffrey CI. Safety, efficacy, and dosing of recombinant human bone morphogenetic protein-2 (rhBMP-2) for posterior cervical and cervico-thoracic instrumented fusion with a minimum two-year follow-up. Poster

- presentation. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Phoenix, AZ. March 9-12, 2011. **Received Third Place Award for Best e-Poster.**
1217. \***Smith JS**, Shaffrey CI, Kopjar B, Arnold PM, Yoon S, Vaccaro AR, Brodke DS, Janssen M, Chapman J, Sasso R, Woodard EJ, Banco RJ, Massicotte EM, Dekutowski M, Gokaslan Z, Bono C, Fehlings MG. Factors associated with the occurrence of perioperative complications in the treatment of cervical spondylotic myelopathy based on 302 patients from the AOSpine North America Cervical Spondylotic Myelopathy Study. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Phoenix, AZ. March 9-12, 2011
1218. \*Reames DL, **Smith JS**, Hamilton DK, Arlet V, Shaffrey CI. Time to development, clinical and radiographic characteristics, and management of proximal junctional kyphosis in adult thoracolumbar instrumented fusion. Neurosurgical Society of the Virginias Annual Meeting. Greenbrier, WV. January 20-22, 2011.
1219. \*Williams BJ, **Smith JS**, Fu KG, Hamilton DK, Polly D, Jr, Ames CP, Berven SH, Perra JH, Knapp DR Jr, McCarthy RE, Shaffrey CI, Comparison of the incidence of complications of anterior cervical fusion with and without BMP: a report of the Scoliosis Research Society Morbidity and Mortality Committee. Cervical Spine Research Society 38<sup>th</sup> Annual Meeting. Charlotte, NC. December 2-4, 2010.
1220. \*Hu SH, Rodriguez JP, Farin A, Hseih P, O'Shaughnessy BA, Shaffrey CI, **Smith JS**, Deviren V, and Ames CP. Restoration of global sagittal balance with thoracolumbar osteotomy results in spontaneous correction of cervical alignment in patients who maintain horizontal gaze. Cervical Spine Research Society 38<sup>th</sup> Annual Meeting. Charlotte, NC. December 2-4, 2010.
1221. Williams BJ, **Smith JS**, Fu KG, Hamilton DK, Polly D, Jr, Ames CP, Berven SH, Perra JH, Knapp DR Jr, McCarthy RE, Shaffrey CI, Comparison of the incidence of complications of posterior cervical fusion with and without BMP: a report of the Scoliosis Research Society Morbidity and Mortality Committee. Poster presentation. Cervical Spine Research Society 38<sup>th</sup> Annual Meeting. Charlotte, NC. December 2-4, 2010.
1222. \***Smith JS**, Bess S, Shaffrey CI, Burton DC, Hart RA, Hostin R, International Spine Study Group. Common mathematical formulas fail to predict postoperative sagittal alignment: confirmation of a need for more advanced equations. Congress of Neurological Surgeons. San Francisco, CA. October 16-21, 2010. **Selected as one of the "Ten Best" abstracts.**
1223. \***Smith JS**, Shaffrey CI, Carreon LY, Glassman SD, Schwab F, Lafage V, Fu KG, Berven S, Bridwell K. Does prior short-segment surgery for adult scoliosis impact clinical outcome among patients undergoing scoliosis correction? Congress of Neurological Surgeons. San Francisco, CA. October 16-21, 2010. **Selected as one of the "Ten Best" abstracts.**
1224. Hostin R, Bess S, Hart RA, Line B, Ames CP, Kebaish K, Burton DC, Lafage VC, O'Brien MF, Schwab FJ, Shaffrey CI, **Smith JS**, Wood KB, ISSG. Acute proximal junctional failure following long posterior fusion for spinal deformity: risk factors and radiographic analysis comparing thoracolumbar to upper thoracic failures. Congress of Neurological Surgeons. San Francisco, CA. October 16-21, 2010.
1225. Lafage VC, Bess S, Schwab FJ, Klineberg E, Hostin R, Burton DC, Shaffrey CI, **Smith JS**, ISSG. Alignment failures following thoracic pedicle subtraction osteotomies. Oral poster presentation. Congress of Neurological Surgeons. San Francisco, CA. October 16-21, 2010.
1226. **Smith JS**, Shaffrey CI, Glassman SD, Carreon LY, Schwab FJ, Lafage VC, Berven SH, Bridwell KH. Clinical and radiographic factors that distinguish between the best and worst outcomes of

- scoliosis surgery for adults 46-85 years old. Congress of Neurological Surgeons. San Francisco, CA. October 16-21, 2010.
1227. **Smith JS**, Shaffrey CI, Glassman SD, Carreon LY, Schwab FJ, Lafage VC, Berven SH, Bridwell KH. Clinical and radiographic factors that distinguish between the best and worst outcomes of scoliosis surgery for adults 18-45 years old. Congress of Neurological Surgeons. San Francisco, CA. October 16-21, 2010.
1228. Schwab FJ, Hawkinson N, Lafage VC, Hart RA, Mundis GM, Burton DC, Line B, Akbarnia BA, Boachie-Adjei O, Hostin R, Shaffrey CI, **Smith JS**, Wood KB, Bess S, International Spine Study Group. Risk factors for major peri-operative complications in adult spinal deformity surgery: a multi-center review of 953 consecutive cases. Congress of Neurological Surgeons. San Francisco, CA. October 16-21, 2010.
1229. Hostin RA, Hart R, Line BG, Ames CP, Lafage V, Schwab F, Burton DC, Shaffrey CI, **Smith JS**, O'Brien MF, Wood K, Bess S, International Spine Study Group. Treatment parameters and injury mechanisms associated with acute proximal junctional failure following posterior spinal fusion for deformity. Congress of Neurological Surgeons. San Francisco, CA. October 16-21, 2010.
1230. Hamilton DK, **Smith JS**, Nguyen T, Shaffrey CI. Changes in sexual function in older adults following thoracolumbar to pelvis instrumentation for spinal deformity. Congress of Neurological Surgeons. San Francisco, CA. October 16-21, 2010.
1231. \*Schwab FJ, Klineberg E, Hostin R, Lafage VC, Burton DC, Shaffrey CI, **Smith JS**, Bess S, ISSG. Alignment failures following thoracic pedicle subtraction osteotomies. North American Spine Society. Orlando, FL. October 5-9, 2010.
1232. \***Smith JS**, Bess S, Shaffrey CI, Burton DC, Hart RA, Hostin R, Klineberg E, International Spine Study Group. Commonly used formulas poorly predict postoperative sagittal alignment: support for more advanced equations to assist operative planning. North American Spine Society. Orlando, FL. October 5-9, 2010.
1233. \*Fu KG, **Smith JS**, Hamilton DK, Perra JH, Polly DW Jr, Ames CP, Berven SH, McCarthy RE, Glassman SD, Knapp DR, Shaffrey CI. Morbidity and mortality associated with the operative treatment of disorders of the pediatric spine: a report of the SRS M&M Committee. North American Spine Society. Orlando, FL. October 5-9, 2010. **Selected for presentation in the Best Papers Session.**
1234. \*Williams, BJ, **Smith JS**, Fu KG, Hamilton DK, Perra JH, Polly D, Jr, Ames CP, Berven SH, McCarthy RE, Glassman SD, Knapp DR, Shaffrey CI. Complications associated with BMP use in 11,933 cases of spinal fusion. North American Spine Society. Orlando, FL. October 5-9, 2010. **Selected for presentation in the Best Papers Session.**
1235. Lafage V, Hostin R, Schwab F, Klineberg E, Akbarnia B, Ames C, Boachie-Adjei O, Burton D, Shaffrey CI, **Smith J**, Wood KB, Bess S, ISSG. Thoracic vertebral column resection for adult spinal deformity improves regional spinal deformity and improves pelvic tilt. North American Spine Society. Orlando, FL. October 5-9, 2010. **Selected for Best Posters Presentation.**
1236. Schwab FJ, Hawkinson N, Lafage VC, Hart RA, Mundis GM, Burton DC, Line B, Akbarnia BA, Boachie-Adjei O, Hostin R, Shaffrey CI, **Smith JS**, Wood KB, Bess S, International Spine Study Group. Risk factors for major perioperative complications in adult spinal deformity surgery: a multi-center review of 953 consecutive patients. North American Spine Society. Orlando, FL. October 5-9, 2010. **Selected for Best Posters Presentation.**
1237. Hostin R, Buchl E, Hart R, Ames C, Kebaish K, Burton D, Lafage V, Schwab F, Shaffrey CI, **Smith JS**, Wood KB, Bess S, ISSG. Treatment parameters and injury mechanism associated with

- acute proximal junctional failure following posterior spinal fusion for deformity. North American Spine Society. Orlando, FL. October 5-9, 2010.
1238. Hostin R, Buchl E, Hart RA, Ames CP, Kebaish K, Burton DC, Lafage VC, O'Brien MF, Shaffrey CI, Schwab FJ, **Smith JS**, Wood KB, Bess S, ISSG. Acute proximal junctional failure following long posterior fusion for spinal deformity: risk factors and radiographic analysis comparing upper thoracic vs. thoracolumbar failures. North American Spine Society. Orlando, FL. October 5-9, 2010.
1239. \***Smith JS**, Shaffrey CI, Glassman SD, Carreon LY, Schwab FJ, Lafage VC, Berven SH, Bridwell KH. Clinical and radiographic factors that distinguish between the best and worst outcomes of scoliosis surgery for adults 46-85 years old. Scoliosis Research Society Annual Meeting. Kyoto, Japan. September 21-24, 2010.
1240. \*Fu KG, **Smith JS**, Perra JH, Polly DW Jr, Ames CP, Berven SH, Hamilton DK, McCarthy RE, Glassman SD, Knapp DR, Shaffrey CI. Preoperative ASA grading is a robust predictor of complication rates in patients undergoing surgery for major spinal deformity. Scoliosis Research Society Annual Meeting. Kyoto, Japan. September 21-24, 2010.
1241. \*Williams BJ, **Smith JS**, Fu KG, Hamilton DK, Perra JH, Polly DW Jr, Ames CP, Berven SH, McCarthy RE, Glassman SD, Knapp DR, Shaffrey CI. Does BMP increase the incidence of perioperative complications in spinal fusion? A comparison of 55,862 cases of spinal fusion with and without BMP. Scoliosis Research Society Annual Meeting. Kyoto, Japan. September 21-24, 2010.
1242. Fu KG, **Smith JS**, Hamilton DK, Perra JH, Polly DW Jr, Ames CP, Berven SH, McCarthy RE, Glassman SD, Knapp DR, Shaffrey CI. Morbidity and mortality associated with the operative treatment of disorders of the pediatric spine: a report of the SRS M&M Committee. Scoliosis Research Society Annual Meeting. Kyoto, Japan. September 21-24, 2010.
1243. \*Schwab FJ, Hawkinson N, Lafage VC, Hart RA, Mundis GM, Burton DC, Line B, Akbarnia BA, Boachie-Adjei O, Hostin R, Shaffrey CI, **Smith JS**, Wood KB, Bess S, International Spine Study Group. Risk factors for major peri-operative complications in adult spinal deformity surgery: a multi-center review of 953 consecutive cases. Scoliosis Research Society Annual Meeting. Kyoto, Japan. September 21-24, 2010. **Nominated for Russell A. Hibbs Award for Best Clinical Presentation.**
1244. \*Bess S, Schwab FJ, Lafage VC, Hostin R, Ames CP, Klineberg E, Boachie-Adjei O, Burton DC, Hart RA, Shaffrey CI, **Smith JS**, Wood KB, International Spine Study Group. Thoracic three column osteotomy for adult spinal deformity improves regional deformity and pelvic tilt. Scoliosis Research Society Annual Meeting. Kyoto, Japan. September 21-24, 2010.
1245. **Smith JS**, Bess S, Shaffrey CI, Burton DC, Hart RA, Hostin R, International Spine Study Group. Common mathematical formulas fail to predict postoperative sagittal alignment: confirmation of a need for more advanced equations. Scoliosis Research Society Annual Meeting. Kyoto, Japan. September 21-24, 2010.
1246. Klineberg E, Gupta MC, Wood KB, Burton DC, Akbarnia BA, Boachie-Adjei O, Cunningham ME, Hart RA, Hostin R, Mundis GM, Schwab FJ, Shaffrey CI, **Smith JS**, Bess S, ISSG. Off label use of rhBMP2 in spinal surgery: significant variation in amount, location, and use in spinal surgery. Scoliosis Research Society Annual Meeting. Kyoto, Japan. September 21-24, 2010.
1247. **Smith JS**, Shaffrey CI, Glassman SD, Carreon LY, Schwab FJ, Lafage VC, Berven SH, Bridwell KH. Clinical and radiographic factors that distinguish between the best and worst outcomes of scoliosis surgery for adults 18-45 years old. Scoliosis Research Society Annual Meeting. Kyoto, Japan. September 21-24, 2010. **Nominated for the Louis A. Goldstein Award for Best Clinical Poster.**

1248. **Smith JS**, Shaffrey CI, Glassman SD, Carreon LY, Schwab FJ, Lafage VC, Berven SH, Bridwell KH. Does prior short-segment surgery for adult scoliosis impact clinical outcome among patients undergoing scoliosis correction? Scoliosis Research Society Annual Meeting. Kyoto, Japan. September 21-24, 2010.
1249. \***Smith JS**, Shaffrey CI, Glassman SD, Carreon LY, Schwab FJ, Lafage VC, Berven SH, Bridwell KH. Clinical and radiographic factors that distinguish between the best and worst outcomes of scoliosis surgery for adults 18-45 years old. International Meeting for the Advancement of Spinal Techniques. Toronto, CA. July 21-24, 2010.
1250. \***Smith JS**, Shaffrey CI, Glassman S, Berven S, Hamill C, Horton W, Ondra S, Schwab F, Sansur CA, Bridwell K. Risk-benefit assessment of surgery for adult scoliosis: an analysis based on patient age. International Meeting for the Advancement of Spinal Techniques. Toronto, CA. July 21-24, 2010. **Invited special presentation since recipient of Hibbs Award at 2009 SRS meeting.**
1251. \*Hostin R, Bess S, Hart RA, Line B, Ames CP, Kebaish K, Burton DC, Lafage VC, O'Brien MF, Schwab FJ, Shaffrey CI, **Smith JS**, Wood KB, ISSG. Acute proximal junctional failure following long posterior fusion for spinal deformity: risk factors and radiographic analysis comparing thoracolumbar to upper thoracic failures. International Meeting for the Advancement of Spinal Techniques. Toronto, CA. July 21-24, 2010.
1252. \***Smith JS**, Bess S, Shaffrey CI, Burton DC, Hart RA, Hostin R, ISSG. Common mathematical formulas fail to predict postoperative sagittal alignment: confirmation of a need for more advanced equations. International Meeting for the Advancement of Spinal Techniques. Toronto, CA. July 21-24, 2010.
1253. \*Lafage VC, Bess S, Schwab FJ, Klineberg E, Hostin R, Burton DC, Shaffrey CI, **Smith JS**, ISSG. Alignment failures following thoracic pedicle subtraction osteotomies. International Meeting for the Advancement of Spinal Techniques. Toronto, CA. July 21-24, 2010.
1254. Klineberg E, Gupta MC, Wood KB, Burton DC, Akbarnia BA, Boachie-Adjei O, Cunningham ME, Hart RA, Hostin R, Mundis GM, Schwab FJ, Shaffrey CI, **Smith JS**, Bess S, ISSG. Off label use of rhBMP2 in spinal surgery: significant variation in amount, location, and use in spinal surgery. International Meeting for the Advancement of Spinal Techniques. Toronto, CA. July 21-24, 2010.
1255. **Smith JS**, Shaffrey CI, Glassman SD, Carreon LY, Schwab FJ, Lafage VC, Berven SH, Bridwell KH. Does prior short-segment surgery for adult scoliosis impact clinical outcome among patients undergoing scoliosis correction? International Meeting for the Advancement of Spinal Techniques. Toronto, CA. July 21-24, 2010.
1256. Hostin R, Hart RA, Line B, Ames CP, Lafage VC, Schwab FJ, Burton DC, Shaffrey CI, **Smith JS**, Kebaish K, O'Brien MF, Wood KB, Bess S, ISSG. Treatment parameters and injury mechanisms associated with acute proximal junctional failure following posterior spinal fusion for deformity. International Meeting for the Advancement of Spinal Techniques. Toronto, CA. July 21-24, 2010.
1257. Fu KG, **Smith JS**, Shaffrey CI. Neuro-foraminal stenosis causes radiculopathy in patients with severe adult degenerative scoliosis requiring operative intervention. International Meeting for the Advancement of Spinal Techniques. Toronto, CA. July 21-24, 2010.
1258. **Smith JS**, Williams BJ, Perra JH, Polly DW, Jr, Ames CP, Berven SH, McCarthy RE, Glassman SD, Knapp DR, Shaffrey CI. Unintended durotomy is associated with new neurological deficit. International Meeting for the Advancement of Spinal Techniques. Toronto, CA. July 21-24, 2010.
1259. Fu KG, **Smith JS**, Shaffrey CI, Hamilton DK, Williams BJ, Perra JH, Polly DW Jr, Berven SH, Boachie-Adjei O. Preoperative ASA Grade predicts complication and mortality rates in patients

- undergoing spinal surgery. American Association of Neurological Surgeons Annual Meeting. Philadelphia, PN. May 1-5, 2010. **(Received Third Place Award for Best Spine Poster)**
1260. Williams BJ, Fu KG, **Smith JS**, Perra JH, Polly DW Jr, Berven SH, Boachie-Adjei O, Shaffrey CI. Complications of spinal surgery for treatment of traumatic fracture in 6,706 cases. American Association of Neurological Surgeons Annual Meeting. Philadelphia, PN. May 1-5, 2010.
1261. Fu KG, **Smith JS**, Rhagavan P, Shaffrey CI. Neuro-foraminal stenosis causes radiculopathy in patients with severe adult degenerative scoliosis requiring operative intervention. American Association of Neurological Surgeons Annual Meeting. Philadelphia, PN. May 1-5, 2010.
1262. \*Reames D, **Smith JS**, Fu KG, Polly DW Jr, Berven S, Perra J, Boachie-Adjei O, Shaffrey CI. Complications in the surgical treatment of 19,956 cases of pediatric scoliosis: a review of the Scoliosis Research Society Database. American Association of Neurological Surgeons Annual Meeting. Philadelphia, PN. May 1-5, 2010.
1263. Klineberg E, Gupta M, Wood K, Burton D, Akbarnia B, Boachie O, Cunningham ME, Hart R, Hostin R, Mundis G, Schwab F, Shaffrey CI, **Smith JS**, Bess S, International Spine Study Group (ISSG). Off label use of rhBMP2 in spinal surgery: significant variation in amount, location and use in spine surgery. Lumbar Spine Research Society. Chicago, IL. April 8-9, 2010.
1264. \*Williams, BJ, Fu KG, **Smith JS**, Perra JH, Polly D, Jr, Ames CP, Berven SH, McCarthy RE, Glassman SD, Knapp DR, Shaffrey CI, Scoliosis Research Society Morbidity and Mortality Committee. Complications of spinal surgery for treatment of thoracolumbar fractures in 5,283 cases. Lumbar Spine Research Society. Chicago, IL. April 8-9, 2010.
1265. \*Hostin R, Hart B, Line B, Ames CP, Lafage V, Schwab F, Burton D, Shaffrey CI, **Smith JS**, O'Brien M, Wood K, Bess S, International Spine Study Group (ISSG). Treatment parameters and injury mechanism associated with acute proximal junctional failure following posterior spinal fusion for deformity. Lumbar Spine Research Society. Chicago, IL. April 8-9, 2010.
1266. \*Williams, BJ, **Smith JS**, Fu KG, Hamilton DK, Perra JH, Polly D, Jr, Ames CP, Berven SH, McCarthy RE, Glassman SD, Knapp DR, Shaffrey CI, Scoliosis Research Society Morbidity and Mortality Committee. Complications associated with BMP use in 11,933 cases of spinal fusion. Lumbar Spine Research Society. Chicago, IL. April 8-9, 2010.
1267. \*Schwab F, Hawkinson N, Lafage V, Mundis G, Burton D, Line B, Akbarnia B, Boachie O, Hostin R, Shaffrey CI, **Smith JS**, Wood K, Bess S, International Spine Study Group (ISSG). Risk factors for major peri-operative complications in adult spinal deformity surgery: a multi-center review of 953 consecutive patients. Lumbar Spine Research Society. Chicago, IL. April 8-9, 2010.
1268. \*Fu KG, **Smith JS**, Perra JH, Polly D, Jr, Ames CP, Berven SH, McCarthy RE, Glassman SD, Knapp DR, Shaffrey CI, Scoliosis Research Society Morbidity and Mortality Committee. Preoperative ASA grade predicts complication and mortality rates in patients undergoing surgery for degenerative diseases of the lumbar spine. Lumbar Spine Research Society. Chicago, IL. April 8-9, 2010.
1269. \*Hamilton DK, **Smith JS**, Perra JH, Polly D, Jr, Ames CP, Berven SH, McCarthy RE, Glassman SD, Knapp DR, Shaffrey CI, Scoliosis Research Society Morbidity and Mortality Committee. Rates of Neurological Injury Associated with Spine Surgery Based on 108,419 Procedures: A Report of the Scoliosis Research Society Morbidity and Mortality Committee. Lumbar Spine Research Society. Chicago, IL. April 8-9, 2010.
1270. Sansur CA, Coe J, **Smith JS**, Shaffrey CI, Berven SH, Polly DW Jr, Perra JH, Boachie-Adjei O. Scoliosis Research Society morbidity and mortality of adult scoliosis. American Association of Orthopedic Surgeons. New Orleans, LA. March 10-13, 2010. **Featured at Scoliosis Research Society Morbidity and Mortality Booth.**

1271. Sansur CA, Reames DL, **Smith JS**, Shaffrey CI, Broadstone PA, Polly DW Jr, Perra JH, Boachie-Adjei O. Scoliosis Research Society morbidity and mortality of adult spondylolisthesis. American Association of Orthopedic Surgeons. New Orleans, LA. March 10-13, 2010. **Featured at Scoliosis Research Society Morbidity and Mortality Booth.**
1272. **Smith JS**, Fu KG, Sansur CA, Shaffrey CI, Choma TJ, Polly DW Jr, Perra JH, Boachie-Adjei O. Complication rates of three common spine procedures and rates of thromboembolism following spine surgery. American Association of Orthopedic Surgeons. New Orleans, LA. March 10-13, 2010. **Featured at Scoliosis Research Society Morbidity and Mortality Booth.**
1273. Williams BJ, Sansur CA, **Smith JS**, Shaffrey CI, Noordeen HH, Polly DW Jr, Perra JH, Boachie-Adjei O. The incidence of unintended durotomy in spine surgery based on 108,748 procedures. American Association of Orthopedic Surgeons. New Orleans, LA. March 10-13, 2010. **Featured at Scoliosis Research Society Morbidity and Mortality Booth.**
1274. **Smith JS**, Shaffrey CI, Sansur CA, Goytan MJ, Donaldson WF III, Polly DW Jr, Perra JH, Boachie-Adjei O. Rates of infection following spine surgery based on 108,419 procedures. American Association of Orthopedic Surgeons. New Orleans, LA. March 10-13, 2010. **Featured at Scoliosis Research Society Morbidity and Mortality Booth.**
1275. Hamilton DK, **Smith JS**, Shaffrey CI, Sansur CA, Knapp DR, Polly DW Jr, Perra JH, Boachie-Adjei O. Rates of neurological injury associated with spine surgery based on 108,419 procedures. American Association of Orthopedic Surgeons. New Orleans, LA. March 10-13, 2010. **Featured at Scoliosis Research Society Morbidity and Mortality Booth.**
1276. \*Fu KG, **Smith JS**, Shaffrey CI, Hart RA, Zeller RD, Polly DW Jr, Perra JH, Boachie-Adjei O. Morbidity and mortality in the surgical treatment of 605 pediatric patients with spondylolisthesis. American Association of Orthopedic Surgeons. New Orleans, LA. March 10-13, 2010.
1277. \*Reames D, Fu KG, **Smith JS**, Polly DW Jr, Berven S, Perra J, Boachie-Adjei O, Shaffrey CI. Complications in the surgical treatment of 19,956 cases of pediatric scoliosis: a review of the Scoliosis Research Society Database. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. February 17-20, 2010.
1278. \*Williams BJ, Fu KG, **Smith JS**, Hamilton DK, Polly DW Jr, Berven S, Perra J, Boachie-Adjei O, Shaffrey CI. Complications associated with BMP use in 11,281 cases of spinal fusion. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. February 17-20, 2010.
1279. \*Fu KG, **Smith JS**, Shaffrey CI, Perra J, Polly DW Jr, Berven S, Boachie-Adjei O. Preoperative ASA grade predicts complications and mortality rates in patients undergoing spinal surgery. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. February 17-20, 2010.
1280. **Smith JS**, Fu KG, Polly DW Jr, Sansur CA, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Donaldson, WF III, Perra JH, Boachie-Adjei O, Shaffrey CI. Dysphagia and recurrent laryngeal nerve palsy following ACDF are underreported compared with more observable complications based on a large prospective surgeon-reported database from the Scoliosis Research Society Morbidity and Mortality Committee. Cervical Spine Research Society. Salt Lake City, UT. December 2-5, 2009.
1281. Hamilton DK, **Smith JS**, Sansur CA, Dummont AS, Shaffrey CI. C2 neurectomy during atlanto-axial instrumented fusion in the elderly: patient satisfaction and surgical outcome. Cervical Spine Research Society. Salt Lake City, UT. December 2-5, 2009.

1282. Cabalo A, Bess S, Lanning K, Akbarnia BA, Boachie-Adjei O, Burton DC, Cunningham M, Gupta M, Hostin RA, Kebaish K, Klineberg E, Mundis G, Shaffrey CI, **Smith JS**, Wood K, Hart R, International Spine Study Group. Patients perceive perioperative complications as more severe and having greater negative consequences than surgeons. North American Spine Society. San Francisco, CA. November 10-14, 2009.
1283. \*Lafage V, Schwab F, **Smith JS**, Farcy JP, Boachie-Adjei O, Shelokov A, Hostin R, Hart R, Akbarnia B, O'Brien M, Burton D, Shaffrey CI, Patel A. PSO failures can be predicted by high pre-op SVA and pelvic tilt. North American Spine Society. San Francisco, CA. November 10-14, 2009.
1284. \***Smith JS**, Shaffrey CI, Sansur CA, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O. Rates of infection following spine surgery based on 108,419 procedures. North American Spine Society. San Francisco, CA. November 10-14, 2009.
1285. \*Glassman SD, Carreon L, **Smith JS**, Schwab F, Suk S, Horton W, Bridwell K. Does appearance influence outcome in adult scoliosis? North American Spine Society. San Francisco, CA. November 10-14, 2009.
1286. \*Hamilton DK, **Smith JS**, Sansur CA, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O, Shaffrey CI. Rates of neurological injury associated with spine surgery based on 108,419 procedures: a report from the Scoliosis Research Society Morbidity and Mortality Committee. North American Spine Society. San Francisco, CA. November 10-14, 2009.
1287. \*Fu KG, **Smith JS**, Sansur CA, Shaffrey CI, Berven S, Broadstone PA, Choma T, Goytan M, Noordeen H, Knapp D, Hart RA, Zeller R, Donaldson W, Polly DW Jr, Perra JH, Boachie-Adjei O. Morbidity and Mortality in the Surgical Treatment of 605 Pediatric Patients with Isthmic or Dysplastic Spondylolisthesis: A Report from the Scoliosis Research Society Morbidity and Mortality Committee. North American Spine Society. San Francisco, CA. November 10-14, 2009.
1288. \*Sansur CA, Coe J, **Smith JS**, Shaffrey CI, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O. Scoliosis Research Society morbidity and mortality of adult scoliosis. North American Spine Society. San Francisco, CA. November 10-14, 2009.
1289. **Smith JS**, Bess S, Cabalo A, Lanning K, Akbarnia BA, Boachie-Adjei O, Burton DC, Gupta M, Hostin RA, Shaffrey CI, Wood K, Kebaish K, Cunningham M, Hart R, International Spine Study Group. Patients perceive perioperative complications as more severe and having greater negative consequences than surgeons. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. October 24-29, 2009.
1290. **Smith JS**, Bess S, Burton DC, Boachie-Adjei O, Shaffrey CI, Schwab F, Hostin RA, Shelekov A, Akbarnia BA, International Spine Study Group. Outcomes and complications of extension of previous long fusion to the sacro-pelvis: does surgical approach make a difference? Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. October 24-29, 2009.
1291. **Smith JS**, Bess S, Burton DC, Kebaish K, Shaffrey CI, Schwab F, Hostin RA, Shelekov A, Boachie-Adjei O, Akbarnia BA, International Spine Study Group. Extension of previous fusions to the sacro-pelvis vs. primary spino-pelvic fusions in the setting of adult deformity: a comparison of health related quality of life measures and complications. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. October 24-29, 2009.
1292. Fu KG, **Smith JS**, Hamilton DK, Sansur CA, Rhagavan P, Shaffrey CI. Prevalence and severity of foraminal and central canal stenosis among adults with degenerative scoliosis. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. October 24-29, 2009.



1293. **Smith JS**, Shaffrey CI, Glassman S, Berven S, Hamill C, Horton W, Ondra S, Schwab F, Sansur CA, Bridwell K. Risk-benefit assessment of surgery for adult scoliosis: an analysis based on patient age. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. October 24-29, 2009.
1294. \*Hamilton DK, **Smith JS**, Sansur CA, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O, Shaffrey CI. Rates of neurological injury associated with spine surgery based on 108,419 procedures: a report from the Scoliosis Research Society Morbidity and Mortality Committee. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. October 24-29, 2009. **Selected as a Top 10 Best Abstract.**
1295. Williams BJ, Sansur CA, **Smith JS**, Shaffrey CI, Sansur CA, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O. Incidence of unintended durotomy in spine surgery: a report from the Scoliosis Research Society Morbidity and Mortality Committee. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. October 24-29, 2009.
1296. Sansur CA, Coe J, **Smith JS**, Shaffrey CI, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O. Complication Rates for the Surgical Treatment of Adult Scoliosis. A Report of the Scoliosis Research Society Morbidity and Mortality Committee. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. October 24-29, 2009.
1297. **Smith JS**, Fu KG, Shaffrey CI, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O. Complication rates of three common spine procedures based on 26,910 cases. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. October 24-29, 2009.
1298. \***Smith JS**, Shaffrey CI, Sansur CA, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O. Rates of infection following spine surgery based on 108,419 procedures. Congress of Neurological Surgeons Annual Meeting. New Orleans, LA. October 24-29, 2009. **Selected as a Top 10 Best Abstract.**
1299. Glassman SD, Carreon LY, **Smith JS**, Schwab FJ, Suk S, Horton WC, Bridwell KH. Does appearance influence outcome in adult scoliosis? Scoliosis Research Society Annual Meeting. San Antonio, TX. September 23-26, 2009.
1300. \*Lafage V, Schwab FJ, **Smith JS**, Farcy JPC, Boachie-Adjei O, Shelokov AP, Hostin R, Hart RA, Akbarnia BA, O'Brien MF, Burton DC, Shaffrey CI, International Spine Study Group. PSO failures can be predicted by high pre-op SVA and pelvic tilt. Scoliosis Research Society Annual Meeting. San Antonio, TX. September 23-26, 2009.
1301. **Smith JS**, Shaffrey CI, Sansur CA, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O. Rates of PE and DVT following spine surgery based on 108,419 procedures: a report from the Scoliosis Research Society Morbidity and Mortality Committee. Scoliosis Research Society Annual Meeting. San Antonio, TX. September 23-26, 2009. **Nominated for Louis A. Goldstein Award for Best Clinical Poster Presentation.**
1302. \*Abel MF, **Smith JS**, Shaffrey CI, Herndon SK. Selective versus nonselective fusion for idiopathic scoliosis: does lumbo-sacral takeoff change? Scoliosis Research Society Annual Meeting. San Antonio, TX. September 23-26, 2009.

1303. Sansur CA, Coe J, **Smith JS**, Shaffrey CI, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O. Complication Rates for the Surgical Treatment of Adult Scoliosis. A Report of the Scoliosis Research Society Morbidity and Mortality Committee. Scoliosis Research Society Annual Meeting. San Antonio, TX. September 23-26, 2009. **Nominated for Louis A. Goldstein Award for Best Clinical Poster Presentation.**
1304. Fu KG, **Smith JS**, Sansur CA, Shaffrey CI, Berven S, Broadstone PA, Choma T, Goytan M, Noordeen H, Knapp D, Yongjung JK, Hart RA, Zeller R, Donaldson W, Polly D, Perra JH, Boachie-Adjei O. Morbidity and Mortality in the Surgical Treatment of 605 Pediatric Patients with Isthmic or Dysplastic Spondylolisthesis: A Report from the Scoliosis Research Society Morbidity and Mortality Committee. Scoliosis Research Society Annual Meeting. San Antonio, TX. September 23-26, 2009. **Nominated for Louis A. Goldstein Award for Best Clinical Poster Presentation.**
1305. \***Smith JS**, Shaffrey CI, Sansur CA, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O. Rates of infection following spine surgery based on 108,419 procedures: a report from the Scoliosis Research Society Morbidity and Mortality Committee. Scoliosis Research Society Annual Meeting. San Antonio, TX. September 23-26, 2009.
1306. \***Smith JS**, Shaffrey CI, Glassman S, Berven S, Hamill C, Horton W, Ondra S, Schwab F, Sansur CA, Bridwell K. Risk-benefit assessment of surgery for adult scoliosis: an analysis based on patient age. Scoliosis Research Society Annual Meeting. San Antonio, TX. September 23-26, 2009. **Received The Russell Hibbs Award for Best Clinical Presentation.**
1307. \*Sansur CA, Coe J, **Smith JS**, Shaffrey CI, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Polly D, Perra JH, Boachie-Adjei O. Complication Rates for the Surgical Treatment of Adult Scoliosis. A Report of the Scoliosis Research Society Morbidity and Mortality Committee. International Meeting for the Advancement of Spinal Techniques. Vienna, Austria. July 15-18, 2009.
1308. \*Fu KG, **Smith JS**, Sansur CA, Shaffrey CI, Berven S, Broadstone PA, Choma T, Goytan M, Noordeen H, Knapp D, Yongjung JK, Hart RA, Zeller R, Donaldson W, Polly D, Perra JH, Boachie-Adjei O. Morbidity and Mortality in the Surgical Treatment of 605 Pediatric Patients with Isthmic or Dysplastic Spondylolisthesis: A Report from the Scoliosis Research Society Morbidity and Mortality Committee. International Meeting for the Advancement of Spinal Techniques. Vienna, Austria. July 15-18, 2009.
1309. \***Smith JS**, Fu KG, Polly DW Jr, Sansur CA, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson, WF III, Perra JH, Boachie-Adjei O, Shaffrey CI. Complication rates of three common spine procedures and rates of thromboembolism following spine surgery based on 108,419 cases: a report from the Scoliosis Research Society Morbidity and Mortality Committee. International Meeting for the Advancement of Spinal Techniques. Vienna, Austria. July 15-18, 2009. **Nominated for the Whitecloud Award.**
1310. \*Fu KG, **Smith JS**, Sansur CA, Shaffrey CI, Berven S, Broadstone PA, Choma T, Goytan M, Noordeen H, Knapp D, Yongjung JK, Hart RA, Zeller R, Donaldson W, Polly D, Perra JH, Boachie-Adjei O. Morbidity and Mortality in the Surgical Treatment of 10,329 Adults with Degenerative Lumbar Stenosis: A Report from the Scoliosis Research Society Morbidity and Mortality Committee. Minnesota Orthopedic Society Annual Meeting. Minneapolis, MN. May 9, 2009.
1311. \*Fu KG, **Smith JS**, Sansur CA, Shaffrey CI, Berven S, Broadstone PA, Choma T, Goytan M, Noordeen H, Knapp D, Yongjung JK, Hart RA, Zeller R, Donaldson W, Polly D, Perra JH, Boachie-Adjei O. Morbidity and Mortality in the Surgical Treatment of 605 Pediatric Patients with Isthmic or Dysplastic Spondylolisthesis: A Report from the Scoliosis Research Society Morbidity and Mortality Committee. Minnesota Orthopedic Society Annual Meeting. Minneapolis, MN. May 9, 2009.

1312. \***Smith JS**, Shaffrey CI, Sansur CA, Fu KG, Donaldson WF III, Perra JH, Mudiyaam R, Choma TJ, Zeller RD, Knapp DR, Noordeen HH, Berven SH, Goytan MJ, Boachie-Adjei O. Complication rates for 9,846 lumbar microdiscectomy procedures. A report of the Scoliosis Research Society Morbidity and Mortality Committee. American Association of Neurological Surgeons Annual Meeting. San Diego, CA. May 2-7, 2009.
1313. \*Hamilton DK, Sansur CA, Dummont AS, **Smith JS**, Shaffrey CI. C2 neurectomy during atlanto-axial instrumented fusion in the elderly: patient satisfaction and surgical outcomes. American Association of Neurological Surgeons Annual Meeting. San Diego, CA. May 2-7, 2009.
1314. Hamilton DK, Sansur CA, **Smith JS**, Shaffrey CI. Outcomes of bone morphogenetic protein-2 in the elderly: posterior cervical fusion. Poster presentation. American Association of Neurological Surgeons Annual Meeting. San Diego, CA. May 2-7, 2009.
1315. \***Smith JS**, Shaffrey CI, Glassman S, Berven S, Hamill C, Horton W, Ondra S, Schwab F, Sansur CA, Bridwell K. Risk-benefit assessment of surgery for adult scoliosis: an analysis based on patient age. Lumbar Spine Research Society. Chicago, IL. April 2-3, 2009.
1316. \***Smith JS**, Sansur CA, Hamilton DK, Fu KG, Donaldson WF III, Perra JH, Mudiyaam R, Choma TJ, Zeller RD, Knapp DR, Noordeen HH, Berven SH, Goytan MJ, Boachie-Adjei O, Shaffrey CI. Complications in the surgical treatment of 6,624 adults with degenerative spondylolisthesis: a report from the Scoliosis Research Society Morbidity and Mortality Committee. Lumbar Spine Research Society. Chicago, IL. April 2-3, 2009.
1317. \*Fu KG, **Smith JS**, Hamilton DK, Sansur CA, Rhagavan P, Shaffrey CI. Prevalence and severity of foraminal and central canal stenosis among adults with degenerative scoliosis. Lumbar Spine Research Society. Chicago, IL. April 2-3, 2009.
1318. \*Fu KG, **Smith JS**, Shaffrey CI, Berven SH, Broadstone PA, Choma TJ, Goytan MJ, Noordeen HH, Knapp DR, Hart RA, Zeller RD, Donaldson WF III, Polly D, Perra JH, Boachie-Adjei O. Morbidity and mortality in the surgical treatment of 10,329 adults with degenerative lumbar stenosis: a report from the Scoliosis Research Society Morbidity and Mortality Committee. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Phoenix, AZ. March 11-14, 2009.
1319. \***Smith JS**, Sansur CA, Hamilton DK, Fu KG, Donaldson WF III, Perra JH, Mudiyaam R, Choma TJ, Zeller RD, Knapp DR, Noordeen HH, Berven SH, Goytan MJ, Boachie-Adjei O, Shaffrey CI. Complications in the surgical treatment of 2,258 adults with isthmic spondylolisthesis: a report from the Scoliosis Research Society Morbidity and Mortality Committee. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Phoenix, AZ. March 11-14, 2009.
1320. Abel MF, **Smith JS**, Shaffrey CI, Sansur CA, Herndon SK. Selective versus Nonselective Fusion for Idiopathic Scoliosis: Does Lumbo-Sacral Takeoff Change? Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Phoenix, AZ. March 11-14, 2009.
1321. \*Sansur CA, **Smith JS**, Donaldson WF III, Perra JH, Mudiyaam R, Choma TJ, Zeller RD, Knapp DR, Noordeen HH, Berven SH, Goytan MJ, Boachie-Adjei O, Shaffrey CI. Short-term morbidity and mortality associated with correction of thoracolumbar fixed sagittal plan deformity. A report of the Scoliosis Research Society Morbidity and Mortality Committee. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Phoenix, AZ. March 11-14, 2009.

1322. **Smith JS**. Minimally invasive spine surgery: where have we been and where are we going? Neurosurgical Society of the Virginia. Greenbrier, West Virginia. January 22-24, 2008.
1323. **Smith JS**, Shaffrey CI, Berven S, Glassman S, Hamill C, Horton W, Ondra S, Schwab F, Fu KG, Bridwell K. Operative versus conservative treatment of leg pain in adults with scoliosis: A retrospective review of a prospective multicenter database with two-year follow-up. North American Spine Society. Toronto, CA. October 14-18, 2008.
1324. **\*Smith JS**, Shaffrey CI, Berven S, Glassman S, Hamill C, Horton W, Ondra S, Schwab F, Fu KG, Bridwell K. Operative versus conservative treatment of leg pain in adults with scoliosis: A retrospective review of a prospective multicenter database with two-year follow-up. North American Spine Society. Toronto, CA. October 14-18, 2008.
1325. **\*Smith JS**, Shaffrey CI, Berven S, Glassman S, Hamill C, Horton W, Ondra S, Schwab F, Fu KG, Bridwell K. Operative versus conservative treatment of back pain in adults with scoliosis: A retrospective review of a prospective multicenter database with two-year follow-up. Congress of Neurological Surgeons. Orlando, FL. September 20-25, 2008.
1326. **\*Smith JS**, Shaffrey CI, Berven S, Glassman S, Hamill C, Horton W, Ondra S, Schwab F, Fu KG, Bridwell K. Correlations of changes in back and leg pain with changes in Oswestry Disability Index, SRS-22 and SF-12 in surgically treated patients with adult scoliosis: A retrospective review of a prospective multicenter database with two-year follow-up. Congress of Neurological Surgeons. Orlando, FL. September 20-25, 2008.
1327. **Smith JS**, Shaffrey CI, Berven S, Glassman S, Hamill C, Horton W, Ondra S, Schwab F, Fu KG, Bridwell K. Operative versus conservative treatment of leg pain in adults with scoliosis: A retrospective review of a prospective multicenter database with two-year follow-up. Congress of Neurological Surgeons. Orlando, FL. September 20-25, 2008.
1328. **\*Smith JS**, Shaffrey CI, Berven S, Glassman S, Hamill C, Horton W, Ondra S, Schwab F, Fu KG, Bridwell K. Operative versus conservative treatment of leg pain in adults with scoliosis: A retrospective review of a prospective multicenter database with two-year follow-up. Scoliosis Research Society Annual Meeting. Salt Lake City, UT. September 9-13, 2008.
1329. **\*Smith JS**, Shaffrey CI, Berven S, Glassman S, Hamill C, Horton W, Ondra S, Schwab F, Fu KG, Bridwell K. Correlations of changes in back and leg pain with changes in Oswestry Disability Index, SRS-22 and SF-12 in surgically treated patients with adult scoliosis: A retrospective review of a prospective multicenter database with two-year follow-up. International Meeting for Advanced Spine Techniques. Hong Kong, China. July 8-11, 2008.
1330. **\*Smith JS**, Fu KG, Shaffrey CI. Neurological findings in adults with scoliosis: Incidences and correlations with operative versus conservative management. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. February 27-March 1, 2008.
1331. **\*Fu KG, Smith JS**, Shaffrey CI. Correlations of medical comorbidity and treatment decision in patients with adult scoliosis. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Spine Section Annual Meeting. Orlando, FL. February 27-March 1, 2008.
1332. Fu KG, **Smith JS**, Shaffrey CI. Self-reported measures of health status as a predictor of operative vs conservative management of adult deformity. (AANS 2008)
1333. **\*Smith JS**, Chang EF, Lamborn KR, Chang SM, Prados MD, Cha S, Tihan T, Vandenberg S, McDermott MW, Berger MS. The role of extent of resection in the long-term outcome of low-grade

- hemispheric gliomas. Society for Neuro-Oncology Annual Meeting. November 16, 2007. **Recipient of the 2007 Award for Excellence in Clinical Research.**
1334. \***Smith JS**, Chang EF, Lamborn KR, Chang SM, Prados MD, Cha S, Tihan T, Vandenberg S, McDermott MW, Berger MS. The role of extent of resection in the long-term outcome of low-grade hemispheric gliomas. American Academy of Neurological Surgeons Annual Meeting. Lake Las Vegas, NV. October 21 – November 3, 2007.
1335. Wang V, Lu D, Chin CT, **Smith JS**, Chou D. Free-hand thoracic pedicle screws placed by neurosurgery residents: a preliminary CT analysis. Congress of Neurological Surgeons Annual Meeting. San Diego, CA. September 15-20, 2007.
1336. \*Antonietti L, Chang E, **Smith JS**, Liu S, Vandenberg S, Cha S. Dynamic susceptibility-weighted contrast-enhanced perfusion MR imaging of treatment-naïve WHO grade 2 glioma patients: correlation with MIB-1 labeling index. American Society of Neuroradiology Annual Meeting. Chicago, IL. June 9-14, 2007.
1337. \*Chang E, **Smith JS**, Lamborn K, Chang S, Berger M, McDermott M. A new pre-operative grading system for adult hemispheric low grade gliomas. American Association of Neurological Surgeons Annual Meeting. April 16, 2007. **Plenary Session Presentation.**
1338. Chou D, **Smith JS**, Lu D, Chi J. Two-level spondylectomy in the upper thoracic for the treatment of osteogenic sarcoma. American Association of Neurological Surgeons Annual Meeting. April 16, 2007.
1339. Chou D, Lu D, **Smith JS**. The role of osteotomies and vertebral column resection in the correction of sagittal plane deformities. American Association of Neurological Surgeons Annual Meeting. April 16, 2007.
1340. Lu D, **Smith JS**, Lim DA, Chou D. The use of iliac wing fixation with lumbo-pelvic reconstruction for spinal osteomyelitis. American Association of Neurological Surgeons Annual Meeting. April 16, 2007.
1341. \***Smith JS**, Lal A, Harmon-Smith M, McDermott MW. Epidermal growth factor receptor (EGFR) immunoreactivity defines a subset of atypical meningiomas with a distinctly poor prognosis. American Association of Neurological Surgeons Annual Meeting. San Francisco, CA. April 24, 2006.
1342. \***Smith JS**, Chang E, Manley GT, Holland MC. The role of early serial computed tomography of the brain in the setting of non-penetrating traumatic brain injury. American Association of Neurological Surgeons Annual Meeting. New Orleans, LA. April 8, 2005.
1343. \***Smith JS**, Lin H, Mayo K, Bannerjee A, Gupta NG, Perry V, Cha S. Diffusion-weighted MR imaging in pediatric patients with surgically-treated intracranial neoplasms. Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Pediatrics Section Annual Meeting. Phoenix, AZ. March 11-14, 2004.
1344. Binder DK, **Smith JS**, Barbaro NM. Primary brachial plexus tumors: imaging, surgical and pathologic findings in 25 patients. Congress of Neurological Surgeons Annual Meeting. San Francisco, CA. October 16-21, 2004.
1345. **Smith JS**, Cha S, Chang SM, Mayo K, Chang SM, Dillon WP, Prados MD, Berger MS. Serial diffusion-weighted MR imaging in glioma: distinguishing tumor recurrence from post-resection injury. Society for Neuro-Oncology. Toronto, CA. November 18-21, 2004.
1346. \***Smith JS**, Cha S, Chang SM, Mayo K, Chang SM, Dillon WP, Prados MD, Berger MS. Serial diffusion-weighted MR imaging in glioma: distinguishing tumor recurrence from post-resection injury.

- Congress of Neurological Surgeons/American Association of Neurological Surgeons Joint Tumor Section Annual Meeting. 2004
1347. \*Ames CP, **Smith JS**, Pruel MC, Crawford NR, Nottmeier E, Speiser B, Sonntag VKH, Dickman CS. Effect of recombinant human bone morphogenetic protein-2 in an experimental model of spinal fusion in a radiated area: a biomechanical analysis. North American Spine Society 19<sup>th</sup> Annual Meeting. Chicago, IL. October 26-30, 2004.
1348. \***Smith JS**, Quinones-Hinojosa A, Barbaro NM, McDermott MW. Frame-based stereotactic biopsy remains an important diagnostic tool with distinct advantages over frameless stereotactic biopsy. American Association of Neurological Surgeons. Orlando, FL. May 1-6, 2004. **Presentation at the opening first plenary session.**
1349. **Smith JS**, Tachibana I, Pohl U, Borell TJ, Lee HK, Louis DN, Jenkins RB. Characterization of the glioma 19q13.3 candidate tumor suppressor region: contig construction, FISH and LOH deletion mapping, and positional cloning. 13th International Conference on Brain Tumor Research and Therapy. Sapporo, Japan. 1999.
1350. \***Smith JS**, Perry A, Borell TJ, O'Fallon JR, Kimmel D, Smith SM, Burger PC, Scheithauer BW, Jenkins RB. Alterations of chromosome arms 1p and 19q as predictors of survival in oligodendrogliomas and astrocytomas. American Association for Cancer Research. 1999.
1351. \*Buckner JC, **Smith JS**, Nelson DF, Zenk D, Shevlin BE, Hammack JE, Borell TJ, O'Fallon JR, Scheithauer BW, Jenkins RB. Phase II trial of procarbazine, CCNU, and vincristine (PCV) as initial therapy in patients with low-grade oligodendroglioma or oligoastrocytoma: efficacy results and associations with chromosome 1p and 19q loss. American Society of Clinical Oncology. Philadelphia, PN. May 15-18, 1999.
1352. \***Smith JS**, Alderete B, Minn Y, Borell TJ, Perry A, Mohapatra G, Smith SM, Kimmel D, O'Fallon J, Yates A, Feuerstein BG, Burger PC, Scheithauer BW, Jenkins RB. Localization of common deletion regions on 1p and 19q in human gliomas and their association with histological subtype. The Society for Neuro-Oncology. 1998.
1353. \***Smith JS**, Borell TJ, O'Fallon J, Smith SM, Scheithauer BW, Buckner JC, Jenkins RB. Deletions of chromosome arms 1p and 19q in low-grade gliomas and the association of these alterations with response to PCV chemotherapy as initial therapy. The Society for Neuro-Oncology. 1998.
1354. **Smith JS**, Alderete B, Lee HK, Minn Y, Mohapatra G, Jedlicka A, Burger P, Scheithauer B, Feuerstein B, Jenkins RB. Genetic alterations of chromosomes 1 and 19 in astrocytomas are distinct from alterations in oligodendrogliomas. Am J Hum Genet 61S:453, 1997. American Society of Human Genetics. 1997.
1355. **Smith JS**, Borell T, Lee H, Jenkins RB. Refined mapping of a 19q glioma gene using LOH and FISH. 12th International Conference on Brain Tumour Research and Therapy, Oxford, UK. 1997.
1356. \***Smith JS** and Jenkins RB. Loss of heterozygosity mapping of the chromosome 19 q-arm in human gliomas. FASEB Annual Meeting. 1997.
1357. \*Frost JJ, Rosier AJ, Reich SG, **Smith JS**, Ehlers MD, Snyder SH, Ravert HT, Dannals RF. PET imaging of dopamine reuptake sites in Parkinson's disease by <sup>11</sup>C -WIN 35,428. Society for Nuclear Medicine. 1994.
1358. \***Smith JS**, Zubieta JK, Price JC, Madar I, Lever JR, Kinter CM, Dannals RF, Frost JJ. Tracer kinetic analysis of the delta-opioid antagonist N1'-([<sup>11</sup>C]methyl naltrindole in human brain with PET. Society for Nuclear Medicine. 1994.

1359. \***Smith JS**, Zubieta JK, Price JC, Madar I, Lever JR, Kinter CM, Dannals RF, Frost JJ.  
Quantification of delta opioid receptor binding in human brain with N1'-([<sup>11</sup>C]methyl) naltrindole and  
PET. Society for Neuroscience. 1994.

\*Abstract presented orally.