



Publication summary of **AO Spine Knowledge Forum Deformity – Scolio-RISK-1: Evaluation of Neurologic Complications Associated with Surgical Correction of Adult Spinal Deformity: A Prospective, Observational, Multi-center Study**

March 2026

Peer-reviewed Journal Articles:

1. Cerpa M, Zuckerman SL, Lenke LG, Carreon LY, Cheung KMC, Kelly MP, Fehlings MG, Ames CP, Boachie-Adjei O, Dekutoski MB, Kebaish KM, Lewis SJ, Matsuyama Y, Pellise F, Qiu Y, Schwab FJ, Smith JS and Shaffrey CI. *Long-term follow-up of non-neurologic and neurologic complications after complex adult spinal deformity surgery: results from the Scolio-RISK-1 study.* Eur Spine J 2025.
<https://www.ncbi.nlm.nih.gov/pubmed/39937191>
2. Jiang F, Joshi H, Badhiwala JH, Wilson JRF, Lenke LG, Shaffrey CI, Cheung KMC, Carreon LY, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish KM, Ames CP, Berven SH, Qiu Y, Matsuyama Y, Dahl BT, Mehdian H, Pellise F, Lewis SJ and Fehlings MG. *Spinal cord injury in high-risk complex adult spinal deformity surgery: review of incidence and outcomes from the Scolio-RISK-1 study.* Spinal Cord Ser Cases 10 (1): 59, 2024.
<https://www.ncbi.nlm.nih.gov/pubmed/39153987>
3. Wilson JRF, Jiang F, Badhiwala JH, Shaffrey CI, Carreon LY, Cheung KMC, Dahl BT, Ames CP, Boachie-Adjei O, Dekutoski MB, Lewis SJ, Matsuyama Y, Mehdian H, Pellise F, Qiu Y, Schwab FJ, Lenke LG and Fehlings MG. *The Effect of Tobacco Smoking on Adverse Events Following Adult Complex Deformity Surgery: Analysis of 270 Patients From the Prospective, Multicenter Scolio-RISK-1 Study.* Spine (Phila Pa 1976) 45 (1): 32-37, 2020.
<https://www.ncbi.nlm.nih.gov/pubmed/31415459>
4. Shimizu T, Lenke LG, Cerpa M, Beauchamp EC, Carreon LY, Shaffrey CI, Cheung KMC and Fehlings MG. *A Radiographic Analysis of Lumbar Fusion Status and Instrumentation Failure After Complex Adult Spinal Deformity Surgery With Spinopelvic Fixation: Two-Year Follow-up From the Scolio-Risk-1 Prospective Database.* Clin Spine Surg 33 (10): E545-E552, 2020.
<https://www.ncbi.nlm.nih.gov/pubmed/32467441>
5. Saigal R, Lau D, Berven SH, Carreon L, Dekutoski MB, Kebaish KM, Qiu Y, Matsuyama Y, Kelly M, Dahl BT, Mehdian H, Pellisé F, Lewis SJ, Cheung KM, Shaffrey CI, Fehlings MG, Lenke LG and

Ames CP. *Impact of New Motor Deficit on HRQOL after Adult Spinal Deformity Surgery: Subanalysis from Scolio Risk 1 Prospective Study*. Spine (Phila Pa 1976) 46 2020.

<https://pubmed.ncbi.nlm.nih.gov/33290376/>

6. Kwan KYH, Lenke LG, Shaffrey CI, Carreon LY, Dahl BT, Fehlings MG, Ames CP, Boachie-Adjei O, Dekutoski MB, Kebaish KM, Lewis SJ, Matsuyama Y, Mehdian H, Qiu Y, Schwab FJ and Cheung KMC. *Are Higher Global Alignment and Proportion Scores Associated With Increased Risks of Mechanical Complications after Adult Spinal Deformity Surgery? An External Validation*. Clin Orthop Relat Res 479 (2): 312-320, 2020.

<https://www.ncbi.nlm.nih.gov/pubmed/33079774>

7. Tuchman A, Lenke LG, Cerpa M, Fehlings MG, Lewis SJ, Shaffrey CI, Cheung KMC, Carreon LY, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish K, Ames CP, Qiu Y, Matsuyama Y, Dahl BT, Mehdian H, Pellise F and Berven SH. *Unilateral versus bilateral lower extremity motor deficit following complex adult spinal deformity surgery: is there a difference in recovery up to 2-year follow-up?* Spine J 19 (3): 395-402, 2019.

<https://www.ncbi.nlm.nih.gov/pubmed/30118851>

8. Kwan KYH, Bow C, Samartzis D, Lenke LG, Shaffrey CI, Carreon LY, Dahl BT, Fehlings MG, Ames CP, Boachie-Adjei O, Dekutoski MB, Kebaish KM, Lewis SJ, Matsuyama Y, Mehdian H, Pellise F, Qiu Y, Schwab FJ and Cheung KMC. *Non-neurologic adverse events after complex adult spinal deformity surgery: results from the prospective, multicenter Scolio-RISK-1 study*. Eur Spine J 28 (1): 170-179, 2019.

<https://www.ncbi.nlm.nih.gov/pubmed/30327909>

9. Cerpa M, Lenke LG, Fehlings MG, Shaffrey CI, Cheung KM and Carreon LY. *Evolution and Advancement of Adult Spinal Deformity Research and Clinical Care: An Overview of the Scolio-RISK-1 Study*. Global Spine J 9 (1S): 8-14, 2019.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC6512199/>

10. Miller EK, Lenke LG, Neuman BJ, Sciubba DM, Kebaish KM, Smith JS, Qiu Y, Dahl BT, Pellise F, Matsuyama Y, Carreon LY, Fehlings MG, Cheung KM, Lewis S, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Mehdian H, Bess S, Shaffrey CI, Ames CP, AO Spine Knowledge Forum Deformity and International Spine Study Group. *External Validation of the Adult Spinal Deformity (ASD) Frailty Index (ASD-FI) in the Scolio-RISK-1 Patient Database*. Spine (Phila Pa 1976) 43 (20): 1426-1431, 2018.

<https://www.ncbi.nlm.nih.gov/pubmed/29762340>

11. Lenke LG, Shaffrey CI, Carreon LY, Cheung KMC, Dahl BT, Fehlings MG, Ames CP, Boachie-Adjei O, Dekutoski MB, Kebaish KM, Lewis SJ, Matsuyama Y, Mehdian H, Pellise F, Qiu Y, Schwab FJ and AO Spine International and SRS Scolio-RISK-1 Study Group. *Lower Extremity Motor Function Following Complex Adult Spinal Deformity Surgery: Two-Year Follow-up in the Scolio-RISK-1 Prospective, Multicenter, International Study*. J Bone Joint Surg Am 100 (8): 656-665, 2018.

<https://www.ncbi.nlm.nih.gov/pubmed/29664852>

12. Kato S, Fehlings MG, Lewis SJ, Lenke LG, Shaffrey CI, Cheung KMC, Carreon LY, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish KM, Ames CP, Qiu Y, Matsuyama Y, Dahl BT, Mehdian H, Pellise F and Berven SH. *An Analysis of the Incidence and Outcomes of Major Versus Minor Neurological Decline After Complex Adult Spinal Deformity Surgery: A Subanalysis of Scolio-RISK-1 Study*. Spine (Phila Pa 1976) 43 (13): 905-912, 2018.
<https://pubmed.ncbi.nlm.nih.gov/29894429/>
13. Fehlings MG, Kato S, Lenke LG, Nakashima H, Nagoshi N, Shaffrey CI, Cheung KMC, Carreon L, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish KM, Ames CP, Qiu Y, Matsuyama Y, Dahl BT, Mehdian H, Pellise-Urquiza F, Lewis SJ and Berven SH. *Incidence and risk factors of postoperative neurologic decline after complex adult spinal deformity surgery: results of the Scolio-RISK-1 study*. Spine J 18 (10): 1733-1740, 2018.
<https://www.ncbi.nlm.nih.gov/pubmed/29452281>
14. Kelly MP, Lenke LG, Godzik J, Pellise F, Shaffrey CI, Smith JS, Lewis SJ, Ames CP, Carreon LY, Fehlings MG, Schwab F and Shimer AL. *Retrospective analysis underestimates neurological deficits in complex spinal deformity surgery: a Scolio-RISK-1 Study*. J Neurosurg Spine 27 (1): 68-73, 2017.
<https://www.ncbi.nlm.nih.gov/pubmed/28475019>
15. Carreon LY, Glassman SD, Shaffrey CI, Fehlings MG, Dahl B, Ames CP, Matsuyama Y, Qiu Y, Mehdian H, Cheung KM, Schwab FJ, Pellise F, Kebaish KM and Lenke LG. *Predictors of Health-Related Quality-of-Life After Complex Adult Spinal Deformity Surgery: A Scolio-RISK-1 Secondary Analysis*. Spine Deform 5 (2): 139-144, 2017.
<https://www.ncbi.nlm.nih.gov/pubmed/28259266>
16. Lenke LG, Fehlings MG, Shaffrey CI, Cheung KM, Carreon L, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish KM, Ames CP, Qiu Y, Matsuyama Y, Dahl BT, Mehdian H, Pellise-Urquiza F, Lewis SJ and Berven SH. *Neurologic outcomes of complex adult spinal deformity surgery: results of the prospective, multicenter Scolio-Risk 1 study*. Spine (Phila Pa 1976) 41 (3): 204-12, 2016.
<http://www.ncbi.nlm.nih.gov/pubmed/26866736>

Conference Proceedings:

Podium/Oral Presentations

1. Kwan K, Knoll C, Lenke LG, Shaffrey CI, Carreon L, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish KM, Berven SH, Qiu Y, Matsuyama Y, Dahl BT, Mehdian H, **Pellis  F**, Lewis SJ, Fehlings MG, Ames C, Cheung KM and AO Spine Knowledge Forum Deformity. *External validation of the Global Alignment and Proportion Score (GAP) in predicting mechanical complications in Scolio-RISK-1 study patients*. 14th Annual Meeting of the German Spine Society (DWG) Munich, Germany. November 28-30, 2019.

2. **Wilson J**, Jiang F, Shaffrey C, Carreon L, Cheung K, Dahl B, Lewis S, Lenke L and Fehlings M. *Effect of tobacco smoking on implant failure rate and risk of intra-operative bleeding: Analysis of 270 patients from the prospective, multi-center SCOLI-RISK-1 study of complex adult spinal deformity surgery*. Global Spine Congress 2019 Toronto, ON, Canada. May 15-18, 2019.
3. **Wilson JR**, Badhiwala JH, Jiang F, Shaffrey CI, Carreon LY, Cheung K, Dahl B, Lewis S, Lenke L and Fehlings MG. *Effect of tobacco smoking on implant failure rate and risk of intra-operative bleeding: Analysis of 270 patients from the prospective, multi-center SCOLI-RISK-1 study of complex adult spinal deformity surgery*. Spine Summit 2019 - 35th Annual Meeting of the Section on Disorders of the Spine and Peripheral Nerves Miami, FL, USA. March 14, 2019.
4. **Wilson J**, Jiang F, Shaffrey C, Carreon L, Cheung K, Dahl B, Lewis S, Lenke L and Fehlings M. *Effect of tobacco smoking on implant failure rate and risk of intra-operative bleeding: Analysis of 270 patients from the prospective, multi-center SCOLI-RISK-1 study of complex adult spinal deformity surgery*. 19th Annual Scientific Conference of the Canadian Spine Society (CSS) Toronto, ON, Canada. February 27–March 2, 2019.
5. **Kwan KYH**, Bow C, Samartzis D, Lenke LG, Shaffrey CI, Carreon LY, Dahl BT, Fehlings MG, Ames CP, Boachie-Adjei O, Dekutoski MB, Kebaish KM, Lewis SJ, Matsuyama Y, Mehdiian H, Pellisé F, Qiu Y, Schwab FJ and Cheung KMC. *Non-neurologic adverse events after complex adult spinal deformity surgery: results from the prospective, multicenter Scolio-RISK-1 study*. 25th International Meeting on Advanced Spine Techniques (IMAST) Los Angeles, CA, USA. July 11-14, 2018.
6. **Tuchman A**, Lenke LG, Fehlings MG, Lewis SJ, Shaffrey CI, Cheung KM, Carreon LY, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish K, Ames CP, Qiu Y, Matsuyama Y, Dahl BT, Mehdiian H, Pellisé F and Berven SH. *Unilateral vs. Bilateral Lower Extremity Motor Deficit Following Complex Adult Spinal Deformity Surgery: Is there a Difference in Recovery Up to 2 Year F/U?* Scoliosis Research Society (SRS) 52nd Annual Meeting & Course 2017 Philadelphia, PA, USA. September 06 - 09, 2017.
7. **Kato S**, Fehlings MG, Lewis SJ, Lenke LG, Shaffrey CI, Cheung KM, Carreon LY, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish K, Ames CP, Qiu Y, Matsuyama Y, Dahl BT, Pellisé F, Berven SH and Gersmisch NM. *Incidence and Risk Factors of Post-operative Neurological Decline after Complex Adult Spinal Deformity Surgery: Results of the Scolio-RISK-1 Study*. Scoliosis Research Society (SRS) 52nd Annual Meeting & Course 2017 Philadelphia, PA, USA. September 06 - 09, 2017.
8. **Kato S**, Fehlings MG, Lewis SJ, Lenke LG, Shaffrey CI, Cheung KM, Carreon LY, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish K, Ames CP, Qiu Y, Matsuyama Y, Dahl BT, Mehdiian H, Pellisé F and Berven SH. *An Analysis of the Relative Incidence and Outcomes of Minor vs. Major Neurological Decline after Complex Adult Spinal Deformity Surgery: A Sub-analysis of Scolio-RISK-1 Study*. Scoliosis Research Society (SRS) 52nd Annual Meeting & Course 2017 Philadelphia, PA, USA. September 06 - 09, 2017. **[Nominated for the Russel A. Hibbs Award for Best Clinical Paper]**
9. **Lenke L**, Shaffrey C, Carreon L, Cheung K, Kebaish K, Schwab F, Pellisé F, Ames C, Qiu Y, Dahl B, Fehlings M and AO Spine Knowledge Forum Deformity. *Neurologic complications following complex adult spinal deformity surgery: 2 year follow-up of the Scolio-Risk 1 prospective, multicenter, international study*. Global Spine Congress 2017 Milan, Italy. May 3-6, 2016.
10. Ames C, Carreon L, Fehlings M, **Jain A**, Kebaish F, Kebaish K, Lenke L, Schwab F and Shaffrey C. *Early postoperative surgical site infections in the Scolio-Risk 1 cohort of complex spinal deformity patients still allowed for improved health related quality of life outcomes at 2 year follow-up* AAOS 2017 Annual Meeting San Diego, CA, USA. March 14-18, 2016.
11. Miller E, Lenke L, Espinoza-Rebmann K, **Neuman B**, Sciubba D, Smith J, Qiu Y, Dahl B, Matsuyama Y, Fehlings M, Cheung K, Carreon L, Ames C, AO Spine Knowledge Forum

- Deformity and International Spine Study Group. *Use of the Adult Spinal Deformity (ASD) Frailty Index (ASD-FI) to predict major complications in the Scolio-Risk 1 multicenter, international patient database*. North American Spine Society (NASS) 31st Annual Meeting Boston, MA, USA. October 26-29, 2016.
12. **Jain A**, Naef F, Lenke L, Shaffrey C, Fehlings M, Dahl B, Ames C, Matsuyama Y, Qiu Y, Mehdian H, Cheung K, Schwab F, Pellisé F, Carreon L and Kebaish K. *Complications and patient reported outcomes of primary vs. revision surgery for severe adult spinal deformity: a Scolio-Risk 1 sub-analysis*. North American Spine Society (NASS) 31st Annual Meeting Boston, MA, USA. October 26-29, 2016.
 13. **Jain A**, Naef F, Lenke L, Shaffrey C, Fehlings M, Dahl B, Ames C, Matsuyama Y, Qiu Y, Mehdian H, Cheung K, Schwab F, Pellisé F, Carreon L and Kebaish K. *Effect of age on postoperative complications and patient reported outcomes in severe adult spinal deformity: patients ≤60 years vs. >60 years*. North American Spine Society (NASS) 31st Annual Meeting Boston, MA, USA. October 26-29, 2016.
 14. **Jain A**, Naef F, Lenke L, Qiu Y, Matsuyama Y, Ames C, Fehlings M, Dahl B, Mehdian H, Cheung K, Schwab F, Pellisé F, Carreon L, Shaffrey C and Kebaish K. *Incidence of proximal junctional kyphosis in patients with adult spinal deformity fused to the pelvis: analysis of 198 patients*. North American Spine Society (NASS) 31st Annual Meeting Boston, MA, USA. October 26-29, 2016.
 15. Jain A, Naef F, Lenke L, Carreon L, Ames C, **Fehlings M**, Dahl B, Matsuyama Y, Qiu Y, Shaffrey C, Mehdian H, Schwab F, Pellisé F, Cheung K and Kebaish K. *Impact of depression on health related quality of life outcomes in surgically treated adult spinal deformity patients: a Scolio-Risk 1 sub-analysis*. North American Spine Society (NASS) 31st Annual Meeting Boston, MA, USA. October 26-29, 2016.
 16. **Pellisé F**, Lenke L, Shaffrey C, Carreon L, Cheung K, Kebaish K, Schwab F, Qiu Y, Dahl B, Ames C, Fehlings M and AO Spine Knowledge Forum Deformity. *Neurologic complications following complex adult spinal deformity surgery: 2 year follow-up of the Scolio-Risk 1 prospective, multicenter, international study*. EuroSpine 2016 Berlin, Germany. October 5-7, 2016.
 17. **Pellisé F**, Jain A, Naef F, Lenke L, Shaffrey C, Fehlings M, Dahl B, Ames C, Matsuyama Y, Qiu Y, Mehdian H, Cheung K, Schwab F, Carreon L and Kebaish K. *A comparison of postoperative complications and patient reported outcomes in severe adult spinal deformity patients aged ≤60 years and >60 years: a Scolio-Risk 1 sub-analysis*. EuroSpine 2016 Berlin, Germany. October 5-7, 2016.
 18. **Pellisé F**, Jain A, Naef F, Lenke L, Qiu Y, Matsuyama Y, Ames C, Fehlings M, Dahl B, Cheung K, Mehdian H, Schwab F, Carreon L, Shaffrey C and Kebaish K. *Incidence of proximal junctional kyphosis in patients with adult spinal deformity fused to the pelvis: a Scolio-Risk 1 sub-analysis*. EuroSpine 2016 Berlin, Germany. October 5-7, 2016.
 19. Jain A, Naef F, Lenke L, Carreon L, Ames C, Fehlings M, Dahl B, Matsuyama Y, Qiu Y, Shaffrey C, Mehdian H, Schwab F, Pellisé F, Cheung K and **Kebaish K**. *Impact of depression on Health Related Quality of Life outcomes in surgically treated adult spinal deformity patients: a Scolio-Risk 1 sub-analysis*. Scoliosis Research Society (SRS) 51st Annual Meeting & Course 2016 Prague, Czech Republic. September 21-24, 2016.
 20. Miller E, Lenke L, Espinoza-Rebmann K, Neuman B, Sciubba D, Smith J, Qiu Y, Dahl B, Matsuyama Y, Fehlings M, Cheung K, Carreon L, **Ames C**, AO Spine Knowledge Forum Deformity and International Spine Study Group. *Use of the Adult Spinal Deformity (ASD) Frailty Index (ASD-FI) to predict major complication risk in the Scolio-Risk 1 patient database*. Scoliosis Research Society (SRS) 51st Annual Meeting & Course 2016 Prague, Czech Republic. September 21 - 24, 2016.

21. **Lenke L**, Shaffrey C, Carreon L, Cheung K, Kebaish K, Schwab F, Pellisé F, Ames C, Qiu Y, Dahl B, Fehlings M and AO Spine Knowledge Forum Deformity. *Neurologic complications following complex adult spinal deformity surgery: 2 year follow-up of the Scolio-Risk 1 prospective, multicenter, international study*. Scoliosis Research Society (SRS) 51st Annual Meeting & Course 2016 Prague, Czech Republic. September 21 - 24, 2016. **[Nominated for the Russel A. Hibbs Award for Best Clinical Paper]**
22. **Jain A**, Naef F, Lenke L, Shaffrey C, Fehlings M, Dahl B, Ames C, Matsuyama Y, Qiu Y, Mehdian H, Cheung K, Schwab F, Pellisé F, Carreon L and Kebaish K. *Complications and patient reported outcomes of primary vs. revision surgery for severe adult spinal deformity: a Scolio-Risk 1 sub-analysis*. Scoliosis Research Society (SRS) 51st Annual Meeting & Course 2016 Prague, Czech Republic. September 21 - 24, 2016.
23. Jain A, Naef F, Lenke L, Shaffrey C, Fehlings M, Dahl B, Ames C, Matsuyama Y, Qiu Y, Mehdian H, Cheung K, Schwab F, Pellisé F, Carreon L and **Kebaish K**. *Effect of age on postoperative complications and patient reported outcomes in severe adult spinal deformity: patients ≤ 60 years vs. > 60 years*. Scoliosis Research Society (SRS) 51st Annual Meeting & Course 2016 Prague, Czech Republic. September 21 - 24, 2016.
24. Bow C, Kwan K, Samartzis D, Dekutoski M, Schwab F, Boachie-adjie O, Kebaish K, Ames C, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé-Urquiza F, Carreon L, Shaffrey C, Fehlings M, Lenke L and **Cheung K**. *Prevalence and risk factors for unplanned return to operating room for complex adult spinal deformity patients: Scolio-Risk 1 prospective multicenter international study*. Scoliosis Research Society (SRS) 51st Annual Meeting & Course 2016 Prague, Czech Republic. September 21 - 24, 2016.
25. **Saigal R**, Berven SH, Lafage V, Kelly MP, Dahl BT, Cheung KM, Yacat Carreon L, Schwab FJ, Espinoza-Rebmann K, Shaffrey CI, Fehlings MG, Lenke LG and Ames CP. *Impact of new motor deficit on early HRQOL after adult spinal deformity surgery: subanalysis of 272 patients from Scolio-Risk 1 prospective study*. 23rd International Meeting on Advanced Spine Techniques (IMAST) Washington DC, USA. July 13-16, 2016.
26. Jain A, Naef Kebaish F, Lenke LG, Ames CP, Fehlings MG, Mehdian H, Schwab FJ, Matsuyama Y, Shaffrey CI, Cheung KM, Qiu Y, Pellisé F, Carreon LY, Dahl BT and Kebaish KM. *Early postoperative surgical site infections in the Scolio-Risk 1 cohort of complex spinal deformity patients still allowed for improved Health Related Quality of Life outcomes at 2 year follow-up* 23rd International Meeting on Advanced Spine Techniques (IMAST) Washington DC, USA. July 13-16, 2016.
27. Jain A, Naef Kebaish F, Lenke L, Qiu Y, Matsuyama Y, Ames C, Fehlings M, Dahl B, Mehdian H, Cheung K, Schwab F, Pellisé F, Carreon L, Shaffrey C and **Kebaish K**. *Incidence of proximal junctional kyphosis in patients with adult spinal deformity fused to the pelvis: a Scolio-Risk 1 sub-analysis*. 23rd International Meeting on Advanced Spine Techniques (IMAST) Washington DC, USA. July 13-16, 2016. **[Winner of Whitecloud Award for Best Clinical Paper]**
28. **Carreon L**, Glassman S, Shaffrey C, Fehlings M, Dahl B, Ames C, Matsuyama Y, Qiu Y, Mehdian H, Cheung K, Schwab F, Pellisé F, Kebaish K and Lenke L. *Predictors of health-related quality-of-life after complex adult spinal deformity surgery: a Scolio-Risk 1 sub-analysis*. 23rd International Meeting on Advanced Spine Techniques (IMAST) Washington DC, USA. July 13-16, 2016.
29. **Berven S**, Saigal R, Lafage V, Kelly M, Kopjar B, Smith J, Dahl B, Cheung K, Carreon L, Schwab F, Rebmann K, Shaffrey C, Fehlings M, Lenke L and Ames C. *Defining normative quality metrics in complex high-risk deformity cases: results from the Scolio-Risk 1 study*. SpineWeek Singapore, Singapore. May 16-20, 2016.
30. 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 and Ames C. *New motor deficit after spinal*

- deformity leads to worsened early HRQOL: subanalysis of 273 patients from Scolio-Risk 1 prospective study.* Global Spine Congress 2016 Dubai, UAE. April 13-16, 2016.
31. Fehlings M, Lenke L, **Nakashima H**, Nagoshi N, Shaffrey C, Kopjar B, Cheung K, Carreon L, Dekutoski M, Schwab F, Boachie-Adjei O, Kebaish K, Ames C, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé-Urquiza F, Lewis S and Berven S. *Predictors of neurological motor decline in complex adult spinal deformity surgery: results of the prospective, international, multicenter Scolio-Risk 1 study.* Global Spine Congress 2016 Dubai, UAE. April 13-16, 2016.
 32. Bow C, **Cheung K**, Samartzis D, Dekutoski M, Schwab F, Boachie-Adjei O, Kebaish K, Ames C, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé-Urquiza F, Carreon L, Shaffrey C, Fehlings M and Lenke L. *The effect of post-operative complications in complex adult spinal deformity surgery on surgical outcomes: an international, large-scale, prospective multi-center study.* Global Spine Congress 2016 Dubai, UAE. April 13-16, 2016.
 33. **Berven S**, Saigal R, Lafage V, Kelly M, Kopjar B, Smith J, Dahl B, Cheung K, Carreon L, Schwab F, Rebmann K, Shaffrey C, Fehlings M, Lenke L and Ames C. *Defining normative quality metrics in complex high-risk deformity cases: results from the Scolio-Risk 1 study.* Global Spine Congress 2016 Dubai, UAE. April 13-16, 2016.
 34. **Saigal R**, Berven SH, Lafage V, Kelly MP, Kopjar B, Smith JS, Dahl BT, Cheung KM, Carreon LY, Schwab FJ, Rebmann K, Shaffrey CI, Fehlings MG, Lenke LG and Ames CP. *Impact of new motor deficit on early HRQOL after adult spinal deformity surgery: subanalysis of 273 patients from Scolio-Risk 1 prospective study.* Congress of Neurological Surgeons (CNS) Annual Meeting New Orleans, LA, USA. September 26-30, 2015.
 35. **Bow C**, Cheung K, Samartzis D, Kwan K, Dekutoski M, Schwab F, Boachie-Adjei O, Kebaish K, Ames C, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé-Urquiza F, Carreon L, Shaffrey C, Fehlings M and Lenke L. *The effect of post-operative complications in complex adult spinal deformity surgery on surgical outcomes: an international, large-scale, prospective multi-center study.* 36th SICOT Orthopaedic World Congress Guangzhou, China. September 17-19, 2015.
 36. **Bow C**, Cheung K, Samartzis D, Dekutoski M, Schwab F, Boachie-Adjei O, Kebaish K, Ames C, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé-Urquiza F, Carreon L, Shaffrey C, Fehlings M and Lenke L. *Risk factors for non-neurological complications in complex adult spinal deformity surgery: an international, large-scale, prospective multi-center study.* 36th SICOT Orthopaedic World Congress Guangzhou, China. September 17-19, 2015.
 37. **Jain A**, Naef F, Lenke LG, Ames CP, Matsuyama Y, Dahl BT, Shaffrey CI, Qiu Y, Fehlings MG, Mehdian H, Boachie-Adjei O, Schwab FJ, Cheung KM, Carreon LY and Kebaish KM. *Analysis of Scolio-Risk 1 prospective multicenter database comparing perioperative complications and patient reported outcomes in primary vs. revision surgery for severe adult spinal deformity.* 22nd International Meeting on Advanced Spine Techniques (IMAST) Kuala Lumpur, Malaysia. July 8-11, 2015.
 38. **Fehlings M**, Lenke L, Shaffrey C, Kopjar B, Cheung K, Carreon L, Dekutoski M, Schwab F, Boachie-Adjei O, Kebaish K, Ames C, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé F, Lewis S and Berven S. *Pre-operative predictors of neurological motor decline in complex adult spinal deformity surgery: results of the prospective, international, multicenter Scolio-Risk 1 study in 271 patients.* 22nd International Meeting on Advanced Spine Techniques (IMAST) Kuala Lumpur, Malaysia. July 8-11, 2015. **[Winner of Whitecloud Award for Best Clinical Paper]**
 39. **Berven SH**, Saigal R, Lafage V, Kelly M, Kopjar B, Smith J, Dahl B, Cheung KM, Carreon LY, Schwab FJ, Rebmann K, Shaffrey CI, Fehlings MG, Lenke LG and Ames CP. *Defining normative quality metrics in complex high-risk deformity cases: results from the Scolio-Risk 1 study.* 22nd International Meeting on Advanced Spine Techniques (IMAST) Kuala Lumpur, Malaysia. July 8-11, 2015.

40. Cheung KM, **Bow C**, Samartzis D, Kwan K, Dekutoski M, Schwab F, Boachie-Adjei O, Kebaish K, Ames C, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé-Urquiza F, Carreon L, Shaffrey C, Fehlings M and Lenke L. *The effect of post-operative complications in complex adult spinal deformity surgery on surgical outcomes: an international, large-scale, prospective multi-center study*. Asia-Pacific Orthopaedic Association (APOA) Annual Meeting – Hong Kong 2015 - the Combined Congress of APSS, APPOS & HKIOF Hong Kong, China. June 5-7, 2015.
41. **Pellisé F**, Domingo M, Moncho D, Rahnama K, Fehling MG, Lenke LG, Shaffrey CI, Kopjar B, Cheung KM, Carreon LY, Schwab FJ, Boachie-Adjei O, Kebaish KM, Ames CP, Qiu Y, Matsuyama Y, Dahl BT, Mehdian H, Lewis SJ and Berven SH. *Intraoperative NeuroMonitoring (IONM) may not predict all postoperative neurological adverse events in adult deformity surgery. A Scolio-Risk 1 trial subanalysis*. Spanish Spine Society – XXIX Congreso Nacional GEER Malaga, Spain. June 4-6, 2015. **[Nominated for Best Paper Award]**
42. Cheung KMC, Bow C, Samartzis D, Dekutoski M, Schwab F, Boachie-Adjei O, Kebaish K, Ames C, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé-Urquiza F, Carreon L, Shaffrey C, Fehlings MG and **Lenke LG**. *Risk factors for non-neurological complications in adult spinal deformity surgery: an international, large-scale, prospective multi-center study*. Global Spine Congress 2015 Buenos Aires, Argentina. May 20-23, 2015. **[Winner of Best Paper Award]**
43. Cheung KM, **Bow C**, Samartzis D, Dekutoski M, Schwab F, Boachie-Adjei O, Kebaish K, Ames C, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé-Urquiza F, Carreon L, Shaffrey C, Fehlings MG and Lenke L. *Risk factors for non-neurological complications in adult spinal deformity surgery: an international, prospective, multi-center study of 269 cases*. Hong Kong Orthopaedic Association 34th Annual Congress (HKOA 2014) Hong Kong, China. November 15-16, 2014. **[Short-listed for the Award Paper Session]**
44. Fehlings MG, Lenke LG, Shaffrey CI, Kopjar B, Cheung KM, Carreon LY, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish K, Ames CP, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé F, Lewis SJ and **Berven SH**. *Risk factors for neurological complications in patients undergoing corrective surgery for spinal deformity: results of the Scolio-Risk 1 study international, prospective, multicenter study*. Scoliosis Research Society (SRS) 49th Annual Meetings & Course 2014 Anchorage, Alaska, USA. September 10-13, 2014. **[Nominated for the Russel A. Hibbs Award for Best Clinical Paper]**
45. Lenke LG, **Fehlings MG**, Shaffrey CI, Cheung KMC, Carreon L, Dekutoski MB, Schwab FJ, Boachie-Adjei O, Kebaish KM, Ames CP, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé-Urquiza F, Lewis SJ and Berven SH. *Prospective, multicenter assessment of acute neurologic complications following complex adult spinal deformity surgery: the Scolio-Risk 1 study*. 82nd American Association of Neurological Surgeons (AANS) Annual Scientific Meeting San Francisco, CA, USA. April 5-9, 2014.
46. **Lenke L**, Fehlings M, Shaffrey C, Cheung K and Carreon L. *Prospective, multicenter assessment of acute neurologic complications following complex adult spinal deformity surgery: the Scolio-Risk 1 trial*. North American Spine Society (NASS) 28th Annual Meeting New Orleans, LA, USA. October 9-12, 2013.
47. **Lenke L**, Fehlings M, Shaffrey C, Cheung K and Carreon L. *Prospective, multicenter assessment of acute neurologic complications following complex adult spinal deformity surgery: the Scolio-Risk 1 trial*. Scoliosis Research Society (SRS) 48th Annual Meetings & Course 2013 Lyon, France. September 18-21, 2013. **[Winner of the Russel A. Hibbs Award for Best Clinical Research Presentation]**
48. **Lenke LG**, Fehlings M, Shaffrey C, Cheung KMC and Carreon L. *Prospective, multicenter assessment of acute neurologic complications following complex adult spinal deformity surgery: the Scolio-Risk 1 trial*. 20th International Meeting on Advanced Spine Techniques (IMAST) Vancouver, BC, Canada. July 10-13, 2013.

Poster or Virtual Presentations

1. Wilson JR, Badhiwala JH, Jiang F, Shaffrey CI, Carreon LY, Cheung K, Dahl B, Lewis S, Lenke L and Fehlings MG. *Effect of tobacco smoking on outcomes of complex spine deformity correction: Analysis of 270 patients from the prospective, multi-center SCOLI-RISK-1 study of complex adult spinal deformity surgery*. Global Spine Congress 2019 Toronto, ON, Canada. May 15-18, 2019.
2. **Wilson JR**, Badhiwala JH, Jiang F, Shaffrey CI, Carreon LY, Cheung K, Dahl B, Lewis S, Lenke L and Fehlings MG. *Effect of tobacco smoking on outcomes of complex spine deformity correction: Analysis of 270 patients from the prospective, multi-center SCOLI-RISK-1 study of complex adult spinal deformity surgery*. 19th Annual Scientific Conference of the Canadian Spine Society (CSS) Toronto, ON, Canada. February 27–March 2, 2019.
3. Kwan KYH, Yiglor C, Alanay A, Koh HY and Cheung K. *Non-neurologic Adverse Events After Complex Adult Spinal Deformity Surgery: Results From The Prospective, Multicenter Scolio-RISK-1 Study*. Global Spine Congress 2018 Singapore, Singapore. May 2-5, 2018.
4. Ames C, Carreon L, Fehlings M, **Jain A**, Kebaish F, Kebaish K, Lenke L, Schwab F and Shaffrey C. *Impact of depression on health related quality of life outcomes in surgically treated adult spinal deformity patients: A Scolio-Risk-1 sub-analysis*. AAOS 2017 Annual Meeting San Diego, CA, USA. March 14-18, 2017.
5. **Pellisé F**, Jain A, Naef F, Lenke L, Dahl B, Cheung K, Qiu Y, Fehlings M, Ames C, Matsuyama Y, Mehdian H, Schwab F, Carreon L, Shaffrey C and Kebaish K. *Geographical variations in practice patterns and outcomes in surgically treated adult spinal deformity patients: a Scolio-Risk-1 sub-analysis*. EuroSpine 2016 Berlin, Germany. October 5-7, 2016.
6. **Pellisé F**, Jain A, Naef F, Lenke L, Carreon L, Ames C, Fehlings M, Dahl B, Matsuyama Y, Qiu Y, Shaffrey C, Mehdian H, Schwab F, Cheung K and Kebaish K. *Impact of depression on Health Related Quality of Life (HRQOL) outcomes in surgically treated adult spinal deformity patients: a Scolio-Risk-1 sub-analysis*. EuroSpine 2016 Berlin, Germany. October 5-7, 2016.
7. **Jain A**, Naef F, Lenke L, Qiu Y, Matsuyama Y, Ames C, Fehlings M, Dahl B, Mehdian H, Cheung K, Schwab F, Pellisé F, Carreon L, Shaffrey C and Kebaish K. *Incidence of proximal junctional kyphosis in patients with adult spinal deformity fused to the pelvis: a Scolio-Risk 1 sub-analysis*. Scoliosis Research Society (SRS) 51st Annual Meeting & Course 2016 Prague, Czech Republic. September 21 - 24, 2016.
8. **Jain A**, Naef F, Lenke L, Fehlings M, Mehdian H, Ames C, Schwab F, Matsuyama Y, Shaffrey C, Cheung K, Dahl B, Qiu Y, Pellisé F, Carreon L and Kebaish K. *Early postoperative surgical site infections in the Scolio-Risk 1 cohort of complex spinal deformity patients still allowed for improved Health Related Quality of Life outcomes at 2 year follow-up*. Scoliosis Research Society (SRS) 51st Annual Meeting & Course 2016 Prague, Czech Republic. September 21-24, 2016.

9. **Jain A**, Naef F, Lenke L, Dahl B, Cheung K, Pellisé F, Qiu Y, Fehlings M, Ames C, Matsuyama Y, Mehdian H, Schwab F, Carreon L, Shaffrey C and Kebaish K. *Geographical variations in practice patterns and outcomes in surgically treated adult spinal deformity patients: a Scoliosis Risk 1 sub-analysis* Scoliosis Research Society (SRS) 51st Annual Meeting & Course 2016 Prague, Czech Republic. September 21-24, 2016.
10. **Carreon L**, Glassman S, Shaffrey C, Fehlings M, Dahl B, Ames C, Matsuyama Y, Qiu Y, Mehdian H, Cheung K, Schwab F, Pellisé F, Kebaish K and Lenke L. *Predictors of health-related quality-of-life after complex adult spinal deformity surgery: a Scoliosis Risk 1 sub-analysis*. Scoliosis Research Society (SRS) 51st Annual Meeting & Course 2016 Prague, Czech Republic. September 21-24, 2016.
11. **Pellisé F**, Domingo M, Moncho D, Rahnama K, Fehling MG, Lenke LG, Shaffrey CI, Kopjar B, Cheung KMC, Carreon LY, Schwab FJ, Boachie-Adjei O, Kebaish KM, Ames CP, Qiu Y, Matsuyama Y, Dahl BT, Mehdian H, Lewis SJ and Berven SH. *Intraoperative NeuroMonitoring (IONM) may not predict all postoperative neurological adverse events in adult deformity surgery. A Scoliosis Risk 1 Trial subanalysis*. EuroSpine 2015 Copenhagen, Denmark. September 2-4, 2015.
12. Cheung KM, **Bow C**, Samartzis D, Dekutoski M, Schwab F, Boachie-Adjei O, Kebaish K, Ames C, Qiu Y, Matsuyama Y, Dahl B, Mehdian H, Pellisé-Urquiza F, Carreon L, Shaffrey C, Fehlings M and Lenke L. *Risk factors for non-neurological complications in complex adult spinal deformity surgery: an international, large-scale, prospective multi-center study*. Asia-Pacific Orthopaedic Association (APOA) Annual Meeting – Hong Kong 2015 - the Combined Congress of APSS, APPOS & HKIOF Hong Kong, China. June 5-7, 2015.