**Appendix A – Online Survey**

1. What is your current training level?
   1. PGY-1
   2. PGY-2
   3. PGY-3
   4. PGY-4
   5. PGY-5
   6. PGY-6
   7. Clinical spine fellow
2. Which residency program are you enrolled in/have you completed?
   1. Neurosurgery
   2. Orthopedic surgery
3. In which province are you currently training?
   1. British Columbia
   2. Alberta
   3. Saskatchewan
   4. Manitoba
   5. Ontario
   6. Quebec
   7. Nova Scotia
   8. Newfoundland
4. How many months of residency did you spend on a full-time spine service?
5. Do you have computer-assisted 3D navigation capabilities for spinal surgery at your institution? If ‘yes’, please complete the remaining questions.
   1. Yes
   2. No
6. In what percent of overall spine cases at your institution is computer-assisted 3D navigation utilized?
   1. 0-20%
   2. 21-40%
   3. 41-60%
   4. 61-80%
   5. 81-100%
7. In what percent of open spinal fusions at your institution is computer-assisted 3D navigation utilized?
   1. 0-20%
   2. 21-40%
   3. 41-60%
   4. 61-80%
   5. 81-100%
8. In what percent of minimally-invasive spinal fusion cases at your institution is computer-assisted 3D navigation utilized?
   1. 0-20%
   2. 21-40%
   3. 41-60%
   4. 61-80%
   5. 81-100%
   6. N/A (minimally-invasive cases not performed at this institution)
9. In what percent of deformity correction cases at your institution is computer-assisted 3D navigation utilized?
   1. 0-20%
   2. 21-40%
   3. 41-60%
   4. 61-80%
   5. 81-100%
   6. N/A (deformity cases not performed at this institution)
10. In what percent of revision spinal fusion cases at your institution is computer-assisted 3D navigation utilized?
    1. 0-20%
    2. 21-40%
    3. 41-60%
    4. 61-80%
    5. 81-100%
11. From which sources do you receive your primary teaching/instruction on the use of computer-assisted 3D navigation in spinal surgery? Select all that apply.
    1. Senior resident
    2. Clinical spine fellow
    3. Staff surgeon
    4. Navigation company/product representatives
    5. Self-taught
    6. Other: \_\_\_\_\_\_\_\_\_\_
12. Please rate your current level of comfort in the setup and intraoperative use of the computer-assisted 3D navigation available at your institution, for spinal surgery. (includes transferring of images, intraoperative registration, navigation)
    1. Fully able to set up and use, independently
    2. Fully able to set up and use, with supervision
    3. Able to set up and use most intraoperative features, with supervision
    4. Able to perform minimal setup and use some intraoperative features, with extensive supervision
    5. No concept of setup or intraoperative use
13. Please rate your confidence, at your current level of training, in placing atlantoaxial screws (C1 and/or C2) WITHOUT computer-assisted 3D navigation (X-ray/fluoroscopy may be used, if required).
    1. Fully independent, without supervision
    2. Very competent, with supervision
    3. Somewhat competent, requiring extensive supervision
    4. Not at all competent
14. Please rate your confidence, at your current level of training, in placing atlantoaxial screws (C1 and/or C2) WITH computer-assisted 3D navigation.
    1. Fully independent, without supervision
    2. Very competent, with supervision
    3. Somewhat competent, requiring extensive supervision
    4. Not at all competent
15. Please rate your confidence, at your current level of training, in placing subaxial cervical-spine screws (C3-7) WITHOUT computer-assisted 3D navigation (X-ray/fluoroscopy may be used, if required).
    1. Fully independent, without supervision
    2. Very competent, with supervision
    3. Somewhat competent, requiring extensive supervision
    4. Not at all competent
16. Please rate your confidence, at your current level of training, in placing subaxial cervical-spine screws (C3-7) WITH computer-assisted 3D navigation.
    1. Fully independent, without supervision
    2. Very competent, with supervision
    3. Somewhat competent, requiring extensive supervision
    4. Not at all competent
17. Please rate your confidence, at your current level of training, in placing thoracic-spine pedicle screws WITHOUT computer-assisted 3D navigation (X-ray/fluoroscopy may be used, if required).
    1. Fully independent, without supervision
    2. Very competent, with supervision
    3. Somewhat competent, requiring extensive supervision
    4. Not at all competent
18. Please rate your confidence, at your current level of training, in placing thoracic-spine pedicle screws WITH computer-assisted 3D navigation.
    1. Fully independent, without supervision
    2. Very competent, with supervision
    3. Somewhat competent, requiring extensive supervision
    4. Not at all competent
19. Please rate your confidence, at your current level of training, in placing lumbosacral pedicle screws WITHOUT computer-assisted 3D navigation (X-ray/fluoroscopy may be used, if required).
    1. Fully independent, without supervision
    2. Very competent, with supervision
    3. Somewhat competent, requiring extensive supervision
    4. Not at all competent
20. Please rate your confidence, at your current level of training, in placing lumbosacral pedicle screws WITH computer-assisted 3D navigation.
    1. Fully independent, without supervision
    2. Very competent, with supervision
    3. Somewhat competent, requiring extensive supervision
    4. Not at all competent
21. How has your use of computer-assisted 3D navigation, for spinal surgery, changed your likelihood of pursuing specialized (i.e. fellowship) spine training?
    1. Significantly increased
    2. Slightly increased
    3. Unchanged
    4. Slightly decreased
    5. Significantly decreased
22. How has your use of computer-assisted 3D navigation, for spinal surgery, changed your likelihood of incorporating spine cases into your fuure practice?
    1. Significantly increased
    2. Slightly increased
    3. Unchanged
    4. Slightly decreased
    5. Significantly decreased