CANADIAN SPINE OUTCOMES AND RESEARCH NETWORK (CSORN)

2017 Annual Report

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1 Introduction

The Canadian Spine Society (CSS) is a collaborative organization of spine surgeons and health care professionals from across Canada with a primary interest in advancing excellence in spine patient care, research & education (www.spinecanada.ca). The Canadian Spine Outcomes and Research Network (CSORN) is a research and education initiative of the CSS to track spine surgery outcomes and conduct prospective and retrospective studies.

2 Background and Study Objectives

CSORN’s principal objective is to track the results of surgical techniques used to treat spinal conditions by collecting specific baseline pre-surgical information and outcome data for selected spinal pathologies. This is a multicentre Canadian initiative focused on patients who have had a consultation and are slated for operative treatment.

3 Funding

The Canadian Spine Education and Research Fund (CSREF), a registered charitable organization, provides financial support for CSORN. Money comes from public donations but primarily through generous contributions from Medtronic and DePuy Synthes.

4 Data Collection Process

The CSORN dataset includes primary data collection, abstracted medical chart information, patient history and outcomes (pain, function, disability and quality-of-life). As of December 2017, the Network has 10484 enrolments consisting of 7724 that have had surgery. This report summarizes a variety of key data captured for the 2322 patients enrolled in 2017.

The data is held on the Rick Hansen Institute’s Global Research Platform (GRP). This platform is a web based application that has been designed specifically for the collection of clinical and outcome data in a user-friendly format for spinal cord injury and spinal pathology.
5 CSORN Site Locations

There are currently 64 surgeons contributing patients to CSORN across 17 sites; three more sites are expected to join in 2018 (Sherbrooke, Saskatoon, CHUM Montreal). Of the 2322 enrolled in 2017, there are 1049 (45%) who have had surgery.
6 Pre-operative Data and Outcomes for 2017

This report displays both patient and physician reported clinical data.

6.1 Pre-operative Data

6.1.1 Demographics

Males comprised 54% of those enrolled in 2017; the average age was 57.7 years (standard deviation = 14.2, range 18-94). The average Body Mass Index was 28.5 (standard deviation = 5.6, range 14-61).

6.1.2 Clinical data

Thoracolumbar patients comprised 79%, with the remaining 21% cervical. The most common chief complaint of patients was radiculopathy.

![Chief Complaint Diagram]
Symptom Duration: Those in pain for 2+ years represented the highest proportion of both thoracolumbar and cervical patients.
**Principal Pathology:** The most frequent thoracolumbar (TL) principal pathologies were canal stenosis and spondylolisthesis. For cervical, the most frequent were stenosis and disc herniation.
The Canadian Spine Society is a collaborative organization of spine surgeons and health care professionals with a primary interest in advancing excellence in spine patient care, research and education.

**Types of Surgery:** Fusion (alone or in combination with other operations) represented the highest percentage of thoracolumbar and cervical spine surgery procedures.

### Types of Thoracolumbar Surgery

- **decomp/fusion:** 16%
- **discectomy:** 11%
- **decompression:** 23%
- **discectomy/decom p/fusion:** 31%
- **fusion:** 3%
- **discectomy/decom p** 11%
- **L_fusion:** 3%

### Types of Cervical Surgery

- **discectomy:** 14%
- **decompression:** 12%
- **discectomy/fusion:** 33%
- **decomp/fusion:** 34%
- **discectomy/decom p/fusion:** 31%
- **fusion p/fusion:** 3%
- **discectomy/decom p:** 11%
- **discectomy/decom:** 3%
6.2 Outcomes
Changes in disability from baseline to follow up were similar for Disability Score (n=646) and Neck Disability Index – NDI (n=199).

![Disability Score and NDI](image)

Changes from baseline to follow up were very similar in both thoracolumbar (n=647) and cervical (n=200) for EQ5D quality of life; changes in Health State from baseline to follow up were also very similar in both thoracolumbar (n=632) and cervical (n=196).

![EQ5D](image)

![Health State](image)
Changes in thoracolumbar pain rating were very similar for both back and leg pain (n=646). Changes in cervical pain rating were very similar for both neck and arm pain (n=200).
6.3 Patient Satisfaction.
Approximately 88% were satisfied (either E=extremely or S=somewhat) with the results of thoracolumbar surgery at 3 month follow up (n=537).

Approximately 82% were satisfied (either E=extremely or S=somewhat) with the results of cervical surgery at 3 month follow up (n=168).
Approximately 87% stated that they were feeling either better or much better after thoracolumbar surgery at 3 month follow up (n=544).

Approximately 75% stated that they were feeling were either better or much better after cervical surgery at 3 month follow up (n=170).
7 Research Activities

7.1 Presentations

Presentations made utilizing CSORN data at the Canadian Spine Society, 17th Annual Meeting, February 22-25, 2017, Montreal, Quebec:

- Nationwide Quality Assessment of the Canadian Spine Outcomes Research Network
- Impact of Degenerative Spinal Disorders on the Quality of Life of Patient Undergoing Spine Surgery in Canada: A National Comparison to Normal Peers
- Repeat discectomy versus discectomy and fusion for recurrent lumbar disc herniations
- Variation in the surgical treatment of lumbar spinal stenosis in Canada
- Crafting the first spine surgery performance indicator - deriving a benchmark from CSORN
- Development of a Minimum Dataset to enhance CSORN AE Identification and Reporting
- Predictive factors for discharge destinations post posterior lumbar spinal fusion
- Factors Associated with Increased Risk of Developing Post-op Infection Following Spine Surgery
- Effect Of Surgical Wait Time On Patients With Degenerative Lumbar Spondylolisthesis
- Patient reported outcomes following spinal surgery by diagnosis
- Spine Surgery a mari usque ad mare: pre-operative patient metrics across Canada
- Predictors of Blood Transfusion in Posterior Lumbar Spinal Fusion
- Cohort demographics and patient factors associated with interbody Fusion in Low Grade Lumbar Degenerative versus Isthmic Spondylolisthesis

7.2 Retrospective Studies

Retrospective studies initiated and abstracts written utilizing CSORN data in 2017:

- Determining the Extent of Clinical Practice Variation Across Canada for Single-Level Posterior Surgery for Lumbar Degenerative Spondylolisthesis
- The effect of peri-operative adverse events on long-term patient reported outcomes after lumbar spine surgery
- Surgical Satisfaction and Clinical Outcomes in Degenerative Spondylolisthesis
Spinopelvic parameters and sagittal balance does not correlate with baseline pain, function, or general health in degenerative lumbar spondylolisthesis

Does Back Pain Improve in Surgically Treated Degenerative Lumbar Spondylolisthesis: What can we tell our patients?

Beneficial Effects of Regular Exercise Prior to Thoracolumbar Spinal Surgery

Improving post-operative patient reported benefits and satisfaction following spinal fusion with a single pre-operative education session

Prediction Rule for Determining Discharge Destination Post Posterior Thoracolumbar Spinal Fusion Procedures Using CSORN

Pre-operative psychological factors significantly add to the predictability of chronic narcotic use: A 2 year Prospective Study

Lumbar surgery in octogenarians. Really?

Patients' expectation fulfillment and satisfaction with spine surgery

Predictive Model for Return to Work After Lumbar Spine Surgery in Canada

Effect of surgical decompression on back pain in lumbar spinal stenosis: a CSORN study

Effect of the Duration of Symptoms on Surgical Outcomes in Lumbar Stenosis and Disc Herniation: a CSORN study

Resolution and factors associated with low back pain after lumbar discectomy: a CSORN study

Patient expectations in spine surgery: a national Canadian perspective

Clinical Outcomes Research in Lumbar Spine Surgery: Are 2 year follow-ups necessary?

Opioid Use in Elective Spine Surgery: Predictors of Preoperative Use and Provincial Variations Across Canada

Influence of preoperative opioid use on self-reported pain and disability one year after elective spine surgery

Epidemiology and Outcomes of Neck Pain Following Surgery for Cervical Radiculopathy

Narcotic Use Trends in Elective Thoracolumbar Spinal Surgery Patients

Treatment of Mild Cervical Myelopathy: What factors are associated with the decision for surgical intervention?
Consultation and Surgical Waits Time in Patients with Cervical Spondylotic Myelopathy: A Prospective CSORN Study

Comparing the Effect of Arthroplasty versus Fusion Surgery on Overall Health Status in Patients with Degenerative Disc Disease

Arthroplasty versus Fusion Surgery Following Anterior Decompression - The Canadian Experience

7.3 Prospective Studies

Prospective studies ongoing 2017:

Surgical treatment of degenerative spondylolisthesis: a standardized clinical assessment and management plan - Canadian Spine Society multicenter prospective cohort study (280 patients enrolled)

Management and outcome of cervical spondylotic myelopathy: a standardized clinical assessment and management plan (430 patients enrolled)

Decompression alone vs. decompression and instrumented fusion for the management of lumbar spinal stenosis associated with stable degenerative spondylolisthesis: a pragmatic randomized clinical pilot trial (32 patients enrolled)

8 Conclusion

The Canadian Spine Outcomes and Research Network (CSORN) now contains more than 10400 patients with over 2300 added in 2017; 45% have proceeded to spine surgery. The Network contains a wide variety of spine diagnoses and surgical procedures and reflects a predominantly chronic cohort of patients. From baseline to follow up, disability and pain ratings have decreased while quality of life measures have increased. Patient satisfaction with spine surgery is high. Research activities utilizing CSORN data were abundant in 2017.
The Canadian Spine Society is a collaborative organization of spine surgeons and health care professionals with a primary interest in advancing excellence in spine patient care, research and education.

The Canadian Spine Research & Education Fund (CSREF) has accepted the essential role of funding the Canadian Spine Outcomes and Research Network (CSORN). To honour this commitment we require help from those most intimately involved with the provision of spinal treatment. Please plan to make a personal annual donation and consider canvassing your patients and colleagues to join your charitable efforts. Promotional materials (2018 CSREF Calendars, patient solicitation letters, brochures, etc) are available through the CSREF office; contact us today!

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Go to the CSS website at [www.spinecanada.ca](http://www.spinecanada.ca)
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**THANK YOU** to all those who have donated to the CSREF – your support is greatly appreciated & helped to make a real difference in 2017!