

# Reoperation Rates and Impact on Outcome in a Large Prospective Multicenter Adult Spinal Deformity Database

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## Methods

Retrospective review of a prospective, multicenter ASD database

### Inclusion criteria:

- Age greater than 18
- Minimum of a 1 year follow up

### Data collected:

- Age and gender
- Date of surgery
- Complications
- Reoperation dates and reasons
- Smoking history
- HRQOL scores
  - Oswestry Disability Index (ODI) and Scoliosis Research Society-22 (SRS-22)
  - Charlson Comorbidity Index (CCI), and American Society of Anesthesiologists (ASA) scores

## Introduction

Management of adult spinal deformity (ASD) poses great challenges to the surgeon and is associated with relatively high rates of complications and need for reoperation. From a global standpoint, there are few reports regarding complications and the need for secondary surgical intervention.

Reoperation within 30 days and 1yr may be important quality metrics to set acceptable occurrence standards of these events. Analysis of reoperation rates, time course, reasons, and impact on clinical outcomes may identify areas for care improvement and allow for more informative discussions with patients.

*Reoperation Indications	(n=)
Instrumentation malposition/fracture	16
Proximal junctional failure	9
Neurological compromise	6
Pseudarthrosis	4
Coronal imbalance	3
Infection	3
Distal junctional failure	2
Adjacent segment degeneration	1
Hematoma	1

\*Reoperation included any event in which the patient was returned to the OR as a result of their original surgery.

## Results

### 316 total patients

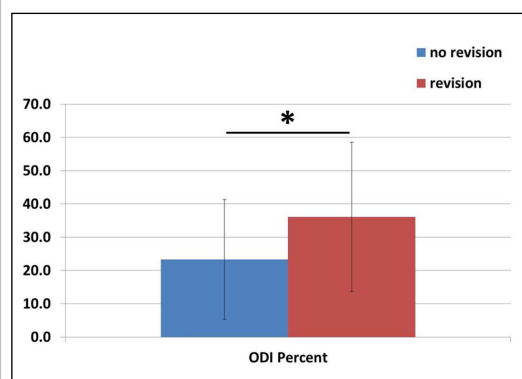
- October 2010 - January 2012
- 205 patients with minimum 1yr followup

**45/205 (22%) required reoperation at any time during followup (11 after 1yr followup)**

**34 (17%) required reoperation 1yr post initial surgery**

- 14 (7%) 30 days post initial surgery
- 3 had a second reoperation
- 2 within 1 month post first reoperation

**1 within 15 months post first reoperation**



## Results cont'd

### Age

-Reoperation patients within 1yr were older

- 63±11yrs, n=34

-Patients that required reoperation after 1yr

- 48±18, n=11, p=0.0059

-Patients not requiring any reoperation

- 57±15, n=160, p=0.0206

-Patients who had reoperation after 1yr compared to the patients who did not require any reoperation

48±18, n=11 versus 57±15, n=160, p=0.0786

### ODI at 2yrs

-Reoperation within 1yr group

- 9±23, n=9

-No reoperation within 1yr group

- 24±19, n=68

-This was not significant

- p=0.2749

### SRS-22 at 2yrs

-Reoperation in 1yr group

- 4.0±0.6

-Non-reoperation patients score

- 3.78±0.8

-Not statistically significant

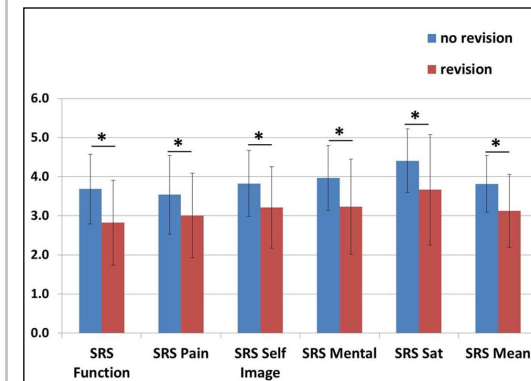
- p=0.4845

-There were no statistically significant differences between the two groups for any of the SRS subscores at 2yrs (p>0.05).

### Smoking history, CCI, and ASA

-There were no significant differences between reoperation and non-reoperation patients

1yr results (205/316pts)	ODI Percent	SRS Function	SRS Pain	SRS Self Image	SRS Mental	SRS Sat	SRS Mean
No reoperation	23.3 ± 18.0	3.7 ± 0.9	3.5 ± 1.0	3.8 ± 0.8	4.0 ± 0.8	4.4 ± 0.8	3.8 ± 0.7
Reoperation	36.1 ± 22.4	2.8 ± 1.1	3.0 ± 1.1	3.2 ± 1.0	3.2 ± 1.2	3.7 ± 1.4	3.1 ± 0.9
p value	0.0171	0.0012	0.0339	0.0178	0.0097	0.0164	0.0026



## Conclusions

\*Age may have an effect on the reoperation rate and may be a preop indicator for future reoperations within 1yr.

\*Patients having reoperation within 1yr had significantly worse outcomes in all areas of HRQOLs but the scores normalized at 2yrs.

\*The most common indications for reoperation (instrumentation complications and radiographic failure) reinforce the importance of preoperative planning, intraoperative imaging and surgical technique.

## Learning Objectives

By the conclusion of this presentation, participants should: 1) appreciate that older patients may be more likely to have a reoperation within 1yr, 2) identify major complications requiring reoperation within 1yr from a large adult spinal deformity patient population, and 3) understand that reoperation within 1yr may adversely affect HRQOL at 1yr.