Assessing the Impact of the 2022 CDC Opioid Prescribing Guideline on Inpatient Opioid Use and Patient-Reported Outcomes Following Elective Lumbar Spinal Fusion

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INTRODUCTION

- Opioid use is a major public health concern in the U.S. contributing to about 76% of deaths from overdose.
- Investigating opioid prescribing practices in the orthopaedic surgery population is critical to mitigating the risk of patient opioid dependence.
- The CDC implemented opioid prescription guideline changes in 2016 and 2022.

OBJECTIVE

To investigate changes in opioid dispensing patterns and patient reported outcomes for spinal fusion surgery after the 2022 CDC opioid guideline updates.

METHODS & STATISTICAL ANALYSIS

Design: Retrospective chart review (2015–2023), n= 2,200.

Inclusion Criteria: patients undergoing elective spinal fusion surgery, ages 18-25, March 15 2017 - Dec 31 2023, 1-2 Level primary lumbar interbody fusions for degenerative pathology.

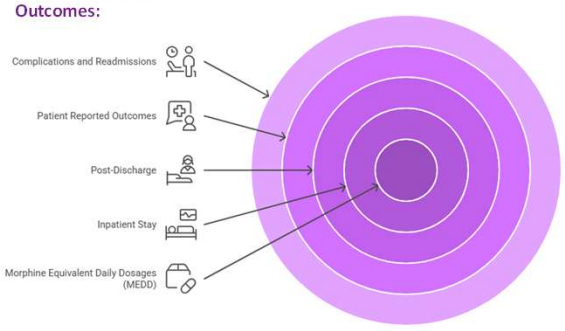
Exclusion Criteria: revision procedures, extension procedures, oncologic, infectious, or trauma procedures.

Case Matching: 1,403 cases met the inclusion criteria. Cases were grouped by guideline change exposure. Prior to case matching, there were: 1,177 Pre cases and 226 Post cases.
After case matching: 442 Pre cases and 170 Post cases (1:2.6 case match ratio)

Analysis: Binary logistic Linear Regression
Controlled for:

- Age
- Sex
- BMI
- CCI status
- Pedicle screw fixation
- Number of spinal levels fused
- Surgical approach

Outcomes:



RESULTS

		Total Cohort (n=612)	Pre-Guideline (n=442)	Post-Guideline (n=170)	Sig. (p)
Age		60.0±12.0	59.0±12.0	60.0±12.0	0.767
BMI (kg/m²)		29.7±5.1	29.7±5.2	29.9±5.1	0.621
Charlson Comorbidity Index		2.0±1.0	2.0±1.0	2.0±1.0	0.285
Sex	Male	273 (44.6)	198 (44.8)	75 (44.1)	0.88
	Female	339 (55.4)	244 (55.2)	95 (55.9)	
Smoking Status	Non-Smoker	508 (83.0)	360 (81.4)	148 (87.1)	0.098
	Active Smoker	104 (17.0)	82 (18.6)	22 (12.9)	
Primary Diagnosis	Intervertebral Disc Degeneration	212 (34.6)	147 (33.3)	65 (38.2)	
	Spinal Stenosis	286 (46.7)	213 (48.2)	73 (42.9)	
	Spondylolisthesis	114 (18.6)	82 (18.6)	32 (18.8)	0.448
Spine Levels Fused	1	456 (74.5)	334 (75.6)	122 (71.8)	0.334
	2	156 (25.5)	108 (24.4)	48 (28.2)	
Surgical Approach	Posterior	253 (41.3)	187 (42.3)	66 (38.8)	
	Anterior	322 (52.6)	231 (52.3)	91 (53.5)	
	Direct Lateral	37 (6.0)	24 (5.4)	13 (7.6)	0.497
Use of Pedicle Screw Fixation		521 (85.1)	377 (85.3)	144 (84.7)	0.885
Operative Duration (minutes)		199.34±82.58	190.42±80.69	222.52±83.17	<0.001

Table 1: Demographics and Procedural Characteristics Pre- and Post-Guideline Change

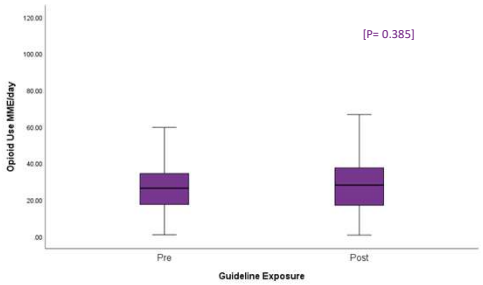


Figure 1: Box Plot of MEDD by Guideline Exposure

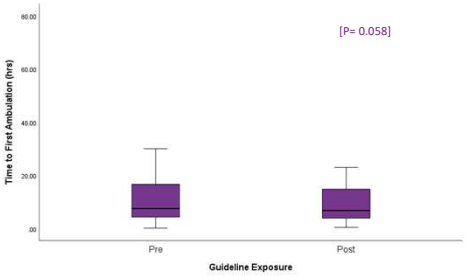


Figure 2: Box Plot of Time to Ambulation by Guideline Exposure

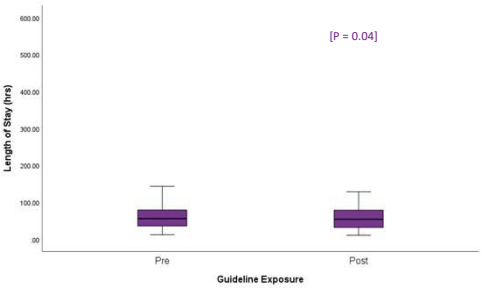


Figure 3: Box Plot of Length of Stay by Guideline Exposure

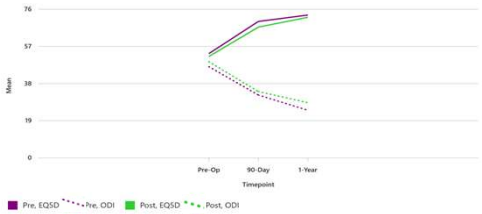


Figure 4: Patient Reported Outcomes (EQD5, ODI) overtime

CONCLUSIONS

- The opioid guideline update was only associated with a significant difference in time to first ambulation and length of hospital stay.
- It did not relate to a statistically significant difference in opioid use between the pre- and post-guideline groups.
- Notably, operative time was associated with significant differences in various patient reported outcomes.
- Overall, patients reported a better state of health and lower disability regardless of their guideline exposure

FUTURE DIRECTIONS

Future directions will involve:

- More data from the post-guideline period to achieve a more normalized distribution for analysis.
- Patient maximum pain scores to assess changes in patient comfort after the guideline update.

REFERENCES