ODI <25 Denotes Patient Acceptable Symptom State Following Minimally Invasive Lumbar Spine Surgery

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DISCLOSURES

- Pratyush Shahi: none
- Daniel Shinn: none
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INTRODUCTION

- Minimal clinically important difference (MCID), although widely being used, has drawbacks
  - Dependence on preoperative baseline as it is a change score
  - Lack of consistency in the MCID threshold values described in the literature
- Patient acceptable symptom state (PASS) is denoted by an absolute postoperative PROM score, rather than a change score, beyond which a patient can be expected to achieve a satisfactory symptom state
- Advantages of PASS
  - Not dependent on the preoperative baseline
  - Indicates the eventual satisfaction level of the patient
  - Ease of clinical interpretation

PURPOSE

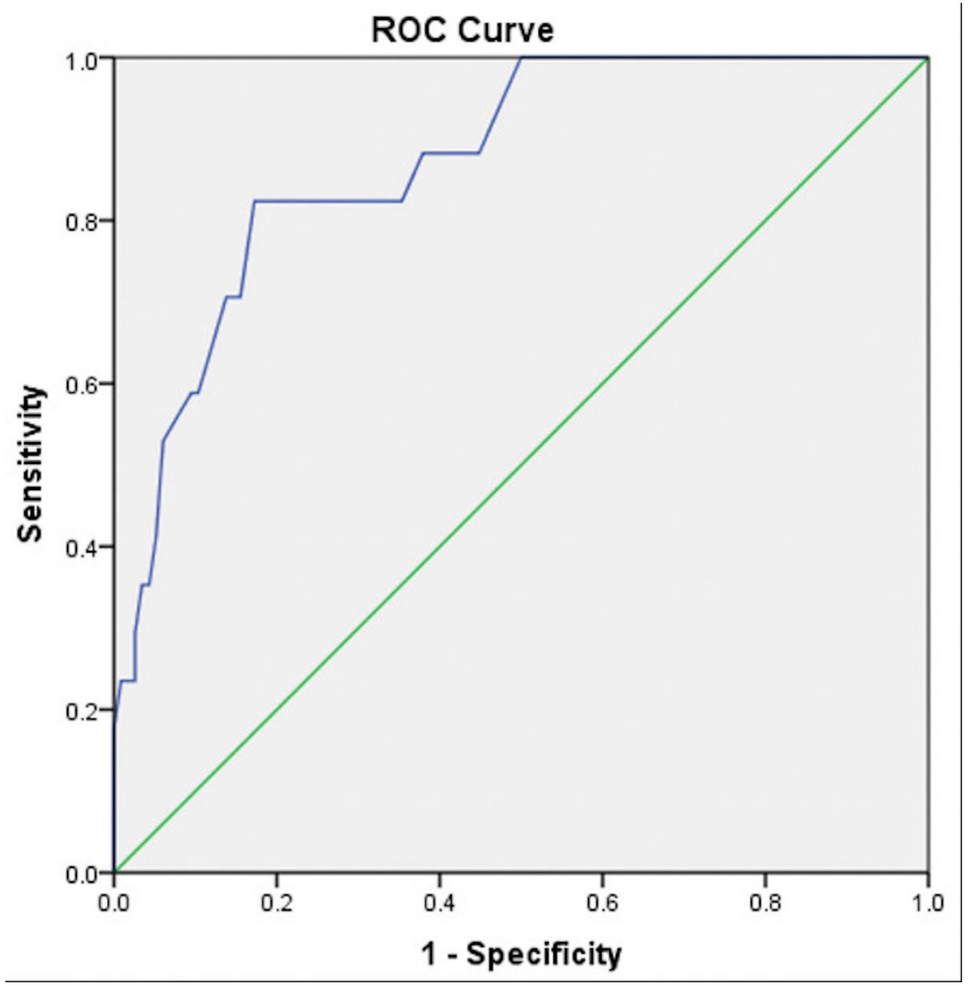
- Only two studies have been conducted assessing PASS in lumbar spine surgery, neither being done on the North American patient population
- Purpose
  - To assess PASS achievement rate and ODI cut-off value to attain an acceptable symptom state at 1 year following minimally invasive lumbar spine surgery for degenerative conditions
  - To compare PASS with the MCID metric

METHODS

- Study design: retrospective review of prospectively collected data
- Patient population: primary MI-TLIF or decompression (one or two levels)
- Outcome measure: ODI
- Anchor question: Global Rating Change (GRC): “Compared to preoperative, you feel 1) much better, 2) slightly better, 3) same, 4) slightly worse, or 5) much worse.”
- Proportion of patients achieving PASS and the ODI cut-off using receiver operator curve (ROC) analyses were assessed for the overall cohort as well as subgroups based on age, gender, type of surgery, and preoperative ODI.
- Differences between the PASS and MCID metrics were analyzed.

RESULTS

- 137 patients (average age 64 years, BMI 27.6 kg/m^2)
- 87% of patients achieved PASS at 1 year
- Patients ≤65y and those undergoing fusion were more likely to achieve PASS
- The ROC analysis revealed an ODI cut-off of 25.2 to achieve PASS (area under the curve, AUC: 0.872, sensitivity: 82%, specificity: 83%).
- The subgroup analyses based on age, gender, and preoperative ODI revealed AUCs >0.8 and ODI threshold values consistent between 25.2 and 25.5 (except 28.4 in patients with preoperative ODI >40).



RESULTS

- PASS had significantly higher sensitivity compared to MCID (82% vs. 69%, p=0.01)
- Negative predictive value (NPV) was also higher for PASS than MCID (42% vs. 29%, p=0.21).
- No significant difference in specificity and PPV between the two metrics

	Improvement on GRC (n=119)	No improvement on GRC (n=18)	Sensitivity	Specificity	PPV	NPV
PASS - Yes - No	 98 21	 3 15	82%	83%	97%	42%
MCID - Yes - No	 82 37	 3 15	69%	83%	96%	29%
p			**0.01**	1	0.82	0.21

- PASS: 1 year ODI $\leq$25.2
- MCID: preoperative ODI – 1 year ODI $\geq$12.8

CONCLUSION

- At 1 year after minimally invasive lumbar spine surgery, 87% of patients achieved PASS.
- With an AUC of 0.87, ODI showed an excellent ability to predict the patient symptom state.
- Patients with ODI <25 at 1 year after the surgery can be expected to achieve an acceptable symptom state, irrespective of age, gender, type of surgery, and preoperative disability.
- PASS was found to have a significantly higher sensitivity than MCID for improvement after surgery.