

# Surgical outcome categorisation using Global Assessment (GA)

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# Objectives

- The objective of this study were:
  - To explore the relationship of Global Assessment (GA) and minimum clinical important differences (MCIDs) for other patient reported outcome measures (PROMs)
  - To identify an appropriate surgical outcome classification based on GA for spine surgery.

# Methods

## PROMs

- Global Assessment (GA) is a PROM developed to evaluate pain relief after spine surgery.
- The GA asks patients to respond to how their pain has changed compared to pre-surgery categorised in 5 levels:
  1. Disappeared
  2. Much improved
  3. Somewhat improved
  4. Unchanged
  5. Worsened
- Since the GA does not collect pre-surgery pain status, changes are not quantifiable and it is not possible to establish MCID cut-offs.
- We estimated the changes by GA level from baseline (surgery) to 2 years post-surgery for the following PROMs:
  - Oswestry Disability Index (ODI)
  - Visual Analog Scale (VAS) for leg and back pain
  - EQ-5D

# Methods

## Register data

- The data used for the analysis was based on patients included in Swespine having lumbar spine surgery during the years 2000–2012 (N=12,269).
- Spine surgery could consist of discectomy, decompression, fusion, decompression and fusion, and other interventions (e.g. disc prosthesis).
- GA-leg and VAS-leg were used as the relevant measure for spinal stenosis and disc herniation patients.
- GA-back and VAS-back were used for spondylolisthesis and degenerative disc disease (DDD).

# Methods

## Literature review

- A literature review was conducted to identify published MCID thresholds for the ODI, EQ-5D and VAS-pain.
- These thresholds were then compared with the estimated mean changes for each GA-level to inform on an appropriate categorisation of surgical outcome (e.g. success or failure) using GA.

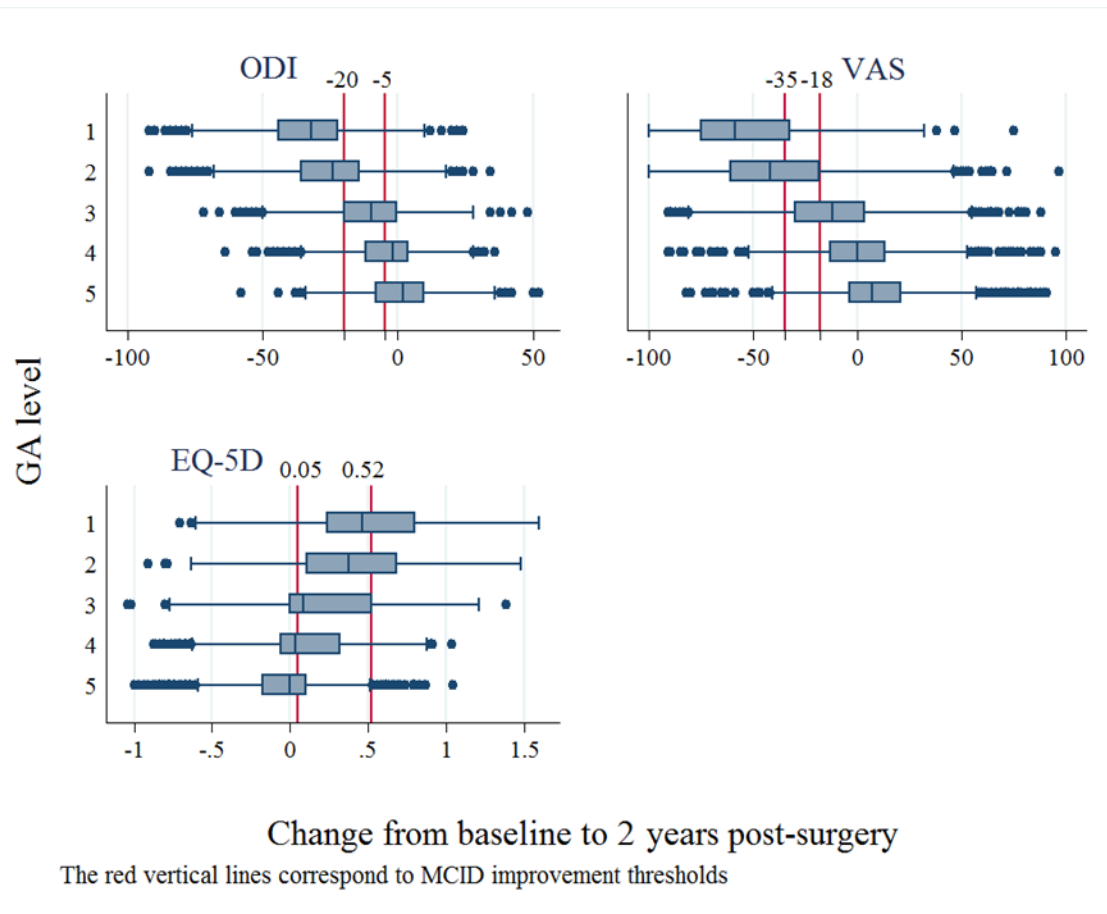
# Results

- Patients who reported GA levels 1 (pain disappeared) and 2 (pain much improved) generally exceeded the improvement thresholds for ODI (-5 to -20) and VAS (-18 to -35), whereas levels 4 (pain unchanged) and 5 (pain worsened) did not. GA level 3 outcomes were more ambiguous, with an undetermined outcome.
- Looking at EQ-5D, the range of MCID improvement thresholds is notably wide, rendering less precise results, but a similar pattern in terms of GA levels was distinguishable.
- Estimated changes by GA level and the identified MCID thresholds are presented in Figure 1
- The proportions of patients who had successful, undetermined and failed outcomes based on GA are presented in Table 1.

**Table 1. Proportion of patients with successful/undetermined/failed outcome by diagnosis group two years post spine surgery**

	Spinal stenosis (n=5,197)	Disc herniation (n=3,132)	Spondylolisthesis (n=1,187)	DDD (n=2,753)
Successful outcome (GA 1 and 2)	57%	76%	65%	73%
Undetermined outcome (GA 3)	19%	13%	18%	16%
Failed outcome (GA 4 and 5)	24%	11%	17%	11%

Figure 1. Change in ODI, VAS & EQ-5D by GA level from baseline to 2 years post surgery



# Conclusion

- Categorising patients reporting GA levels 1 and 2 as having a successful outcome of surgery (meaningful clinical improvement) seems to be consistent with reported changes in other PROMs.
- Those reporting level 3 are less clear and could be categorised as having undetermined outcome and levels 4 and 5 as failed outcome.

Successful  
outcome

- GA 1
- GA 2

Undetermined  
outcome

- GA 3

Failed outcome

- GA 4
- GA 5



# Disclosure

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