



Integrating Shared Decision-Making and Patient-Reported Outcome Monitoring into Lumbar Decompression Care: A Patient-Centred Framework

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Abstract- For patients with lumbar nerve root compression and radiculopathy, the choice between decompression and continued conservative care is preference-sensitive: both are reasonable, and the better option depends on how a patient weighs speed of relief against surgical risk. Yet decisions are often recorded only as consent, and outcomes after surgery are seldom measured in a way that patients recognise. This paper proposes a patient-centred framework that links a structured shared decision-making step, based on the three-talk model, with routine monitoring of patient-reported outcomes. The decision step records the options discussed, the patient's goals in their own words and the decision reached. Outcomes are measured with the Oswestry Disability Index, pain ratings, walking capacity, the EQ-5D-5L and goal attainment at baseline, 6 weeks and 3, 6 and 12 months. Responders are defined as improving by at least 10 points or 30% on the Oswestry Disability Index; the 30% criterion is the stricter of the two for patients whose baseline score exceeds about 33. The framework is a design contribution derived from a doctoral thesis and reports no patient data.

Keywords- Shared decision-making, patient-reported outcomes, Oswestry Disability Index, minimal important change, lumbar decompression, radiculopathy, patient-centred care



I. INTRODUCTION

Decompression surgery for lumbar stenosis or disc herniation can relieve leg pain and improve function more quickly than non-operative care in selected patients [1], [2]. However, many patients improve without surgery, and for sciatica the outcomes of early surgery and prolonged conservative care were similar after one year [2]. The decision therefore depends on the individual: one patient may value rapid relief to return to work, while another may prefer to avoid operative risk. Clinical reviews describe the choice as one to be made with the patient [3].

Two gaps follow. First, the reasoning behind a decision is rarely documented beyond a consent form. Second, outcomes are often judged by the surgeon rather than measured with validated patient-reported instruments. This paper contributes: (1) a shared decision-making step adapted from the three-talk model and placed within a decompression pathway; (2) a patient-reported outcome set and schedule; and (3) explicit responder definitions that link the outcome back to the goals recorded at the decision.

Background

Shared Decision-Making

Shared decision-making is a process in which clinician and patient consider the options, the evidence and the patient's values together. Elwyn *et al.* described a three-step model of choice talk, option talk and decision talk [4], later revised as team talk, option talk and decision talk to emphasise partnership and the exploration of goals [5]. A Cochrane review of decision aids found that they improve patients' knowledge and the accuracy of their risk perceptions and reduce decisional conflict [6].

Patient-Reported Outcomes in Spine Care

The Oswestry Disability Index (ODI) scores disability from 0 to 100 and is the most widely used condition-specific measure in lumbar spine care [7]. An international consensus proposed that an improvement of about 10 points, or 30% from baseline, represents a minimal important change [8]. Studies of surgical patients have found thresholds of a similar order, though they vary with the calculation method [9]. The EQ-5D-5L provides a generic measure of health-related quality of life that allows comparison across conditions [10].



II. PROPOSED FRAMEWORK

1. The Decision Step

The decision step takes place after the patient has passed the clinical safety and imaging-concordance checks and has completed an adequate trial of conservative care. Fig. 1 shows its five parts. In team talk, the clinician states that there is a choice and that it will be made together. In option talk, decompression and continued conservative care are described with their likely benefits, time course and risks; a decision aid can support this step [6]. In goal talk, the patient's priorities—leg pain, walking distance, work, recovery time and tolerance of risk—are recorded in the patient's own words. In decision talk, the patient chooses to proceed, defer or decline, and the reasons are documented. Follow-up then measures whether the goals were met.



Fig. 1. Shared decision step adapted from the three-talk model, with an explicit goal-exploration stage and a follow-up stage that reviews whether the recorded goals were achieved.

A patient who defers or declines surgery is not discharged. They continue non-operative care with the same outcome schedule and may return to the decision step if symptoms persist. Following both groups allows the service to describe the outcome of the whole pathway, not only of surgery.

2. Documentation

Table I lists the minimum record for each decision. The record serves two purposes: it shows that the choice was informed, and it supplies the goals against which outcomes are later judged.



Table 1: Minimum Documentation of the Shared Decision

Item	Content recorded
Options discussed	Decompression; continued conservative care; other options where relevant
Benefits and risks	Expected benefit and time course; main surgical risks; likely course without surgery
Patient goals	Up to three goals in the patient's own words, e.g. "walk to the market without stopping"
Decision aid	Whether used, and which
Decision	Proceed, defer or decline; date; planned review

3. Outcome Set and Schedule

Table II defines the outcome set. The ODI is the primary measure of disability [7]. Leg and back pain are rated separately on 0–10 numeric scales, because leg pain is the main target of decompression. Walking capacity is recorded because it is the main limitation in neurogenic claudication. The EQ-5D-5L measures overall health [10], and goal attainment asks whether each recorded goal has been achieved.

The schedule is chosen to capture the expected course of recovery. The 6-week assessment detects early complications and early relief of leg pain; the 3-month assessment captures most of the recovery after decompression; and the 6- and 12-month assessments show whether benefit is sustained. The same schedule applies to patients who choose conservative care, so that results can be compared between pathways. Clinician-recorded complications and reoperations complete the set, because patient-reported measures alone do not capture all harms.

Table 2: Patient-Reported Outcome Set and Schedule

Domain	Instrument	Time points
Disability	Oswestry Disability Index (0–100)	Baseline, 6 wk, 3, 6, 12 mo
Pain	Numeric rating scale, leg and back (0–10)	Baseline, 6 wk, 3, 6, 12 mo
Walking capacity	Self-reported walking distance or timed walk	Baseline, 6 wk, 3, 6, 12 mo
Quality of life	EQ-5D-5L	Baseline, 3, 6, 12 mo
Goal attainment	Each recorded goal: achieved, partly, not achieved	3, 6, 12 mo
Satisfaction	Global satisfaction with treatment	6 wk, 3, 6, 12 mo
Complications	Clinician-recorded adverse events and reoperation	Throughout to 12 mo



4. Responder Definition

A patient is classed as a responder when the ODI improves by at least 10 points or by at least 30% of the baseline score [8]. Fig. 2(a) shows how the two criteria compare. They are equal at a baseline of about 33; below that, the 30% criterion requires less than 10 points, and above it, the 30% criterion is stricter. For a patient starting at 60, for example, 10 points is an improvement of only 17%, whereas 30% requires 18 points. Reporting both criteria avoids overstating benefit in patients with severe baseline disability. Fig. 2(b) shows the ODI disability bands described by Fairbank and Pynsent [7], which help patients interpret their scores.

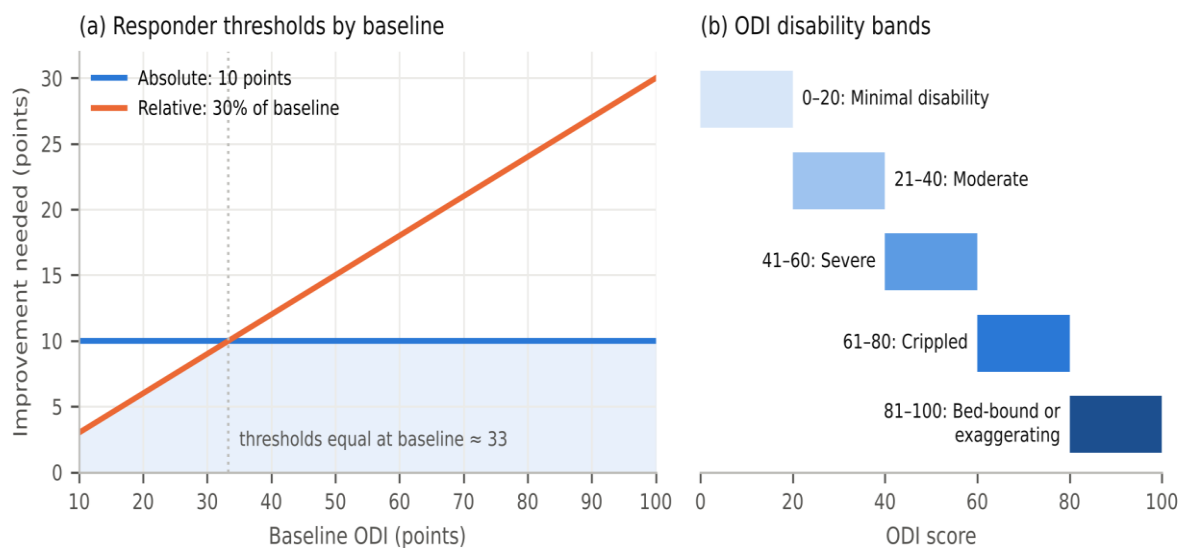


Fig. 2. (a) Improvement in ODI needed to meet the absolute (10-point) and relative (30%) responder criteria, by baseline score; the shaded region lies below the lower of the two. (b) ODI disability bands used to interpret scores.

Goal attainment is reported alongside the ODI. A patient whose disability score improves but whose main goal is not met is counted separately, because this pattern signals a mismatch between the decision and the outcome that matters to the patient.



III. DISCUSSION

The framework connects the start and the end of care. Goals recorded at the decision become the yardstick for follow-up, and outcomes measured with validated instruments replace informal impressions. This makes it possible to audit whether patients who chose surgery achieved what they hoped for, and whether those who declined were disadvantaged. Audit results can be acted on through plan–do–study–act cycles, provided these follow the method’s key features, such as iterative testing and explicit prediction [11].

Implementation requires clinician time for the decision step and administrative effort to collect outcomes. Electronic questionnaires sent automatically at each time point reduce this burden, and completion rates should themselves be monitored. The framework has limitations. Responder thresholds derived from groups may not suit every individual, and goal attainment is a simple measure that has not been formally validated in this setting. The framework itself has not yet been tested in practice.

IV. CONCLUSION

Because the choice between decompression and conservative care for lumbar radiculopathy depends on patient preferences, the decision should be shared and its outcomes should be measured in terms patients recognise. This paper proposed a framework that combines a three-talk decision step, a patient-reported outcome set measured over 12 months and responder definitions linked to the goals recorded at the decision. Future work will pilot the framework, measure completion and goal attainment, and examine whether shared decisions are associated with greater satisfaction and less decisional regret.

REFERENCES

1. J. N. Weinstein *et al.*, “Surgical versus nonsurgical therapy for lumbar spinal stenosis,” *N. Engl. J. Med.*, vol. 358, no. 8, pp. 794–810, 2008, doi: 10.1056/NEJMoa0707136.
2. W. C. Peul *et al.*, “Surgery versus prolonged conservative treatment for sciatica,” *N. Engl. J. Med.*, vol. 356, no. 22, pp. 2245–2256, 2007, doi: 10.1056/NEJMoa064039.



3. J. Lurie and C. Tomkins-Lane, "Management of lumbar spinal stenosis," *BMJ*, vol. 352, Art. no. h6234, 2016, doi: 10.1136/bmj.h6234.
4. G. Elwyn *et al.*, "Shared decision making: A model for clinical practice," *J. Gen. Intern. Med.*, vol. 27, no. 10, pp. 1361–1367, 2012, doi: 10.1007/s11606-012-2077-6.
5. G. Elwyn *et al.*, "A three-talk model for shared decision making: Multistage consultation process," *BMJ*, vol. 359, Art. no. j4891, 2017, doi: 10.1136/bmj.j4891.
6. D. Stacey *et al.*, "Decision aids for people facing health treatment or screening decisions," *Cochrane Database Syst. Rev.*, no. 4, Art. no. CD001431, 2017, doi: 10.1002/14651858.CD001431.pub5.
7. J. C. T. Fairbank and P. B. Pynsent, "The Oswestry Disability Index," *Spine*, vol. 25, no. 22, pp. 2940–2953, 2000, doi: 10.1097/00007632-200011150-00017.
8. R. W. J. G. Ostelo *et al.*, "Interpreting change scores for pain and functional status in low back pain: Towards international consensus regarding minimal important change," *Spine*, vol. 33, no. 1, pp. 90–94, 2008, doi: 10.1097/BRS.0b013e31815e3a10.
9. A. G. Copay, S. D. Glassman, B. R. Subach, S. Berven, T. C. Schuler, and L. Y. Carreon, "Minimum clinically important difference in lumbar spine surgery patients: A choice of methods using the Oswestry Disability Index, Medical Outcomes Study questionnaire Short Form 36, and pain scales," *Spine J.*, vol. 8, no. 6, pp. 968–974, 2008, doi: 10.1016/j.spinee.2007.11.006.
10. M. Herdman *et al.*, "Development and preliminary testing of the new five-level version of EQ-5D (EQ-5D-5L)," *Qual. Life Res.*, vol. 20, no. 10, pp. 1727–1736, 2011, doi: 10.1007/s11136-011-9903-x.
11. M. J. Taylor, C. McNicholas, C. Nicolay, A. Darzi, D. Bell, and J. E. Reed, "Systematic review of the application of the plan–do–study–act method to improve quality in healthcare," *BMJ Qual. Saf.*, vol. 23, no. 4, pp. 290–298, 2014, doi: 10.1136/bmjqs-2013-001862.