

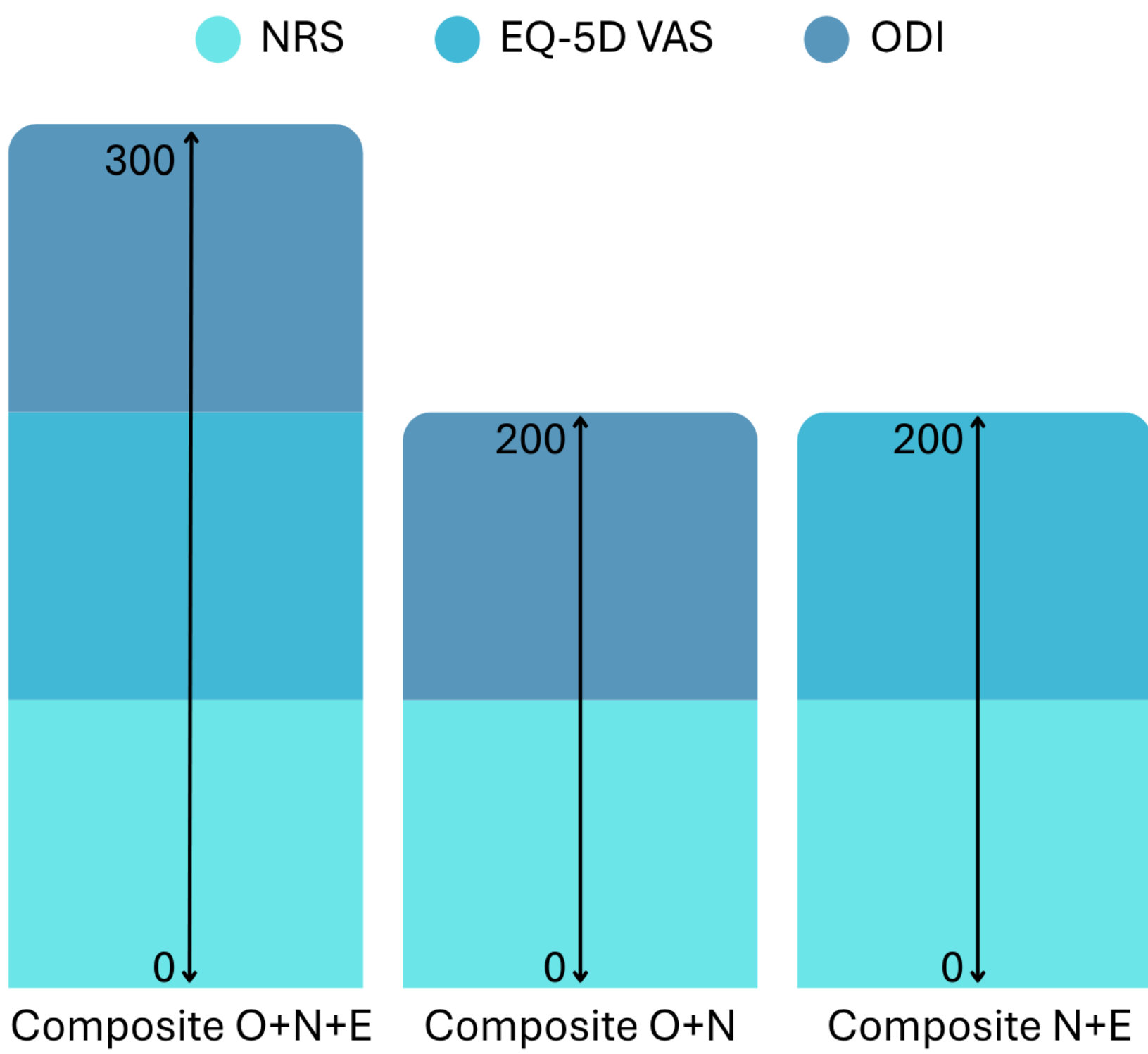
Introduction

- Spinal cord stimulation (SCS)** is a validated intervention for refractory chronic pain.
- Pain outcomes are often assessed using unidimensional tools like the Numerical Rating Scale (NRS), which may not fully reflect pain’s complexity.
- Composite outcomes** that incorporate multiple health domains may offer a **more holistic assessment** of treatment response.
- This study aims to evaluate the effectiveness of **three different composite outcome measures** in distinguishing SCS responders (PGIC score of 6,7) from non-responders (PGIC score 1-5) at 1-year post-implant.

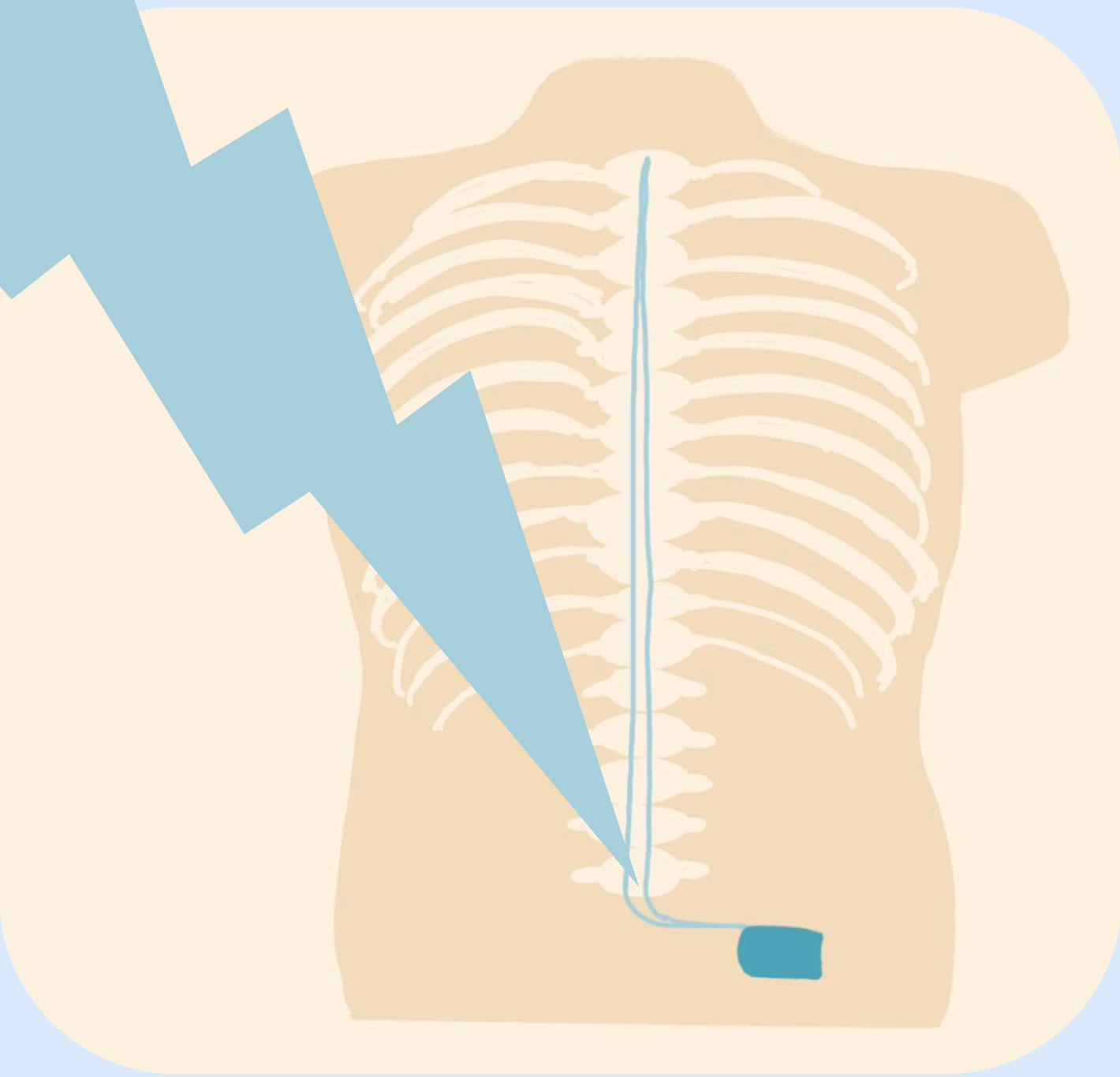
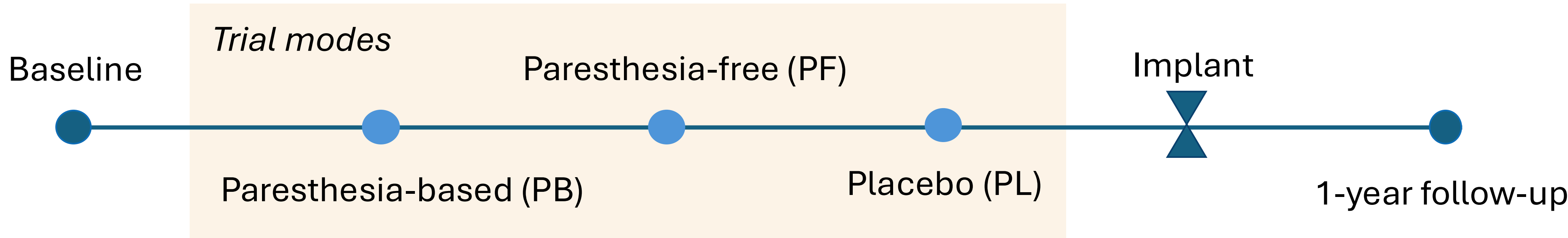
Methods

Table 1. Baseline Characteristics

	Responders (n=71)	Non-responders (n=81)	Analysis (T-test/χ ²)
Age (years)	53±13	53±12	P > 0.1
Gender (F:M)	39:32	41:40	P > 0.1
NRS (0-10)	7±1	7±2	P = 0.025
ODI	47±15	49±18	P > 0.1
EQ-5D VAS	48±22	44±23	P > 0.1
OMEQ	53±13	53±12	P > 0.1
GAD	4±1	4±1	P > 0.1
PHQ9	2±1	3±1	P > 0.1
PCS	2±0.4	2±0.4	P > 0.1
NPSI	11±5	13±5	P > 0.1
PSQI	2±1	2±1	P > 0.1
BPI	44±11	49±10	P > 0.1
DN4			P > 0.1
<4	11 (15%)	11 (14%)	
≥4	59 (83%)	68 (84%)	



- Approach 1:** Absolute Composite Scores (ONE, ON, NE)
- Each component of the three composite scores were normalized to a 0–100 scale, from 0 (best) to 100 (worst).
 - EQ-5D VAS scores were **inverted** so that lower values similarly reflected better outcomes.
- Approach 2:** Relative Change Thresholds for Clinical Improvement:
- Pain: ≥30% or ≥50% change in NRS
 - QoL: ≥7.5-point change in EQ-5D VAS
 - Disability: ≥10-point change in ODI



Results

- All three absolute composite scores (PB, PL, PF) demonstrated **significant differences** between responders and non-responders during the trial phases (PB, PL, and PF).
- Responders** showed **significant improvement** from baseline to 1 year across **the three composite scores**.
- By 1-year post-implant, all three absolute composite scores **significantly distinguished** between responders and non-responders.
- Among the composite scores, the **NRS + EQ-5D VAS composite score** detected the **largest % change from baseline** to 1-year post-implant for responders (-60±37%).
- ≥30% NRS threshold composite had a higher **sensitivity** (52.1%) but lower **specificity** (86.4%) than ≥50% NRS threshold composite.



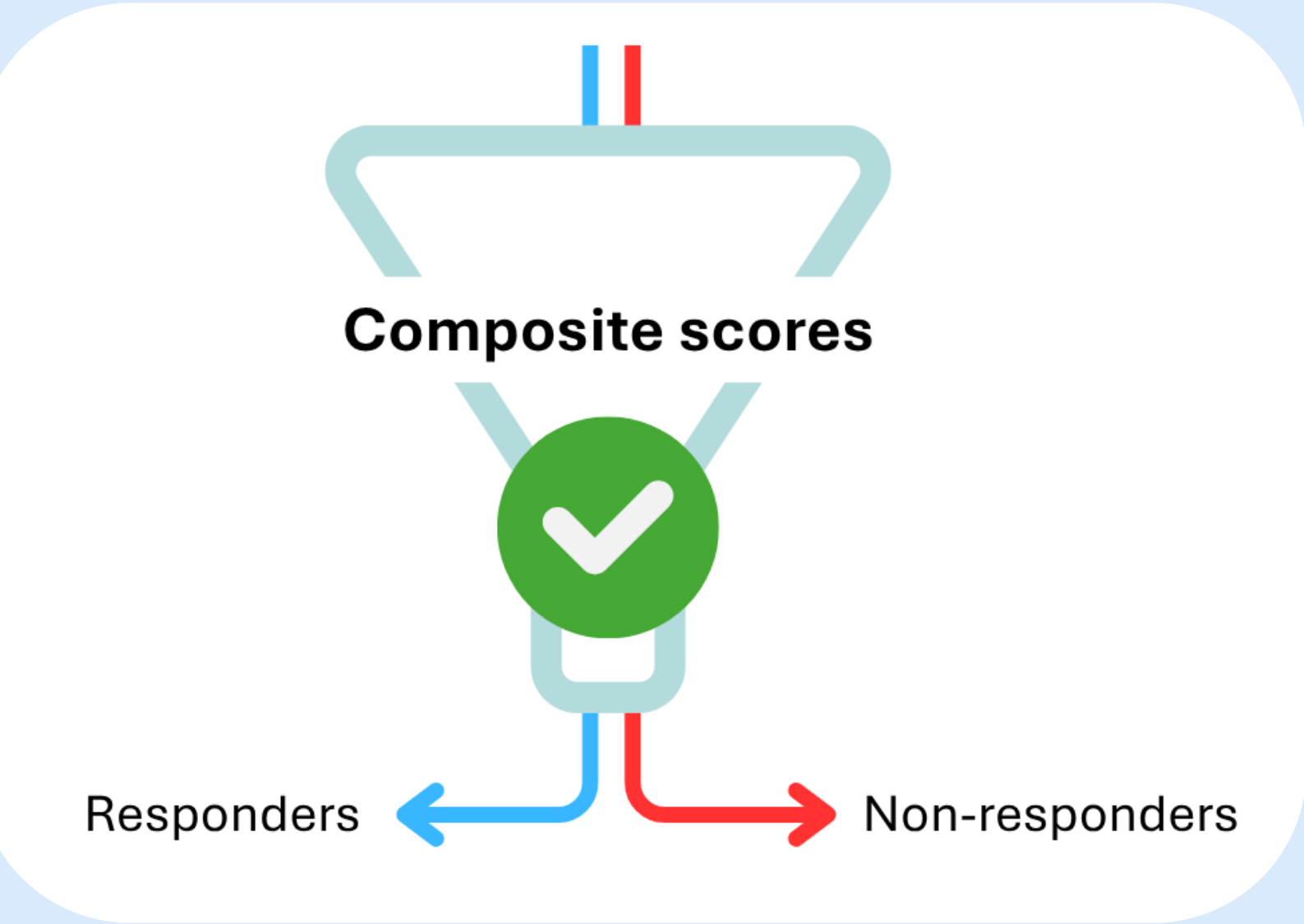
SCS trial phases

3 composite scores

- NRS + ODI + EQ-5D VAS
- NRS + ODI
- NRS + EQ-5D VAS



1-year post-implant



Discussion

- The composite outcome scores can differentiate between responders and non-responders at 1-year post-implant.
- During the trial phases, the composite scores were able to demonstrate early differentiation between responders and non-responders, suggesting the utility of our composite scores during the SCS trial period.
- ≥30% NRS threshold composite outcome** may be preferable for identifying non-responders in trial phase
- The clinical utility of a holistic response tool, such as the three composite outcome scores, should be further explored in the context of determining which patients are viable candidates for SCS implantation.

References

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