

**NINDS CDE Notice of Copyright
Meaningful Improvement**

Availability:	The measurement of meaningful improvement is part of the Health Transition Index (HTI), which is in turn part of the 36-Item Short Form Survey (SF-36). RAND Health developed the SF-36 survey, which is a publically available document: http://www.rand.org/health/surveys_tools/mos/36-item-short-form.html .
Classification:	Supplemental – Highly Recommended: Chiari I Malformation (CM)
Short Description of Instrument:	<p>There has been a transition to using patient-reported outcome instruments (PROi) to assess surgical effectiveness. However, none of these instruments have been validated for outcomes of adult Chiari I malformation.</p> <p>Objective: The aim of this study was to determine the relative validity and responsiveness of various PROi in measuring outcomes after surgery for Chiari I malformation.</p> <p>Methods: Fifty patients undergoing suboccipital craniotomy for adult Chiari I malformation were prospectively followed for 1 year. Baseline and 1-year patient-reported outcomes (visual analog scale for head pain and visual analog scale for neck pain, Neck Disability Index [NDI], Headache Disability Index, SF-12, Zung Self-Rating Depression Scale, and EuroQol-5D [EQ-5D]) were assessed. A level of improvement in general health after surgery was defined as meaningful improvement. Receiver-operating characteristic curves were generated to assess the validity of PROi to discriminate between meaningful improvement and not. The difference between standardized response means (SRMs) in patients reporting meaningful improvement vs. not as calculated to determine the relative responsiveness of each outcome instrument (Godil et al., 2013).</p>
Comments / Special Instructions:	<p>Results: For pain and disability, the NDI was the most accurate discriminator of meaningful effectiveness (area under the curve: 0.90) and also most responsive to postoperative improvement (standardized response means difference: 1.87). For general health and quality of life, the SF-12 PCS, EQ-5D, and Zung Self-Rating Depression Scale were all accurate discriminators; however, SF-12 Physical Component Scale (SF-12 PCS) and EQ-5D were most accurate. SF-12 PCS was also most responsive.</p> <p>Conclusion: For pain and disability, NDI is the most valid and responsive measure of improvement after surgery for Chiari I malformation. For health-related quality of life, SF-12 PCS and EQ-5D are the most valid and responsive measures. NDI with SF-12 or EQ-5D is the most valid in patients with Chiari I malformation and should be considered in cost-effectiveness studies (Godil et al., 2013).</p>
Scoring:	<p>Patients were asked whether they experienced improvement in their health condition after surgery, defined as meaningful improvement.</p> <p>Answer: Yes/No</p>

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Rationale / Justification:	Meaningful improvement was the gold standard used as a benchmark to assess patient satisfaction with surgical outcome in the Godil study. Patients with “meaningful improvement” are those that report on the Health Transition Index (HTI) that they are markedly or slightly better after surgery. Recording “meaningful improvement” will provide a standard and replicable way to compare the response rates of different surgical procedures for Chiari I malformation. Recording of “meaningful improvement” is included in the HTI and SF-36 and does not need to be repeated separately if the study includes the HTI or SF-36.
References:	Godil SS, Parker SL, Zuckerman SL, Mendenhall SK, McGirt MJ. Accurately measuring outcomes after surgery for adult Chiari I malformation: determining the most valid and responsive instruments. <i>Neurosurg.</i> 2013;72(5):820–827; discussion 827.