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Health Transition Index (HTI)**

Availability:	The Health Transition Index (HTI) is included in Table 6.9 of the 36 Item Short Form Survey (SF-36). Developed by RAND Health, the survey is a public document and available without charge from: Health Transition Index .						
Classification:	Supplemental: Chiari I Malformation (CM)						
Short Description of Instrument:	<p>Objective: To determine the effectiveness and minimum clinically important difference thresholds of suboccipital craniectomy (SOC) for the treatment of adult patients with Chiari I malformation using patient-reported outcome metrics. (Parker et al. 2013). The HTI is also used to determine the minimally clinically significant difference (MCID) to measure the critical threshold needed to achieve clinically meaningful treatment effectiveness.</p> <p>TABLE 6.9 REPORTED HEALTH TRANSITION: VERBATIM ITEM AND SCORING INFORMATION (Rand Health): Verbatim Item 2. Compared to one year ago, how would you rate your health in general now?</p> <p>Precoded and Final Values for Item 2 Response Choices</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Precoded Item Value</th> </tr> </thead> <tbody> <tr> <td>1-Much better now than one year ago</td> </tr> <tr> <td>2-Somewhat better now than one year ago</td> </tr> <tr> <td>3-About the same as one year ago</td> </tr> <tr> <td>4-Somewhat worse now than one year ago</td> </tr> <tr> <td>5-Much worse now than one year ago</td> </tr> </tbody> </table> <p>Note: Precoded item values are as shown on the appended form. The average measured change in health for respondents selecting each response choice is presented in Chapter 9.</p>	Precoded Item Value	1-Much better now than one year ago	2-Somewhat better now than one year ago	3-About the same as one year ago	4-Somewhat worse now than one year ago	5-Much worse now than one year ago
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<p>Comments / Special Instructions:</p>	<p>To date, there has been no study to comprehensively assess the effectiveness of SOC for Chiari I malformation using validated patient-reported outcome measures.</p> <p>“Fifty patients undergoing first-time SOC and C1 laminectomy for Chiari I malformation at a single institution were followed up for 1 year. Baseline and 1-year postoperative pain, disability, quality of life, patient satisfaction, and return to work were assessed. Minimum clinically important difference thresholds were calculated with 2 anchors: the Health Transition Index and North American Spine Society satisfaction questionnaire” (Parker et al., 2013).</p> <p>The severity of headaches improved in 37 patients (74%). Improvement in syrinx size was seen in 12 patients (63%) and myelopathy in 12 patients (60%). All patient-reported outcomes showed significant improvement 1 year postoperatively ($P < .05$). Of the 38 patients (76%) employed preoperatively, 29 (76%) returned to work postoperatively at a median time of 6 weeks (interquartile range, 4-12 weeks). Minimum clinically important difference thresholds after SOC for Chiari I malformation were 4.4 points for numeric rating scale for headache, 0.7 points for numeric rating scale for neck pain, 13.8 percentage points for Headache Disability Index, 14.2 percentage points for Neck Disability Index, 7.0 points for Short Form-12 Physical Component Summary, 6.1 points for Short Form-12 Mental Component Summary, 4.5 points for Zung depression, 1.7 points for modified Japanese Orthopaedic Association, and 0.34 quality-adjusted life-years for Euro-QoL-5D (Parker et al., 2013).</p>
<p>Scoring:</p>	<p>The HTI scores on a scale of 1–5.</p> <p>1-markedly better 2-slightly better 3-unchanged 4-slightly worse 5-markedly worse ... than one year ago.</p> <p>In the MCID analysis, patients answering “slightly better” or “markedly better” were classified as responders; those answering “unchanged,” “slightly worse,” or “markedly worse” were classified as nonresponders. (Parker et al., 2012).</p>

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<p>Rationale / Justification:</p>	<p>A recognized shortcoming of symptom questionnaires is that their numerical scores lack a direct, clinically significant meaning. The HTI along with the North American spine Society (NASS) Satisfaction Questionnaire used to determine a patient’s satisfaction with surgery can be used to define a MCID.</p> <p>MCID Threshold Calculation</p> <p>The MCID threshold is defined as the lower limit of the 95% confidence interval (CI) for the median change score of each other outcome metrics for the patients classified as responders based on each anchor (NASS Satisfaction Questionnaire and HTI). Additionally, the probability that scores will correctly discriminate between responders and nonresponders (accuracy) can be depicted by the area under the receiver-operating characteristic (ROC) curve. This value ranges from 0.5 (discrimination is no better than pure chance) to 1.0 (all patients are able to be correctly discriminated). An area of 0.7 to 0.8 is considered adequate; an area of 0.8 to 0.9 is considered excellent (Coplay et al., 2007).</p> <p>The HTI is a patient reported assessment of how the patient feels after surgery compared to before surgery. Treatment “responders” are considered to be patients that are markedly better or slightly better after surgery. “Non-responders” are the same, slightly worse, or markedly worse after surgery. In the Parker study (2013), 33 patients (66%) were responders and 17 (34%) were non-responders to standard treatment. The HTI can provide a standard and replicable way to compare the response rates of different surgical procedures for Chiari I malformation. The HTI is an item in the SF-36 and does not need to be assessed separately if the study includes the SF-36.</p>
<p>References:</p>	<p>Coplay AG, Subach BR, Glassman SD, Polly DW Jr, Schuler TC. Understanding the minimum clinically important difference: a review of concepts and methods. Spine J. 2007;7(5):541–546.</p> <p>Parker SL, Godil SS, Zuckerman SL, Mendenhall SK, Wells JA, Shau DN, McGirt MJ. Comprehensive assessment of 1-year outcomes and determination of minimum clinically important difference in pain, disability, and quality of life after suboccipital decompression for Chiari malformation I in adults. Neurosurg. 2013;73(4):569–581.</p> <p>Parker SL, Adogwa O, Mendenhall SK, Shau DN, Anderson WN, Cheng JS, Devin CJ, McGirt MJ. Determination of minimum clinically important difference (MCID) in pain, disability, and quality of life after revision fusion for symptomatic pseudoarthrosis. Spine J. 2012;12(12):1122–1128.</p>