

## Treatments for Herniated Disc Decision Quality Instrument User Guide

### I. Purpose:

To measure the extent to which patients are informed, involved in the decision making process and receive treatments that match their goals and preferences.

### II. Versions:

- Herniated Disc Decision Quality Instrument v2.0, ©2010 [updated 2012].
- Decision Quality Worksheet: Treatments for Herniated Disc v2.0, ©2010 [updated 2012].
- Hoja de Trabajo Sobre La Calidad de Decision en Tratamientos de Hernia de Disco v.2.0 ©2012 [Spanish version of Herniated Disc worksheet].

### III. Timing

The decision quality instrument version is designed to be administered after a decision has been made. Modifications are required (e.g. to instructions and tenses of items) if it is to be used before a decision has been made.

The shorter worksheet version is worded to be used during the decision making process. The knowledge items and goals can be administered at any time, e.g. before or after a visit, before or after a decision aid. The decision process items need to be administered after a provider consult.

### IV. Scoring:

The survey contains three sets of items and results in three scores, a total knowledge score, a concordance score and a decision process score.

**1. Knowledge Score:** The items are located in "Section 2: Facts About Herniated Disc." For each fact, a correct response receives one point (see Table 1). Questions with multiple parts (e.g. items 4, 9 and 13 in Table 1) are scaled to total 1 point per item. Missing responses receive 0 points. A total score is calculated for all patients who complete at least half of the items. Total scores are scaled from 0-100%.

**Table 1: Facts** (# indicates items in the worksheet version)

Question	Correct response
1. For most people with a herniated disc, how likely is it that doing normal activities will make their herniated disc worse?	Not very likely
#2. Over time, <u>without</u> back surgery, what usually happens to back and leg pain caused by a herniated disc?	Gets better
3. Over time, <u>with</u> surgery, what usually happens to back and leg pain caused by a herniated disc?	Gets better
4a. Can <b>exercise or staying active</b> help some people relieve the pain caused by a herniated disc?	Yes

Question	Correct response
4b. Can <b>physical therapy</b> help some people relieve the pain caused by a herniated disc?	Yes
4c. Can <b>lots of bed rest</b> help some people relieve the pain caused by a herniated disc?	No
4d. Can <b>over-the-counter pain medicine</b> help some people relieve the pain caused by a herniated disc?	Yes
4e. Can <b>cortisone shots into the back</b> help some people relieve the pain caused by a herniated disc?	Yes
#5. Which treatment is most likely to provide <u>faster</u> relief from pain caused by a herniated disc?	Surgery
6. Without surgery, about how many people with a herniated disc develop permanent weakness that results in them not being able to walk at all?	Almost None
7. For most people, when is the best time to have surgery for a herniated disc?	There is no best time to have surgery
#8. If 100 people have surgery for a herniated disc, about how many will have <u>less</u> back or leg pain 1 year after the surgery?	70
9a. Is post-operative infection a possible complication of surgery for herniated disc?	Yes
9b. Is nerve damage a possible complication of surgery for herniated disc?	Yes
9c. Is increased blood pressure a possible complication of surgery for herniated disc?	No
9d. Is a blood clot in the lung a possible complication of surgery for herniated disc?	Yes
#10. Serious complications can happen after surgery for a herniated disc including life-threatening blood clots, infections, heart attacks, and even death. If 100 people have surgery for a herniated disc, about how many will have a serious complication within <u>2 months</u> after surgery?	2
11. After herniated disc surgery, about how many months does it take most people to get back to doing their usual activities?	2 to 6 months
#12. After several years, which treatment is better at relieving pain caused by a herniated disc?	Both are about the same
13a. Are <b>stomach ulcers</b> a possible side effect of using over-the-counter medicine for a long time?	Yes
13b. Are <b>migraine headaches</b> a possible side effect of using over-the-counter medicine for a long time?	No
13c. Is a <b>blood clot in the leg</b> a possible side effect of using over-the-counter medicine for a long time?	No
13d. Is <b>excessive bleeding</b> a possible side effect of using over-the-counter medicine for a long time?	Yes
13e. Are <b>kidney problems</b> a possible side effect of using over-the-counter medicine for a long time?	Yes

**2. Concordance score:** In “Section 1: What Matters Most To You,” patients rate their goals and concerns on an 11-point importance scale from 0 (not important at all) to 10 (extremely important). These questions and one question about patient’s treatment preference can be used to calculate a concordance score. There are multiple approaches to calculate a concordance score, we describe two below. Note: for those who use the worksheet version, there must be some way to track the treatment that patients received to complete these calculations.

The first is a simple match, and in this direct approach, we use patients’ preferred treatment (assessed with a single item, ‘Which treatment did you want to do to treat your herniated disc?’) and then compare with treatment received to determine whether they match. Patients who are unsure are not considered to have treatment that matches. A summary score (0-100%) indicating the percentage of patients who received treatment that matched their stated preference can be generated.

The second approach uses patients’ ratings of the importance of salient goals and concerns on a 0 to 10 scale in a multiple logistic regression model to generate a predicted probability of surgery. The dependent variable is the treatment received and is binary: Surgery for herniated disc versus Non Surgical Options. The independent variables that remained significant in multivariable analysis were: two goals (avoid taking medicine for a long time and avoid surgery). Table 2 presents the parameter estimates for the model published in Sepucha et al 2012. Patients with a predicted probability >0.5 and who had surgery for herniated disc or those with a predicted probability ≤ 0.5 and who did not have surgery, were classified as having treatments matching their goals. A summary score (0-100%) can be generated to reflect the percentage of patients in the sample who received treatments that matched their goals.

**Table 2:** Concordance model: analysis of maximum likelihood estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-0.5347	0.6654	0.6458	0.4216
Avoid taking medicine for a long time	1	0.1760	0.0818	4.6322	0.0314
Avoid surgery	1	-0.3565	0.0730	23.8809	<.0001

**3. Decision Process Score:** These questions are located in the Decision Quality Instrument in “Section 3: Talking with your Health Care Providers” and in the Decision Quality Worksheet in “Section 3: Making Choices.” Patients are asked about whether they were offered a choice, how much the pros and cons were discussed, and whether the health care provider asked for their preferences. Participants receive 1 point for a response of “yes” or “a lot/some.” The total points are summed and then divided by the total number of items to result in scores from 0-100%, with higher scores indicated a more shared decision making process.

**V. Development Process:**

This has been described in detail in Sepucha et al (2008), briefly to generate the survey we:

- Conducted a review of the clinical evidence & of focus groups and interviews with patients to generate a candidate set of facts and goals salient to the decision
- Surveyed a convenience sample of patients (n=33) and a multidisciplinary group of clinical experts (n=21) to rate the facts and goals for importance, completeness, and accuracy.
- Drafted the instrument and then conducted cognitive interviews with patients who had a herniated disc (n=5) to evaluate items for acceptability and comprehension
- Conducted field test to evaluate the instruments

Three field tests were used to evaluate psychometric properties:

- A cross-sectional study with 182 U.S. adults who had been treated for a herniated disc who were randomly assigned to get a decision aid or not.
- A survey of 99 primary care providers and specialists in the U.S.
- A study with 158 adults with a herniated disc seen at Dartmouth Hitchcock Medical Center in New Hampshire (U.S.) who had received a decision aid.

## VI. Psychometric Properties:

These data are taken from Sepucha et al (2012).

Feasibility: The survey was feasible and had very low missing data. Note: "I am not sure" was a response category for the knowledge items in the field test. We took it out of these versions as we felt that it was better to force respondents to guess; however, removing this response may increase missing items.

Acceptability: The survey was acceptable with high response rates when administered by mail.

Reliability:

- Knowledge score short term (~4 week) retest reliability ICC=0.85 (95% CI 0.79 to 0.89), n=148
- The short term (~4 week) retest reliability for the goals were ICC > 0.72 for all except "not be limited in what you can do" (ICC=0.62)
- Decision Process score: internal consistency Cronbach alpha=0.71 and short term (~4 week) retest reliability ICC=0.71 (95% CI 0.59, 0.79)

Note: We did not calculate the internal consistency of the knowledge score because the items do not draw from a single underlying construct.

Validity

- Discriminant validity:
  - The total knowledge score discriminated between patients and providers (46% vs. 73%,  $p < 0.001$ )
  - The total knowledge score also discriminated between patients who had seen a decision aid and those who had not (55% vs. 38%,  $P < 0.001$ ).
  - The concordance model was able to discriminate among patients who stated a preference for surgery, those who were unsure and those who stated a preference for non-surgical options (model predicted probability of surgery 0.45 vs. 0.24 vs. 0.16, respectively,  $p = 0.008$  for all comparisons).

- Content validity was confirmed through the extensive feedback from patients and providers in the development process as well as in the field test.
- Predictive validity: For the retrospective sample, patients who had concordant care had less regret compared to those who did not have concordant care.

Knowledge score: Worksheet version (5 items):

Reliability: Short term (~4 week) retest reliability ICC=0.83 (95% CI 0.76 to 0.87), n=148

Validity: The short knowledge score also discriminated between patients who had seen a decision aid and those who had not, (54% vs. 27%), p <0.001.

Reproducibility: The short knowledge score had high reproducibility R=0.91 p <0.001

## VII. Appropriate Use

The DQIs are protected by copyright. They are available to use at no cost, provided that you:

- Cite the reference in any questionnaires or publications
- Do not charge for or profit from them
- Do not alter them except for customization for a specific condition and reformatting

### Suggested Citations for the DQIs:

Sepucha KR. Herniated Disc Decision Quality Instrument v.2.0. ©Massachusetts General Hospital, 2010 [updated 2012].

Sepucha KR. Decision Quality Worksheet: Treatments for Herniated Disc. v.2.0.

©Massachusetts General Hospital, 2010 [updated 2012]. Downloaded from:

[http://www.massgeneral.org/decisionsciences/research/DQ\\_Instrument\\_List.aspx](http://www.massgeneral.org/decisionsciences/research/DQ_Instrument_List.aspx).

### Suggested Citation of the User Guide:

Sepucha KR and Feibelman S. Treatments for Herniated Disc Decision Quality Instrument User Guide. © 2013. Available from: <http://www.massgeneral.org/decisionsciences/research/>

## VIII. Selected References

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**IX. Questions or comments?** Please contact us at [decisions@partners.org](mailto:decisions@partners.org) or visit our website at <http://www.massgeneral.org/decisionssciences/research/>.