

**Hip and Knee Osteoarthritis
Informed, Patient-Centered Decision Measure
User Guide**

I. Purpose:

To measure the extent to which patients are informed and receive treatments that match their goals and preferences.

II. Survey Versions:

- Decision Quality IPC Version: Treatments for Hip Osteoarthritis v2.0, ©2010 [updated 2012, 2016].
- Decision Quality IPC Version: Treatments for Knee Osteoarthritis v2.0, ©2010 [updated 2012, 2016].
- Hoja de Trabajo Sobre La Calidad de Decision en Tratamientos de Osteoartritis de Cadera v.2.0 ©2012 [updated 2016] [Spanish version of Hip].
- Hoja de Trabajo Sobre La Calidad de Decision en Tratamientos de Osteoartritis de Rodilla v.2.0 ©2012 [updated 2016] [Spanish version of Knee].

III. Timing

The decision quality instrument (DQI) is designed to be administered after a decision has been made. For the IPC measure, the DQI survey is administered up to 6 months after surgery.

IV. Scoring:

The surveys contain 5 knowledge items and one preference item and are scored as follows.

1. Knowledge Score: For each fact, a correct response receives one point (see Table 1). 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: Knowledge items and correct responses

Question	Correct response
#1. Which treatment is most likely to provide relief from hip/knee pain caused by osteoarthritis?	Surgery
# 2. After hip/knee replacement surgery, about how many months does it take <u>most</u> people to get back to doing their usual activities?	2 to 6 months
# 3. If 100 people have hip/knee replacement surgery, about how many will need to have <u>the same hip/knee replaced again</u> in less than 15[knee]/20 [hip] years?	Less than half
# 4. If 100 people have hip/knee replacement surgery, about how many will have <u>less hip/knee pain</u> after the surgery?	90 (hip); 80 (knee)
# 5. Serious complications can happen after hip/knee replacement surgery including life threatening blood clots, infections, heart attacks, and even	4

death. If 100 people have hip/knee replacement surgery, about how many will have a serious complication within <u>3 months</u> after surgery?	
---	--

Note: "I don't know" ("no estoy seguro" in Spanish version) can be added as a response to knowledge items. An "I don't know response" receives 0 points (see feasibility section for considerations with including this response option).

2. Concordance: We use patients' preferred treatment, assessed with a single item, "Which treatment did you want to do to treat your knee [hip] osteoarthritis?" with possible responses (Non surgical treatments, surgery, I am not sure). For the IPC measure, only patients who mark a preference for surgery are considered to be "matched."

V. Informed, Patient Centered Hip and Knee Replacement Surgery (NQF Measure #2958):

In 2016, NQF endorse a measure that is derived from patient responses to the Hip or Knee Decision Quality Instruments. The target population is adult patients who had a primary hip or knee replacement surgery for treatment of hip or knee osteoarthritis within the past 6 months.

- **Numerator Statement:** The numerator is the number of respondents who have an adequate knowledge score (60% or greater) and a clear preference for surgery.
- **Denominator Statement:** The denominator includes the number of respondents from the target population of adults who have undergone primary knee or hip replacement surgery for treatment of knee or hip osteoarthritis.
- **Denominator Exclusions:** Respondents who are missing 3 or more knowledge items do not get a total knowledge score and are excluded. Similarly, respondents who do not indicate a preferred treatment are excluded. No other exclusions as long as the respondent has the procedure for the designated condition.

Sampling: Patients of a particular surgeon or at a particular clinical site (which could be a group of providers or a hospital or other surgical site) who had a primary knee or hip replacement surgery are identified from medical records, claims or in some other way. Sampling should allow time for immediate recovery, while attempting to survey shortly after the procedure, for example, by sampling eligible patients 1- 6 months after the procedure. Patients can be sampled sequentially, or a pool of such patients who had the procedure in a particular time period (e.g. in the last 3 months) can be created and sampled at a rate that produces the desired number of potential respondents. A list of ICD and CPT codes to identify patients with hip and knee osteoarthritis who are undergoing a primary joint replacement are available from the measure developer (decisions@partners.org).

The measure can also be calculated from a population-based sample, such as a sample of a population in a geographic area. Eligible respondents could be identified from claims (such as Medicare claims files) or based on patient self- reports of having had the procedures within some time frame.

A sample size of about 150 would be needed to detect differences in proportions of 15% for the measure (e.g. from 25% to 40%) with 80% power. This size difference is what we have observed between sites that do and do not make an effort to do shared decision making.

Proxy respondents are not permitted. The patients who receive the procedure should answer the survey questions.

VI. 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=88) and a multidisciplinary group of clinical experts (n=51) to rate the facts and goals for importance, completeness, and accuracy.
- Drafted the instrument and then conducted cognitive interviews with patients who had knee or hip osteoarthritis (n=10) 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 382 adults with knee or hip osteoarthritis in the U.S.
- A survey of 45 primary care providers and specialists in the U.S.
- A randomized controlled trial comparing use of knee and hip osteoarthritis decision aids to control with 127 patients in Canada

Additional studies have used the measure and examined relationship to other constructs.

VII. Psychometric Properties:

These data are taken from Sepucha et al (2011).

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 the worksheet 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 and by phone, and took less than 5 minutes to complete.

Reliability:

- Knowledge score: Short term (~4 week) retest reliability ICC=0.80 (95% CI 0.69 to 0.87), n=91
- The short term (~4 week) retest reliability for the treatment preference is ICC > 0.72.

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 (Sepucha et al 2011):
 - The total knowledge score discriminated between patients and providers, mean differences of 19%, 95% CI (13%, 25%), $p < 0.001$ for knee and 15%, 95% CI (9%, 21%), $p < 0.001$ for hip
 - The total knowledge scores also discriminated between patients who had seen a decision aid and those who had not, (67% (SD 21.2%) vs. 51% (SD 24.9%), $p < 0.0001$.)
 - The treatment preference item was able to discriminate among patients with different goals. For example, 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 0.74 vs. 0.59 vs. 0.40, respectively, $p < 0.001$ 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. (Sepucha et al 2008)
- Predictive validity: Patients who made IPC decisions had higher better health outcomes (EQ-5D, KOOS and Harris Hip Scores) and less decision regret compared to those who did not have concordant care. (See Sepucha et al 2018).
- Construct validity: Patients who reported more shared decision making were more likely to have IPC decisions. (See Brodney et al 2019).

Reproducibility: The short knowledge score had high reproducibility when compared with the longer version, $R = 0.92$ $p < 0.001$

VIII. 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. Knee [or Hip] Osteoarthritis Decision Quality Instrument v.2.0. ©Massachusetts General Hospital, 2010 [updated 2012, 2016].

Sepucha KR. Decision Quality Worksheet: Treatments for Knee [or Hip] Osteoarthritis. v.2.0. ©Massachusetts General Hospital, 2010 [updated 2012, 2016]. Downloaded from: http://www.massgeneral.org/decisionciences/research/DQ_Instrument_List.aspx.

Suggested Citation of the User Guide:

Sepucha KR. Hip and Knee Osteoarthritis Decision Quality Instrument User Guide. © 2019. Available from: <https://www.mghdecisionciences.org>.

IX. Selected References

1. Brodney S, Fowler FJ Jr, Barry MJ, Chang Y, Sepucha K. Comparison of Three Measures of Shared Decision Making: SDM Process₄, CollaboRATE, and SURE Scales. *Med Decis Making*. 2019 Jun 21:272989X19855951. doi: 10.1177/0272989X19855951.
2. Sepucha KR, Atlas SJ, Chang Y, Freiberg A, Malchau H, Mangla M, Rubash H, Simmons LH, Cha T. Informed, Patient-Centered Decisions Associated with Better Health Outcomes in Orthopedics: Prospective Cohort Study. *Med Decis Making*. 2018 Nov;38(8):1018-1026. doi: 10.1177/0272989X18801308. PubMed PMID: 30403575.
3. Sepucha K, Fowler F, Mulley A. Policy Support For Patient-Centered Care: The Need For Measurable Improvements In Decision Quality. *Health Affairs*. 2004 Oct 7 [web publication].
4. Sepucha K, Levin C, Uzogara E, Barry M, O'Connor A, Mulley A. Developing instruments to measure the quality of decisions: Early results for a set of symptom-driven decisions. *Patient Education and Counseling* 2008 73:504-510.
5. Sepucha K, Stacey D, Clay C, Chang Y, Cosenza C, Dervin G, Dorrwachter J, Feibelman S, Katz JN, Kearing S, Malchau H, Taljaard M, Tomek I, Tugwell P, Levin C. Decision quality instrument for treatment of hip and knee osteoarthritis: a psychometric evaluation. *BMC Musculoskelet Disord*. 2011; 12(1):149.
6. Sepucha K, Feibelman S, Chang Y, Clay CF, Kearing S, Tomek I, Yang TS, Katz JN. Factors associated with high decision quality for treatment of hip and knee osteoarthritis. *J Am Coll Surg* 2013 Oct;217(4):694-701. doi: 10.1016/j.jamcollsurg.2013.06.002.
7. Stacey D, Hawker G, Dervin G, Tugwell P, Boland L, Pomey MP, O'Connor AM, Taljaard M. Decision aid for patients considering total knee arthroplasty with preference report for surgeons: a pilot randomized controlled trial. *BMC Musculoskelet Disord*. 2014 Feb 24;15:54. doi: 10.1186/1471-2474-15-54.

X. Questions or comments? Please contact us at decisions@partners.org or visit our website at <https://www.mghdecisionsciences.org>