



# ICHOM

International Consortium for  
Health Outcomes Measurement

## HIP & KNEE OSTEOARTHRITIS DATA COLLECTION REFERENCE GUIDE

Version 2.2.1  
Revised: April 10th, 2017



Measuring  
results  
that matter

Hip and knee  
function

Hip & Knee  
Osteoarthritis



We are thrilled that you are interested in measuring outcomes for your hip and knee osteoarthritis patients according to ICHOM standards. It is our hope that this Reference Guide will facilitate the process of implementing our Standard Set and ensure collection of comparable data for global benchmarking and learning.

# Introducing ICHOM and the Reference Guide

ICHOM brings together patient representatives, clinician leaders, and registry leaders from all over the world to develop Standard Sets, comprehensive yet parsimonious sets of outcomes and case-mix variables for specific medical conditions that we recommend all providers track.

Each Standard Set focuses on patient-centered results, and provides an internationally-agreed upon method for measuring each of these outcomes. We do this because we believe that standardized outcomes measurement will open up new possibilities to compare performance globally, allow clinicians to learn from each other, and rapidly improve the care we provide our patients.

Our Standard Sets include baseline conditions and risk factors to enable meaningful case-mix adjustment globally, ensuring that comparisons of outcomes will take into account the differences in patient populations across not just providers, but also countries and regions. We also include high-level treatment variables to allow stratification of outcomes by major treatment types. A comprehensive data dictionary, as well as scoring guides for patient-reported outcomes is included in the appendix.

## Working Group Members for Hip & Knee Osteoarthritis

The following individuals dedicated both time and expertise to develop the ICHOM Standard Set for Hip & Knee Osteoarthritis in partnership with ICHOM, under the leadership of Dr. Patricia Franklin, Professor of Orthopedics and Physical Rehabilitation at the University of Massachusetts Medical School in Worcester.

<b>Australia</b> Ilana Ackerman Lyn March Noel Smith	<b>Morocco</b> Thami Benzakour	<b>Sweden</b> Leif Dahlberg Henrik Malchau Ola Rolfson	<b>United States</b> David Ayers Thomas Barber Kevin Bozic James Caillouette Patricia Franklin John Grady-Benson Said Ibrahim Nader Nassif
<b>Canada</b> Gillian Hawker	<b>Netherlands</b> Rob Nelissen	<b>United Kingdom</b> Philip Conaghan Sally Lewis John Pearce	
<b>Indonesia</b> Nicolaas Budhiparama	<b>New Zealand</b> Jennifer Dunn		
	<b>Saudi Arabia</b> Mojieb Manzary		

# Supporting Organizations

The Hip & Knee Osteoarthritis Standard Set is made possible only through the financial support of the Hoag Orthopedic Institute, the Connecticut Joint Replacement Institute, and Harvard Pilgrim Health Care.

Thank you.



We are also grateful to Arthritis Research UK for their support of this set.



## Conditions and Treatment Approaches Covered for Hip & Knee Osteoarthritis

We developed this set with the aim of measuring the outcomes that matter most to patients with hip and knee osteoarthritis across the full care cycle – from diagnosis to joint replacement surgery. However, we recognize the significant practical constraints on doing so given the variety of care providers and settings in which patients seek care throughout the course of this condition. Therefore, the set was designed to also provide valid and beneficial outcomes data for any treatment or care settings ranging from management of osteoarthritis by a primary care physician to total joint replacement at a specialized orthopedic hospital.

For Hip & Knee Osteoarthritis, the following conditions and treatment approaches (or interventions) are covered by our Standard Set.

Conditions	All patients seeking treatment for osteoarthritis of the hip or knee, whether surgical or non-surgical
Treatment Approaches	<b>Non-Surgical:</b> Lifestyle intervention   Patient education   Physiotherapy   Walking aid or orthosis   Topical and oral medication   Intra-articular injection <b>Surgical:</b> Osteotomy   Joint replacement   Other forms of surgical treatment



# ICHOM Standard Set for Hip & Knee Osteoarthritis

## Case-Mix Variables

Patient Population	Measure	Supporting Information	Timing	Data Source
Demographic Factors				
All patients	Date of birth	N/A	Baseline	Patient-reported
	Patient sex	Sex at birth		
	Education level	Level of education completed		
Baseline Clinical Status				
All patients	Joint specific history	History or finding of trauma or injury, congenital or developmental disorders, or other joint disorders in the hips or knees	Baseline	Clinical or administrative data
	Joint specific surgical history	History of previous surgery on hips or knees		
Case-Mix Factors				
All patients	Body mass index	Height and weight	Baseline; Annually	Patient-reported or clinical data
	Living condition	Living alone, with family, or in a nursing home or other facility		
	Laterality of affected joint(s)	Indication of which joint(s) is(are) affected at baseline		Patient-reported
	History of surgery on the hip or knee	Patient reported history of previous surgery on hips or knees		
	Physical activity*	Physical activity		
	Tobacco smoking status	Use of cigarettes, cigars, or other tobacco products		
	Co-morbid conditions	Presence of: Cancer, depression, diabetes, disease of the nervous system, heart disease, hypertension, kidney disease, liver disease, lung disease, peripheral vascular disease, rheumatoid arthritis or other arthritis, spinal disease		

## Physical Activity\*

The WG is aware that physical activity strongly affects outcomes in the treatment of osteoarthritis. However, currently validated instruments for measuring physical activity were considered too cumbersome, burdensome to patients, or out dated for inclusion in this Standard Set. Therefore, ICHOM developed a single-item patient reported question for evaluating physical activity adapted from a question used successfully in the BOA registry in Sweden. As this measure has not been validated, we currently do not require its collection. However, we encourage collection as this will provide the necessary data for validation studies in the future. The measure will not be used in risk adjustment or benchmarking until it has been satisfactorily validated.

## Treatment Variables

Patient Population	Measure	Supporting Information	Timing	Data Source
All patients	Treatment progression	Indication of the treatments undergone for osteoarthritis in the past year	Baseline; Annually	Patient-reported
	Care utilization	Indication of the health care providers consulted for treatment of osteoarthritis in the past year		
Surgical patients	Date of procedure	N/A	Post-surgery	Clinical or administrative data
	Operative joint	Joint on which procedure was performed		
	Orthopedic procedure	Type of procedure		

## Outcomes

Patient Population	Measure	Supporting Information	Timing	Data Source
Patient-Reported Health Status				
All patients	Hip or knee functional status	Tracked via either the HOOS-PS or KOOS-PS	Baseline; Annually	Patient-reported
	Pain in the hips, knees, or lower back	Tracked via numeric or visual analog rating scales		
	Quality of life	Tracked via either the EQ-5D-3L, VR-12, or SF-12		
	Work status	Indication of patient's ability to work		
	Satisfaction with results	Patient's overall satisfaction with the results of their care		
Acute Complications of Treatment				
Surgical patients	Death	All cause 30-day mortality	Post-surgery	Administrative data
	Admissions	All cause 30-day readmissions		
		Reoperation	All reoperations	Continuous
HOOS-PS: Hip Disability and Osteoarthritis Outcome Score – Physical Function; KOOS-PS: Knee Injury and Osteoarthritis Outcome Score – Physical Function; EQ-5D-3L: EuroQol 5 Dimension 3 Levels; VR-12: Veterans RAND 12; SF-12: Short Form 12 Health Survey				

## Choosing a Health-Related Quality of Life PROM

The international nature of this effort is reflected in our recommendation of instruments for measuring health-related quality of life. We recommend using the EQ-5D-3L, SF-12, or VR-12. The EQ-5D-3L is more commonly used in European countries while the SF-12 and VR-12 are commonly used in the United States. As cross walks have been developed enabling translation between these instruments, we present them here as equally valid instruments (Le QA, 2014). It should be noted, however, that differences may arise when using subsets of these instruments to measure emotional health. The MCS sub-domain of the SF-12 and VR-12 is robust and well validated for this purpose. The single-item anxiety and depression question in the EQ-5D-3L has also been used as a measure of emotional health but is not as well validated and, to the best of our knowledge, a direct comparison of these sub-domains has yet to be published.

The Euro-Qol group has also published a 5 level version of the EQ-5D. Currently this newer instrument is not as well validated for use in osteoarthritis and was therefore not the version recommended by the Working Group. However, scores on the 5D version can be translated to the 3D version. Thus, the EQ-5D-5L could also be used as a measure of health-related quality of life in this Standard Set, particularly as experience with this instrument increases over time.

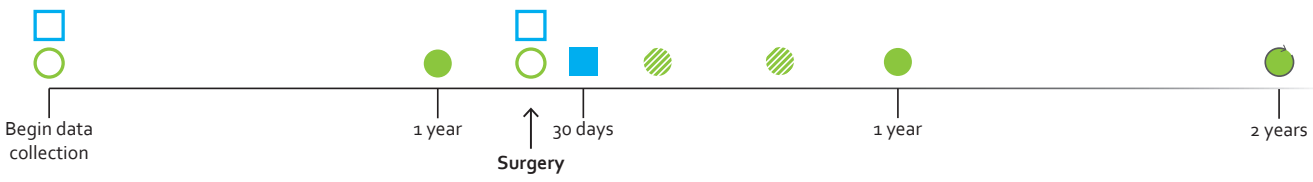
# Measurement Timeline and Sample Questionnaires

The following timeline illustrates when Standard Set variables should be collected from patients, clinicians, and administrative sources. Links to the sample questionnaires may be found in the legend below.







Example 1:



Example 2:



The following are example questionnaires to be administered at the indicated time points

-  Baseline Patient Form, Hip, using the EQ-5D ([link](#)) or the VR-12 ([link](#))  
Baseline Patient Form, Knee, using the EQ-5D ([link](#)) or the VR-12 ([link](#))  
Baseline Patient Form, Hip & Knee, using the EQ-5D ([link](#)) or the VR-12 ([link](#))
-  Baseline Clinical Form ([link](#))
-  30 Day Clinical Form ([link](#))
-  Annual Patient Form, Hip, using the EQ-5D ([link](#)) or the VR-12 ([link](#))  
Annual Patient Form, Knee, using the EQ-5D ([link](#)) or the VR-12 ([link](#))  
Annual Patient Form, Hip & Knee, using the EQ-5D ([link](#)) or the VR-12 ([link](#))
-  Optional Patient Form, Hip ([link](#))  
Optional Patient Form, Knee ([link](#))  
Optional Patient Form, Hip & Knee ([link](#))
-  Tracked Annually for Life

Data collection may begin (baseline measure) at any point in a patient’s treatment for osteoarthritis whether at diagnosis of osteoarthritis in the hip or knee, upon the start of a new osteoarthritis treatment regime, or at the time of surgery. Once data collection begins, we recommend that it continues annually for as many years as feasible.

Annual data collection is intended to provide data for comparing outcomes across providers. As the timing of this data collection may not match the timing at which patients are seen in clinical practice, all annual measures are patient reported to enable collection outside the context of clinical practice (e.g. via mail or email). Additionally, a two-month window is allowed for collecting these measures. (Annual measures collected between 10 and 14 months from baseline or the previous time point will be accepted.) Similarly, clinical and patient reported measures required at the time of surgery may be collected within a three-month window prior to the date of surgery.

We also recognize that PROMs can provide powerful information in the context of clinical practice. Therefore, we present the option of collecting a subset of these outcomes (the “Optional Measures”) more frequently for use in clinical practice. We leave the timing of this data collection up to the clinician. For example, a clinician might have his/her patient complete these optional measures at each visit to assess their response to surgery or other significant change in their treatment regime.



# Collecting Patient-Reported Outcome Measures

Hip & Knee Osteoarthritis Survey Used	Licensing Information	Scoring Guide
Hip Disability and Osteoarthritis Outcome Score - Physical Function Shortform (HOOS-PS)	Free for all health care organizations, no license needed.	The scoring guide may be found at <a href="http://www.koos.nu/">http://www.koos.nu/</a>
Knee Injury and Osteoarthritis Outcome Score - Physical Function Shortform (KOOS-PS)	Free for all health care organizations, no license needed.	See link above
EuroQol-5D descriptive system (EQ-5D-3L) and visual analogue scale (EQ-VAS)*	Free for non-profits and academic research, but a license is required for use. Please visit <a href="http://www.euroqol.org/eq-5d-products/how-to-obtain-eq-5d.html">http://www.euroqol.org/eq-5d-products/how-to-obtain-eq-5d.html</a>	See link at left
Veterans RAND 12 (VR-12) Short Form 12 Health Survey (SF-12)*	Free for all health care organizations, no license needed.	The scoring guide may be found at <a href="http://www.bu.edu/sph/research/research-landing-page/vr-36-vr-12-and-vr-6d/">http://www.bu.edu/sph/research/research-landing-page/vr-36-vr-12-and-vr-6d/</a>
*For a description of an algorithm to convert between the EQ-5D-3L and SF-12, please see: Le QA. Probabilistic mapping of the health status measure SF-12 responses and EQ-5D using the US-population-based scoring models. Qual Life Res. 2014 Mar; 23(2): 459-66. Please see the above Veterans RAND website for help converting the VR-12 to the SF-12.		

## The Growing ICHOM Community

By implementing the ICHOM Standard Sets, you become part of an expanding, international community of innovative health care providers dedicated to improving value for patients. To learn more about how ICHOM can assist your organization in implementing outcome measurement, contact us at [implement@ichom.org](mailto:implement@ichom.org), or visit <http://www.ichom.org/measure>.



# Introduction to the Data Dictionary

This data dictionary is designed to help you measure the ICHOM Hip & Knee Osteoarthritis Standard Set as consistently as possible to the Working Group recommendation. ICHOM is actively preparing for benchmarking efforts based on this data, and all data submitted for comparisons will need to be transformed into the following data structure if not already structured as such. **We are happy to provide an Excel version of this data dictionary for technical use.**

Please timestamp all variables. Some Standard Set variables are collected at multiple timepoints, and we will ask you to submit these variables in a concatenated VARIABLEID\_TIMESTAMP form for future analyses. For example, VARIABLEID\_BASE (baseline); VARIABLEID\_6MO (6 month follow-up); VARIABLEID\_1YR (1 year follow-up), etc.

## Case-Mix Variables

CASE-MIX VARIABLES

---

<b>Variable ID:</b>	N/A
<b>Variable:</b>	Patient ID
<b>Definition:</b>	Indicate the patient's medical record number
<b>Supporting Definition:</b>	This number will not be shared with ICHOM. In the case patient-level data is submitted to ICHOM for benchmarking or research purposes, a separate ICHOM Patient Identifier will be created and cross-linking between the ICHOM Patient Identifier and the medical record number will only be known at the treating institution
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	On all forms
<b>Data Source:</b>	Administrative or clinical
<b>Type:</b>	Numerical
<b>Response Options:</b>	According to institution

---

## Demographic Factors

---

<b>Variable ID:</b>	DOB
<b>Variable:</b>	Date of birth
<b>Definition:</b>	What is your date of birth?
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline
<b>Data Source:</b>	Patient-reported or administrative data
<b>Type:</b>	Date by DD/MM/YYYY
<b>Response Options:</b>	DD/MM/YYYY

---

<b>Variable ID:</b>	SEX
<b>Variable:</b>	Patient sex
<b>Definition:</b>	Please indicate your sex at birth?
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline
<b>Data Source:</b>	Patient-reported or administrative data
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = Male 2 = Female

---

---

<b>Variable ID:</b>	EDUCATION
<b>Variable:</b>	Education level
<b>Definition:</b>	What is the highest level of schooling you have completed?
<b>Supporting Definition:</b>	The level of schooling is defined in each country as per ISCED [International Standard Classification]
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Primary 2 = Secondary 3 = Tertiary (university or equivalent)

---

## Baseline Clinical Status

---

<b>Variable ID:</b>	DXHX_RH
<b>Variable:</b>	Joint specific history (right hip)
<b>Definition:</b>	Please indicate if the patient has a history or findings of any of the following for each hip and knee
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline
<b>Data Source:</b>	Clinical or administrative data
<b>Type:</b>	Single answer Please refer to the sample questionnaire for the proper format
<b>Response Options:</b>	0 = None 1 = Trauma or ligament injury 2 = Congenital or developmental disorders 3 = Other joint disorders including but not limited to osteonecrosis, inflammatory arthritis, gouty arthritis, septic arthritis, and Paget's disease of the bone

---

<b>Variable ID:</b>	DXHX_LH
<b>Variable:</b>	Joint specific history (left hip)
<b>Definition:</b>	Please indicate if the patient has a history or findings of any of the following for each hip and knee
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline
<b>Data Source:</b>	Clinical or administrative data
<b>Type:</b>	Single answer Please refer to the sample questionnaire for the proper format
<b>Response Options:</b>	0 = None 1 = Trauma or ligament injury 2 = Congenital or developmental disorders 3 = Other joint disorders including but not limited to osteonecrosis, inflammatory arthritis, gouty arthritis, septic arthritis, and Paget's disease of the bone

---

<b>Variable ID:</b>	DXHX_RK
<b>Variable:</b>	Joint specific history (right knee)
<b>Definition:</b>	Please indicate if the patient has a history or findings of any of the following for each hip and knee
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline
<b>Data Source:</b>	Clinical or administrative data
<b>Type:</b>	Single answer Please refer to the sample questionnaire for the proper format
<b>Response Options:</b>	0 = None

---

1 = Trauma or ligament injury  
 2 = Congenital or developmental disorders  
 3 = Other joint disorders including but not limited to osteonecrosis, inflammatory arthritis, gouty arthritis, septic arthritis, and Paget's disease of the bone

<b>Variable ID:</b>	DXHX_LK
<b>Variable:</b>	Joint specific history (left knee)
<b>Definition:</b>	Please indicate if the patient has a history or findings of any of the following for each hip and knee
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline
<b>Data Source:</b>	Clinical or administrative data
<b>Type:</b>	Single answer Please refer to the sample questionnaire for the proper format
<b>Response Options:</b>	0 = None 1 = Trauma or ligament injury 2 = Congenital or developmental disorders 3 = Other joint disorders including but not limited to osteonecrosis, inflammatory arthritis, gouty arthritis, septic arthritis, and Paget's disease of the bone
<b>Variable ID:</b>	SURGHX_B_RH
<b>Variable:</b>	Joint specific surgical history (right hip)
<b>Definition:</b>	Please indicate the type of surgery the patient has on each hip and knee
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline
<b>Data Source:</b>	Clinical or administrative data
<b>Type:</b>	Multiple answers Please refer to the sample questionnaire for the proper format
<b>Response Options:</b>	0 = None 1 = Joint replacement 2 = Osteotomy 3 = Osteosynthesis/fracture surgery 4 = Ligament reconstruction (knee only) 5 = Other arthroscopic procedures
<b>Variable ID:</b>	SURGHX_B_LH
<b>Variable:</b>	Joint specific surgical history (left hip)
<b>Definition:</b>	Please indicate the type of surgery the patient has on each hip and knee
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline
<b>Data Source:</b>	Clinical or administrative data
<b>Type:</b>	Multiple answers Please refer to the sample questionnaire for the proper format
<b>Response Options:</b>	0 = None 1 = Joint replacement 2 = Osteotomy 3 = Osteosynthesis/fracture surgery 4 = Ligament reconstruction (knee only) 5 = Other arthroscopic procedures
<b>Variable ID:</b>	SURGHX_B_RK
<b>Variable:</b>	Joint specific surgical history (right knee)
<b>Definition:</b>	Please indicate the type of surgery the patient has on each hip and knee
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline
<b>Data Source:</b>	Clinical or administrative data

**Type:** Multiple answers  
Please refer to the sample questionnaire for the proper format

**Response Options:** 0 = None  
1 = Joint replacement  
2 = Osteotomy  
3 = Osteosynthesis/facture surgery  
4 = Ligament reconstruction (knee only)  
5 = Other arthroscopic procedures

**Variable ID:** SURGHX\_B\_LK  
**Variable:** Joint specific surgical history (left knee)  
**Definition:** Please indicate the type of surgery the patient has on each hip and knee  
**Supporting Definition:** N/A  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
**Data Source:** Clinical or administrative data  
**Type:** Multiple answers  
Please refer to the sample questionnaire for the proper format

**Response Options:** 0 = None  
1 = Joint replacement  
2 = Osteotomy  
3 = Osteosynthesis/facture surgery  
4 = Ligament reconstruction (knee only)  
5 = Other arthroscopic procedures

## Case-Mix Factors

**Variable ID:** HEIGHT  
**Variable:** Height  
**Definition:** How tall are you?  
**Supporting Definition:** Height and weight are used to calculate BMI  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
Annually  
**Data Source:** Patient-reported or clinical  
**Type:** Numeric value  
**Response Options:** Numeric value of height in metric or imperial system

**Variable ID:** HEIGHTUNIT  
**Variable:** Height units  
**Definition:** Units  
**Supporting Definition:** N/A  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
Annually  
**Data Source:** Patient-reported or clinical  
**Type:** Single answer  
**Response Options:** 1 = cm  
2 = in

**Variable ID:** WEIGHT  
**Variable:** Weight  
**Definition:** How much do you weigh?  
**Supporting Definition:** Height and weight are used to calculate BMI  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
Annually  
**Data Source:** Patient-reported or clinical  
**Type:** Numeric value  
**Response Options:** Numeric value of weight in metric or imperial system



<b>Variable ID:</b>	WEIGHTUNIT
<b>Variable:</b>	Weight units
<b>Definition:</b>	Units
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported or clinical
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = kg 2 = lbs
<b>Variable ID:</b>	LIVING
<b>Variable:</b>	Living condition
<b>Definition:</b>	Which statement best describes your living arrangement?
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = I live with partner/spouse/family/friends 2 = I live alone 3 = I live in a nursing home/hospital/other long term care home 888 = Other
<b>Variable ID:</b>	LATERALITY
<b>Variable:</b>	Laterality of affected joint(s)
<b>Definition:</b>	Have you been told by a doctor that you have osteoarthritis in the following joints? (select all the apply)
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Multiple answers
<b>Response Options:</b>	1 = Right hip 2 = Left hip 3 = Right knee 4 = Left knee
<b>Variable ID:</b>	SURGHX
<b>Variable:</b>	History of surgery on the hip or knee
<b>Definition:</b>	In the past year, have you had surgery to treat osteoarthritis in the following joint(s)? (select all that apply)
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Multiple answers
<b>Response Options:</b>	0 = None 1 = Right hip 2 = Left hip 3 = Right knee 4 = Left knee
<b>Variable ID:</b>	EXERCISE
<b>Variable:</b>	Physical activity
<b>Definition:</b>	In a typical week, how much time do you spend doing PHYSICAL ACTIVITY?

PHYSICAL ACTIVITY is any activity that makes you breath hard, feel warm, and feel your heart beat faster. Examples of physical activity are walking, bicycling, and dancing and also housecleaning and gardening.

**Supporting Definition:** N/A  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
 Annually  
**Data Source:** Patient-reported  
**Type:** Single answer  
**Response Options:** 0 = None  
 1 = About 30 minutes  
 2 = About 1 hour  
 3 = About 2 hours  
 4 = More than 2 hours

**Variable ID:** SMOKE  
**Variable:** Tobacco smoking status  
**Definition:** Do you smoke?  
**Supporting Definition:** N/A  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
 Annually  
**Data Source:** Patient-reported  
**Type:** Single answer  
**Response Options:** 0 = No  
 1 = Yes

**Variable ID:** COMORB  
**Variable:** Co-morbid conditions  
**Definition:** Have you been told by doctor that you have any of the following? (select all that apply)  
**Supporting Definition:** N/A  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
 Annually  
**Data Source:** Patient-reported  
**Type:** Multiple answers  
**Response Options:** 1 = Heart disease (for example angina, heart attack or heart failure)  
 2 = High blood pressure  
 3 = Problems caused by a stroke  
 4 = Leg pain when walking due to poor circulation  
 5 = Lung disease (for example asthma, chronic bronchitis or emphysema)  
 6 = Diabetes  
 7 = Kidney disease  
 8 = Diseases of the nervous system (for example Parkinson's disease or multiple sclerosis)  
 9 = Liver disease  
 10 = Cancer (within the last 5 years)  
 11 = Depression  
 12 = Arthritis in your back or other condition affecting your spine  
 13 = Rheumatoid arthritis or another kind of arthritis in addition to osteoarthritis

## Treatment Variables

TREATMENT VARIABLES

<b>Variable ID:</b>	TREATMOD1
<b>Variable:</b>	Treatment progression
<b>Definition:</b>	Which of the following treatments have you undergone in the past year for your osteoarthritis related hip or knee problems? (select all the apply)
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Multiple answers
<b>Response Options:</b>	1 = Information/advice (ex: patient education, advice on diet, exercise, or other lifestyle alterations) 2 = Self managed care (ex: non-prescription oral pain medication, medications applied to the skin, exercise or diet program) 3 = Non-surgical, clinical care (ex: nonsteroidal anti-inflammatory drugs or other prescription drugs, supervised physical or occupation therapy, orthosis or other ambulatory aids, injections directly into the joint) 4 = Surgery (ex: osteotomy, resurfacing, partial or total joint replacement)
<b>Variable ID:</b>	TREATMOD2
<b>Variable:</b>	Care utilization
<b>Definition:</b>	In the past year, which of the following health care providers have you seen for treatment of your osteoarthritis related hip or knee problems? (select all that apply)
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Multiple answers
<b>Response Options:</b>	1 = Health educator/peer support group 2 = Dietician; physical therapist; general practitioner 3 = Rheumatologist 4 = Orthopedic surgeon 5 = Alternative health practitioner
<b>Variable ID:</b>	PROCDATE
<b>Variable:</b>	Date of procedure
<b>Definition:</b>	Indicate the date of surgery
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Surgical patients
<b>Timing:</b>	30 days post procedure or hospital discharge
<b>Data Source:</b>	Clinical Administrative data
<b>Type:</b>	Date by DD/MM/YYYY
<b>Response Options:</b>	DD/MM/YYYY
<b>Variable ID:</b>	OPJOINT
<b>Variable:</b>	Operative joint
<b>Definition:</b>	Indicate on which joint surgery was performed
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Surgical patients
<b>Timing:</b>	30 days post procedure or hospital discharge
<b>Data Source:</b>	Clinical Administrative data
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = Right hip 2 = Left hip

	3 = Right knee
	4 = Left knee
<b>Variable ID:</b>	PROCTYPE
<b>Variable:</b>	Orthopedic procedure
<b>Definition:</b>	Indicate the type of surgery that was performed
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Surgical patients
<b>Timing:</b>	30 days post procedure or hospital discharge
<b>Data Source:</b>	Clinical Administrative data
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Joint replacement 2 = Osteotomy 3 = Osteosynthesis/fracture surgery 4 = Ligament reconstruction 888 = Other surgical procedure

---

## Functional status

**Variable ID:** HPS1

**Variable:** Question 1 of HOOS-PS

**Definition:** This survey asks for your view about your hip. This information will help us keep track of how well you are able to perform different activities. Answer every question by selecting the appropriate answer, only one answer for each question. If you are unsure about how to answer a question, please give the best answer you can so that you answer all the questions.

The following questions concern your level of function in performing usual daily activities and higher level activities. For each of the following activities, please indicate the degree of difficulty you have experienced in the last week due to your hip problem.

1. Descending stairs

**Supporting Definition:** N/A

**Inclusion Criteria:** Patients whose most problematic joint is a hip

**Timing:** Baseline

Annually

**Data Source:** Patient-reported

**Type:** Single answer

**Response Options:** 0 = None

1 = Mild

2 = Moderate

3 = Severe

4 = Extreme

**Variable ID:** HPS2

**Variable:** Question 2 of HOOS-PS

**Definition:** 2. Getting in/out of bath or shower

**Supporting Definition:** N/A

**Inclusion Criteria:** Patients whose most problematic joint is a hip

**Timing:** Baseline

Annually

**Data Source:** Patient-reported

**Type:** Single answer

**Response Options:** 0 = None

1 = Mild

2 = Moderate

3 = Severe

4 = Extreme

**Variable ID:** HPS3

**Variable:** Question 3 of HOOS-PS

**Definition:** 3. Sitting

**Supporting Definition:** N/A

**Inclusion Criteria:** Patients whose most problematic joint is a hip

**Timing:** Baseline

Annually

**Data Source:** Patient-reported

**Type:** Single answer

**Response Options:** 0 = None

1 = Mild

2 = Moderate

3 = Severe

4 = Extreme

**Variable ID:** HPS4

**Variable:** Question 4 of HOOS-PS

<b>Definition:</b>	4. Running
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a hip
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	HPS5
<b>Variable:</b>	Question 5 of HOOS-PS
<b>Definition:</b>	5. Twisting/pivoting on your loaded leg
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a hip
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	KPS1
<b>Variable:</b>	Question 1 of KOOS-PS
<b>Definition:</b>	This survey asks for your view about your knee. This information will help us keep track of how well you are able to perform different activities. Answer every question by selecting the appropriate answer, only one answer for each question. If you are unsure about how to answer a question, please give the best answer you can so that you answer all the questions. The following questions concern your level of function in performing usual daily activities and higher level activities. For each of the following activities, please indicate the degree of difficulty you have experienced in the last week due to your knee problem. 1. Rising from bed
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	KPS2
<b>Variable:</b>	Question 2 of KOOS-PS
<b>Definition:</b>	2. Putting on socks/stockings
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported



<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	KPS3
<b>Variable:</b>	Question 3 of KOOS-PS
<b>Definition:</b>	3. Rising from sitting
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	KPS4
<b>Variable:</b>	Question 4 of KOOS-PS
<b>Definition:</b>	4. Bending to floor
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	KPS5
<b>Variable:</b>	Question 5 of KOOS-PS
<b>Definition:</b>	5. Twisting/pivoting on your injured knee
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	KPS6
<b>Variable:</b>	Question 6 of KOOS-PS
<b>Definition:</b>	6. Kneeling
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer

**Response Options:** 0 = None  
1 = Mild  
2 = Moderate  
3 = Severe  
4 = Extreme

---

**Variable ID:** KPS7

**Variable:** Question 7 of KOOS-PS

**Definition:** 7. Squatting

**Supporting Definition:** N/A

**Inclusion Criteria:** Patients whose most problematic joint is a knee

**Timing:** Baseline

Annually

**Data Source:** Patient-reported

**Type:** Single answer

**Response Options:** 0 = None

1 = Mild

2 = Moderate

3 = Severe

4 = Extreme

---

## Pain

---

**Variable ID:** PAINRH

**Variable:** Pain in the right hip

**Definition:** On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, please indicate your average pain in each of the following joints over the last 7 days.

Right hip

**Supporting Definition:** N/A

**Inclusion Criteria:** All patients

**Timing:** Baseline

Annually

**Data Source:** Patient-reported

Please refer to the sample questionnaire for the proper format

**Type:** Single answer or Visual scale

Please see the sample questionnaires

**Response Options:** Numeric rating scale (0 - 10) or Visual Analog Scale

---

**Variable ID:** PAINLH

**Variable:** Pain in the left hip

**Definition:** On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, please indicate your average pain in each of the following joints over the last 7 days.

Left hip

**Supporting Definition:** N/A

**Inclusion Criteria:** All patients

**Timing:** Baseline

Annually

**Data Source:** Patient-reported

Please refer to the sample questionnaire for the proper format

**Type:** Single answer or Visual scale

**Response Options:** Numeric rating scale (0 - 10) or Visual Analog Scale

---

**Variable ID:** PAINRK

**Variable:** Pain in the right knee

**Definition:** On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, please indicate your average pain in each of the following joints over the last 7 days.

Right knee

**Supporting Definition:** N/A  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
 Annually  
**Data Source:** Patient-reported  
 Please refer to the sample questionnaire for the proper format  
**Type:** Single answer or Visual scale  
**Response Options:** Numeric rating scale (0 - 10) or Visual Analog Scale

**Variable ID:** PAINLK  
**Variable:** Pain in the left knee  
**Definition:** On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, please indicate your average pain in each of the following joints over the last 7 days.  
 Left knee

**Supporting Definition:** N/A  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
 Annually  
**Data Source:** Patient-reported  
 Please refer to the sample questionnaire for the proper format  
**Type:** Single answer or Visual scale  
**Response Options:** Numeric rating scale (0 - 10) or Visual Analog Scale

**Variable ID:** PAINLB  
**Variable:** Pain in the lower back  
**Definition:** On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, please indicate your average pain in each of the following joints over the last 7 days.  
 Lower back

**Supporting Definition:** N/A  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
 Annually  
**Data Source:** Patient-reported  
 Please refer to the sample questionnaire for the proper format  
**Type:** Single answer or Visual scale  
**Response Options:** Numeric rating scale (0 - 10) or Visual Analog Scale

## Work Status

**Variable ID:** EMPLOYMENT  
**Variable:** Employment  
**Definition:** What is your work status?

**Supporting Definition:** N/A  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
 Annually  
**Data Source:** Patient-reported  
**Type:** Single answer  
**Response Options:** 0 = Unable to work due to a condition other than osteoarthritis  
 1 = Unable to work due to osteoarthritis  
 2 = Not working by choice (student, retired, homemaker)  
 3 = Seeking employment (I consider myself able to work but cannot find a job)  
 4 = Working part-time  
 5 = Working full-time

## Quality of Life\*

**Variable ID:** MOBILITY

<b>Variable:</b>	Question 1 of EQ5D
<b>Definition:</b>	By selecting an option in each group below, please indicate which statements best describe your own health state today. Mobility
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = I have no problems in walking about 2 = I have some problems in walking about 3 = I am confined to bed
<b>Variable ID:</b>	SELFCARE
<b>Variable:</b>	Question 2 of EQ5D
<b>Definition:</b>	Self-care
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = I have no problems with self-care 2 = I have some problems washing or dressing myself 3 = I am unable to wash or dress myself
<b>Variable ID:</b>	ACTIVITY
<b>Variable:</b>	Question 3 of EQ5D
<b>Definition:</b>	Usual activities (For example work, study, housework, family, or leisure activities)
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = I have no problems with performing my usual activities 2 = I have some problems with performing my usual activities 3 = I am unable to perform my usual activities
<b>Variable ID:</b>	PAIN
<b>Variable:</b>	Question 4 of EQ5D
<b>Definition:</b>	Pain/discomfort
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = I have no pain or discomfort 2 = I have moderate pain or discomfort 3 = I have extreme pain or discomfort
<b>Variable ID:</b>	ANXIETY
<b>Variable:</b>	Question 5 of EQ5D
<b>Definition:</b>	Anxiety/depression
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported

<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = I am not anxious or depressed 2 = I am moderately anxious or depressed 3 = I am extremely anxious or depressed
<b>Variable ID:</b>	EQ_VAS
<b>Variable:</b>	Question 6 of EQ5D
<b>Definition:</b>	To help people say how good or bad a health state is, we have drawn a scale (rather like a thermometer) on which the best state you can imagine is marked 100 and the worst state you can imagine is marked 0. We would like you to indicate on this scale how good or bad your own health is today, in your opinion. Please do this by drawing a line from the box below to whichever point on the scale indicates how good or bad your health state is today.
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Visual scale
<b>Response Options:</b>	Refer to visual analogue scale in sample questionnaire
<b>Variable ID:</b>	GH1
<b>Variable:</b>	Question 1 of VR-12
<b>Definition:</b>	In general, would you say your health is:
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = Excellent 2 = Very good 3 = Good 4 = Fair 5 = Poor
<b>Variable ID:</b>	PF2
<b>Variable:</b>	Question 2a of VR-12
<b>Definition:</b>	The following items are about activities you might do during a typical day. Does our health now limit you in these activities? If so, how much? a. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = Yes, limited a lot 2 = Yes, limited a little 3 = No, not limited at all
<b>Variable ID:</b>	PF4
<b>Variable:</b>	Question 2b of VR-12
<b>Definition:</b>	b. Climbing several flights of stairs
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer

<b>Response Options:</b>	1 = Yes, limited a lot 2 = Yes, limited a little 3 = No, not limited at all
<b>Variable ID:</b>	VRP2
<b>Variable:</b>	Question 3a of VR-12
<b>Definition:</b>	During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health? a. Accomplished less than you would like
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = No, none of the time 2 = Yes, a little of the time 3 = Yes, some of the time 4 = Yes, most of the time 5 = Yes, all of the time
<b>Variable ID:</b>	VRP3
<b>Variable:</b>	Question 3b of VR-12
<b>Definition:</b>	b. Were limited in the kind of work or other activities
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = No, none of the time 2 = Yes, a little of the time 3 = Yes, some of the time 4 = Yes, most of the time 5 = Yes, all of the time
<b>Variable ID:</b>	VRE2
<b>Variable:</b>	Question 4a of VR-12
<b>Definition:</b>	During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)? a. Accomplished less than you would like
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = No, none of the time 2 = Yes, a little of the time 3 = Yes, some of the time 4 = Yes, most of the time 5 = Yes, all of the time
<b>Variable ID:</b>	VRE3
<b>Variable:</b>	Question 4b of VR-12
<b>Definition:</b>	b. Didn't do work or other activities as carefully as usual
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually



<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = No, none of the time 2 = Yes, a little of the time 3 = Yes, some of the time 4 = Yes, most of the time 5 = Yes, all of the time
<b>Variable ID:</b>	BP2
<b>Variable:</b>	Question 5 of VR-12
<b>Definition:</b>	During the past 4 weeks, how much did pain interfere with you normal work (including both work outside the home and housework)?
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = Not at all 2 = A little bit 3 = Moderately 4 = Quite a bit 5 = Extremely
<b>Variable ID:</b>	MH3
<b>Variable:</b>	Question 6a of VR-12
<b>Definition:</b>	These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks: a. Have you felt calm and peaceful?
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = All of the time 2 = Most of the time 3 = A good bit of the time 4 = Some of the time 5 = A little of the time 6 = None of the time
<b>Variable ID:</b>	VT2
<b>Variable:</b>	Question 6b of VR-12
<b>Definition:</b>	b. Did you have a lot of energy?
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = All of the time 2 = Most of the time 3 = A good bit of the time 4 = Some of the time 5 = A little of the time 6 = None of the time
<b>Variable ID:</b>	MH4

<b>Variable:</b>	Question 6c of VR-12
<b>Definition:</b>	c. Have you felt downhearted and blue?
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = All of the time 2 = Most of the time 3 = A good bit of the time 4 = Some of the time 5 = A little of the time 6 = None of the time
<b>Variable ID:</b>	SF2
<b>Variable:</b>	Question 7 of VR-12
<b>Definition:</b>	During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little of the time 5 = None of the time
<b>Variable ID:</b>	VR12_Qo8
<b>Variable:</b>	Question 8 of VR-12
<b>Definition:</b>	Now, we'd like to ask you some questions about how your health may have changed. Compared to one year ago, how would you rate your physical health in general now?
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	1 = Much better 2 = Slightly better 3 = About the same 4 = Slightly worse 5 = Much worse
<b>Variable ID:</b>	VR12_Qo9
<b>Variable:</b>	Question 9 of VR-12
<b>Definition:</b>	Compared to one year ago, how would you rate your emotional health (such as feeling anxious, depressed, or irritable) in general now?
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer

**Response Options:** 1 = Much better  
 2 = Slightly better  
 3 = About the same  
 4 = Slightly worse  
 5 = Much worse

## General Treatment Outcomes

**Variable ID:** TREATSAT  
**Variable:** Satisfaction with results  
**Definition:** How satisfied are you with the results of your treatment?  
**Supporting Definition:** N/A  
**Inclusion Criteria:** All patients  
**Timing:** Baseline  
 Annually  
**Data Source:** Patient-reported  
**Type:** Likert scale  
**Response Options:** 1 = Very satisfied  
 2 = Satisfied  
 3 = Neither satisfied nor dissatisfied  
 4 = Unsatisfied  
 5 = Very unsatisfied

## Surgical Outcomes

**Variable ID:** DEATH  
**Variable:** Death  
**Definition:** Indicate if the patient died in-hospital or within 30 days of procedure (all cause mortality)  
**Supporting Definition:** N/A  
**Inclusion Criteria:** Surgical patients  
**Timing:** 30 days post procedure or hospital discharge  
**Data Source:** Administrative data  
**Type:** Single answer  
**Response Options:** 0 = No  
 1 = Yes

**Variable ID:** ADMIT  
**Variable:** Admission  
**Definition:** Indicate if the patient had an unplanned readmission for any cause to any hospital within 30 days of discharge  
**Supporting Definition:** N/A  
**Inclusion Criteria:** Surgical patients  
**Timing:** 30 days post procedure or hospital discharge  
**Data Source:** Administrative data  
**Type:** Single answer  
**Response Options:** 0 = No  
 1 = Yes

**Variable ID:** REOP  
**Variable:** Reoperation  
**Definition:** Any consecutive open surgery performed on the hip or knee  
**Supporting Definition:** Includes both minor and major reoperations:  
 Minor revision: any reoperation with removal, exchange, and/or addition of minor implant part (e.g. head, liner)  
 Major revision: any reoperation with removal, exchange, and/or addition of major implant part (e.g. cup, femoral component, tibial component)  
**Inclusion Criteria:** Surgical patients  
**Timing:** Continuous\*\*\*  
**Data Source:** Clinical or administrative data

**Type:** Single answer  
**Response Options:** 0 = No  
 1 = Yes

## Optional Measures\*\*

**Variable ID:** HPS1

**Variable:** Question 1 of HOOS-PS

**Definition:** This survey asks for your view about your hip. This information will help us keep track of how well you are able to perform different activities. Answer every question by selecting the appropriate answer only one answer for each question. If you are unsure about how to answer a question, please give the best answer you can so that you answer all the questions.  
 The following questions concern your level of function in performing usual daily activities and higher level activities. For each of the following activities, please indicate the degree of difficulty you have experienced in the last week due to your hip problem.  
 1. Descending stairs

**Supporting Definition:** N/A

**Inclusion Criteria:** Patients whose most problematic joint is a hip

**Timing:** Baseline

Annually

**Data Source:** Patient-reported

**Type:** Single answer

**Response Options:** 0 = None

1 = Mild

2 = Moderate

3 = Severe

4 = Extreme

**Variable ID:** HPS2

**Variable:** Question 2 of HOOS-PS

**Definition:** 2. Getting in/out of bath or shower

**Supporting Definition:** N/A

**Inclusion Criteria:** Patients whose most problematic joint is a hip

**Timing:** Baseline

Annually

**Data Source:** Patient-reported

**Type:** Single answer

**Response Options:** 0 = None

1 = Mild

2 = Moderate

3 = Severe

4 = Extreme

**Variable ID:** HPS3

**Variable:** Question 3 of HOOS-PS

**Definition:** 3. Sitting

**Supporting Definition:** N/A

**Inclusion Criteria:** Patients whose most problematic joint is a hip

**Timing:** Baseline

Annually

**Data Source:** Patient-reported

**Type:** Single answer

**Response Options:** 0 = None

1 = Mild

2 = Moderate

3 = Severe

4 = Extreme

<b>Variable ID:</b>	HPS <sub>4</sub>
<b>Variable:</b>	Question 4 of HOOS-PS
<b>Definition:</b>	4. Running
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a hip
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	HPS <sub>5</sub>
<b>Variable:</b>	Question 5 of HOOS-PS
<b>Definition:</b>	5. Twisting/pivoting on your loaded leg
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a hip
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	KPS <sub>1</sub>
<b>Variable:</b>	Question 1 of KOOS-PS
<b>Definition:</b>	This survey asks for your view about your knee. This information will help us keep track of how well you are able to perform different activities. Answer every question by selecting the appropriate answer, only one answer for each question. If you are unsure about how to answer a question, please give the best answer you can so that you answer all the questions. The following questions concern your level of function in performing usual daily activities and higher level activities. For each of the following activities, please indicate the degree of difficulty you have experienced in the last week due to your knee problem. 1. Rising from bed
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	KPS <sub>2</sub>
<b>Variable:</b>	Question 2 of KOOS-PS
<b>Definition:</b>	2. Putting on socks/stockings
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline

<b>Data Source:</b>	Annually
<b>Type:</b>	Patient-reported
<b>Response Options:</b>	Single answer
	0 = None
	1 = Mild
	2 = Moderate
	3 = Severe
	4 = Extreme
<b>Variable ID:</b>	KPS <sub>3</sub>
<b>Variable:</b>	Question 3 of KOOS-PS
<b>Definition:</b>	3. Rising from sitting
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline
	Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None
	1 = Mild
	2 = Moderate
	3 = Severe
	4 = Extreme
<b>Variable ID:</b>	KPS <sub>4</sub>
<b>Variable:</b>	Question 4 of KOOS-PS
<b>Definition:</b>	4. Bending to floor
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline
	Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None
	1 = Mild
	2 = Moderate
	3 = Severe
	4 = Extreme
<b>Variable ID:</b>	KPS <sub>5</sub>
<b>Variable:</b>	Question 5 of KOOS-PS
<b>Definition:</b>	5. Twisting/pivoting on your injured knee
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline
	Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None
	1 = Mild
	2 = Moderate
	3 = Severe
	4 = Extreme
<b>Variable ID:</b>	KPS <sub>6</sub>
<b>Variable:</b>	Question 6 of KOOS-PS
<b>Definition:</b>	6. Kneeling
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline
	Annually



<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	KPS7
<b>Variable:</b>	Question 7 of KOOS-PS
<b>Definition:</b>	7. Squatting
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	Patients whose most problematic joint is a knee
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported
<b>Type:</b>	Single answer
<b>Response Options:</b>	0 = None 1 = Mild 2 = Moderate 3 = Severe 4 = Extreme
<b>Variable ID:</b>	PAINRH
<b>Variable:</b>	Pain in the right hip
<b>Definition:</b>	On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, please indicate your average pain in each of the following joints over the last 7 days. Right hip
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported Please refer to the sample questionnaire for the proper format
<b>Type:</b>	Single answer or Visual scale Please see the sample questionnaires
<b>Response Options:</b>	Numeric rating scale (0 - 10) or Visual Analog Scale
<b>Variable ID:</b>	PAINLH
<b>Variable:</b>	Pain in the left hip
<b>Definition:</b>	On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, please indicate your average pain in each of the following joints over the last 7 days. Left hip
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported Please refer to the sample questionnaire for the proper format
<b>Type:</b>	Single answer or Visual scale
<b>Response Options:</b>	Numeric rating scale (0 - 10) or Visual Analog Scale
<b>Variable ID:</b>	PAINRK
<b>Variable:</b>	Pain in the right knee
<b>Definition:</b>	On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, please indicate your average pain in each of the following joints over the last 7 days. Right knee

<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported Please refer to the sample questionnaire for the proper format
<b>Type:</b>	Single answer or Visual scale
<b>Response Options:</b>	Numeric rating scale (0 - 10) or Visual Analog Scale
<b>Variable ID:</b>	PAINLK
<b>Variable:</b>	Pain in the left knee
<b>Definition:</b>	On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, please indicate your average pain in each of the following joints over the last 7 days. Left knee
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported Please refer to the sample questionnaire for the proper format
<b>Type:</b>	Single answer or Visual scale
<b>Response Options:</b>	Numeric rating scale (0 - 10) or Visual Analog Scale
<b>Variable ID:</b>	PAINLB
<b>Variable:</b>	Pain in the lower back
<b>Definition:</b>	On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, please indicate your average pain in each of the following joints over the last 7 days. Lower back
<b>Supporting Definition:</b>	N/A
<b>Inclusion Criteria:</b>	All patients
<b>Timing:</b>	Baseline Annually
<b>Data Source:</b>	Patient-reported Please refer to the sample questionnaire for the proper format
<b>Type:</b>	Single answer or Visual scale
<b>Response Options:</b>	Numeric rating scale (0 - 10) or Visual Analog Scale

\* We recommend measuring QoL using either the EQ-5D-3L, VR-12, or SF-12.

\*\* We include the option of more frequent collection of some measures for direct use in clinical care. For example, more frequent collection of functional outcomes may be helpful following surgery or major changes in treatment. We leave the timing of this data collection to individual institutions or clinicians.

\*\*\* Continuous data collection means that any instance of reoperation should be reported. This may be done either by physician report at the time of the reoperation or via abstraction from clinical or administrative data on a yearly basis.

## ICHOM Contact Information

<b>Website</b>	<a href="http://www.ichom.org">http://www.ichom.org</a>
<b>Business Address</b>	14 Arrow Street, Suite #11 Cambridge, MA 02138

# Reference Guide Revisions

Reference Guide Version	Location within Reference Guide	Content Change
2.1	The Growing ICHOM Community	Removed map and updated information
2.1	ICHOM Standard Set for Hip & Knee Osteoarthritis: Case-Mix Variables	Modified text on “Physical Activity”
2.1	Introduction to the Data Dictionary	Modifications to introductory paragraph
2.1	Data Dictionary: Outcomes	Removed extraneous text in footnote
2.2	Data Dictionary: Outcomes	Corrected categorical heading to “Acute Complications of Treatment”
2.2.1	Contact Information	Removed inactive email address: <a href="mailto:ichomteam@ichom.org">ichomteam@ichom.org</a>

