



Medicines & Healthcare products
Regulatory Agency



Hospital Episode Statistics (HES) Patient Reported Outcomes Measures (PROMs) and CPRD primary care data Documentation (set 18)

Version 1.6

Date: 04 December 2019

Documentation Control Sheet

Over time, it may be necessary to issue amendments or clarifications to parts of this document. This form must be updated whenever changes are made.

| Version | Affected Areas Summary of Change | Prepared By | Reviewed By |
|---------|-------------------------------------|----------------------|---------------------|
| 1.0 | Initial Draft | Tarita Murray-Thomas | Helen Strongman |
| 1.1 | Modified | Tarita Murray-Thomas | Shivani Padmanabhan |
| 1.2 | Modified | Tarita Murray-Thomas | Dan Dedman |
| 1.3 | Modified | Tarita Murray-Thomas | Dan Dedman |
| 1.4 | Modified | Tarita Murray-Thomas | Arlene Gallagher |
| 1.5 | Modified | Tarita Murray-Thomas | Susan Hodgson |
| 1.6 | Modified | Tarita Murray-Thomas | Rebecca Ghosh |

Summary of Changes

Version 1.1

- Updated document version number, date and PROMs set
- Updated the HES PROMS coverage dates for this release
- Updated information on HES PROMS national participation rate in 2015/2016
- Updated hyperlinks in document

Version 1.2

- Updated document version number, date and PROMs set
- Updated the HES PROMS coverage dates for this release
- Updated information on HES PROMS national participation rate in 2016/2017
- Added two new variables, 'vv_q2_left_visible' and 'vv_q2_right_visible', to the Varicose Veins Specific Questionnaire table (prom_procedures_vv.txt)
- Included changes to the collection of varicose vein and groin hernia procedures under PROM ('Known issues' section)

Version 1.3

- Updated document version number, date and PROMs set
- Updated the HES PROMS coverage dates for this release
- Updated the type and format of select variables in the HES PROMS episode, general, EQ5D, procedures for hip, knee and varicose veins tables
- Included a paragraph on PROMS data access requirements
- Updated hyperlinks to NHS Digital resources on HES PROMS
- Updated to include CPRD Aurum

Version 1.4

- Updated document version number, date and PROMs set
- Updated the HES PROMS coverage dates for this release
- Updated information on HES PROMS national participation rate in 2017/2018
- Updated hyperlinks to NHS Digital resources on HES PROMS

Version 1.5

- Replaced reference to set 16 with set 17

Version 1.6

- Updated document version number, date and PROMs set
- Updated the HES PROMs coverage date for this release
- Updated information on HES PROMs national participation rate in 2018/2019
- Updated NIHR logo
- Specified primary keys in each data table

HES Patient Reported Outcomes Measures (PROMs) data linked to CPRD primary care data

This document provides an overview of HES Patient Reported Outcomes Measures (PROMs) data and the available subset that is linked to CPRD GOLD and CPRD Aurum.

What are the PROMs data?

The PROMs programme covers common elective surgical procedures performed in NHS England including groin hernia operations, hip replacements, knee replacements and varicose vein operations. The programme covers over 300 NHS hospitals and Independent Sector Providers in England that undertake elective operations. The purpose of PROMs is to capture patients' own assessments of their health and health-related quality of life, shortly before and some months after surgery. Patient questionnaires administered comprise a disease-specific instrument, a generic instrument and a series of additional questions about the patient's health and symptoms (**Annex A**).

NHS Digital routinely links administrative data about the related inpatient hospital procedure held in the Hospital Episodes Statistics Admitted Patient Care dataset (HES APC) to PROMs data. Variables indicating the quality of the match (hesid_rank and episode_match_rank) established between a PROMs questionnaire and a HES episode are included in the linked HES PROMs dataset. Detailed information about the linkage of PROMs data to HES can be found in the NHS Digital publication 'A-Guide-to-PROMs-Methodology'.¹

The routine measurement of PROMs data began nationally in April 2009. Analysis of pre-operative data was first released as an experimental statistic in April 2010, with subsequent monthly updates. Analysis of post-operative data was first released in September 2010, again as experimental statistics. From the August 2011 publication, PROMs data was split by financial year to enable comparison. PROMs continue to be updated monthly, although collection of data on groin and varicose veins operations ceased at the end of September 2017.

Participation in PROMs increased steadily since the programme began from just over 66% in 2009/10 to a maximum of 76% in 2013/14. Overall participation rates however decreased slightly in 2014/15 (75.6%), 2015/16 (75.3%) and 2016/2017 (75.4%), respectively. In April 2017/March 2018, participation rates for pre-operative hip replacement questionnaires was 86.1% and 87.3% for knee replacements. The rate of return for post-operative questionnaires were 70.9% and 69.5% for hip and knee replacements respectively.² In April 2018/March 2019, participation rates were 83.4% and 83.8% for hip and knee replacements respectively. The rate of return of post-operative questionnaires, as a percent of post-operative questionnaires issued, was 68.8% and 67.3% for hip and knee replacements respectively.³

PROMs data can be used to assess health gains achieved by patients undergoing a particular procedure, understand the impact of services, evaluate referral from primary to secondary care, monitor the progress of clinical practice, and research safety and quality in health care services.⁴

Before requesting HES PROMs data, users are encouraged to familiarise themselves with the content of the data for the procedure of interest. Details on the fields available can be found at: <https://digital.nhs.uk/data-and-information/data-tools-and-services/data-services/patient-reported-outcome-measures-proms#guidance>. Details of HES PROMs statistics can be found at:

¹Available at http://content.digital.nhs.uk/media/1537/A-Guide-to-PROMs-Methodology/pdf/PROMs_Guide_V11.pdf

² Finalized Patient Reported Outcome Measures (PROMs) in England, April 2017 to March 2018 (<https://files.digital.nhs.uk/55/93837F/PROMs%20Annual%20Report%20Finalised%202017-18.pdf> accessed on 05/04/2019)

³ <https://digital.nhs.uk/data-and-information/publications/statistical/patient-reported-outcome-measures-proms/for-hip-and-knee-replacement-procedures-april-2018-to-march-2019>

⁴King's Fund 2010 - Getting the most out of PROMS (<https://www.kingsfund.org.uk/sites/files/kf/Getting-the-most-out-of-PROMs-Nancy-Devlin-John-Appleby-Kings-Fund-March-2010.pdf>)

<https://digital.nhs.uk/data-and-information/data-tools-and-services/data-services/patient-reported-outcome-measures-proms#finalised-proms-data-releases>.

Accessing HES PROMs data linked to CPRD GOLD and CPRD Aurum

HES PROMs data are only available for non-commercial purposes such as academic research or research relating to the delivery of services to the National Health Service (NHS).

Releases of linked HES PROMs data are subject to CPRD's mandatory governance and policy requirements, including approval from the MHRA Independent Scientific Advisory Committee (ISAC). Applications to the ISAC seeking access to linked HES PROMs data must be associated with a clear justification for their use as indicated above.

HES PROMs data can only be accessed as part of a data extract linked to CPRD primary care data (CPRD GOLD or CPRD Aurum). Access through the CPRD is subject to a fee, conditional on ISAC approval.

Please note that not all patients in CPRD GOLD or CPRD Aurum are eligible to be linked to HES, for example, due to the region in which they reside (outside England), or the lack of a valid NHS identifier. Source files (linkage_eligibility.txt) are provided to allow researchers to identify the subset of patients who are eligible to have linked HES data.

Linkage coverage period

PROMs data has been collected since April 2009/2010 and are routinely linked to administrative data about the related inpatient hospital procedure held in the Hospital Episodes Statistics Admitted Patient Care dataset (HES APC). The release of PROMs data in set 18 has been linked to HES APC episodes from April 1997 – June 2019. Please note that data for 1 April 2018 to 31 March 2019 are provisional. The latest release of HES PROMs data linked to CPRD primary care data (set 18) includes pre-operative questionnaires completed (q1_completed_date) up to 31 December 2018 for hip and knee replacement procedures.

Linkage algorithm and the match_rank variable

Linkage between HES PROMs and CPRD primary care data is performed at the patient level and uses an eight-step deterministic linkage algorithm based on four identifiers, shown in Table 1 below. The linkage is undertaken by NHS Digital, acting as a trusted-third party, on behalf of CPRD. No personal identifiers are held by CPRD, or included in the CPRD GOLD, CPRD Aurum, or linked HES PROMs data.

Table 1: NHS Digital 8 step linkage algorithm

| Step | Match |
|------|--|
| 1 | Exact NHS number, sex, date of birth (DOB), postcode |
| 2 | Exact NHS number, sex, DOB |
| 3 | Exact NHS number, sex, postcode, partial DOB |
| 4 | Exact NHS number, sex, partial DOB |
| 5 | Exact NHS number, postcode |
| 6 | Exact sex, DOB and postcode (where NHS number does not contradict the match, the DOB is not 1st of January & the postcode not on the communal establishment list) |
| 7 | Exact sex, DOB and postcode (where the NHS number does not contradict the match and the DOB is not 1st of January) |
| 8 | Exact NHS number |

The matching steps are applied sequentially. If a CPRD GOLD or CPRD Aurum patient record is matched in one step, it is no longer available for matching in subsequent steps. Matching results are summarised in Table 2A and 2B below.

Table 2A: Number and proportion of **CPRD GOLD** patients matched to a HES patient* at each step of the linkage algorithm in set 18.

| Linkage step (match_rank) | Frequency | Percent |
|---------------------------|-----------|---------|
| 1 | 5,481,570 | 68.2% |
| 2 | 2,270,084 | 28.2% |
| 3 | 13,332 | 0.2% |
| 4 | 17,747 | 0.2% |
| 5 | 3,451 | 0.0% |
| 6 | 232,792 | 2.9% |
| 7 | 14,278 | 0.2% |
| 8 | 6,410 | 0.1% |

*includes patients in all HES datasets (Admitted patient care, Outpatient, A&E, PROMs and DID)

Table 2B: Number and proportion of **CPRD Aurum** patients matched to a HES patient* at each step of the linkage algorithm in set 18.

| Linkage step (match_rank) | Frequency | Percent |
|---------------------------|------------|---------|
| 1 | 13,912,216 | 65.4% |
| 2 | 6,552,633 | 30.8% |
| 3 | 29,552 | 0.1% |
| 4 | 45,609 | 0.2% |
| 5 | 7,141 | 0.0% |
| 6 | 678,424 | 3.2% |
| 7 | 40,570 | 0.2% |
| 8 | 17,775 | 0.1% |

*includes patients in all HES datasets (Admitted patient care, Outpatient, A&E, PROMs and DID)

CPRD provides users with a match_rank variable which corresponds to the step at which the match was established. In general, a lower value for the match_rank is considered stronger evidence for a positive match. Note that only patients with a match_rank of 5 or less are considered definitive matches and are included in the linked HES PROMs dataset. Patients matched on steps 6-8 have been retained in separate files. We envisage that the retained records will primarily be of interest to methodological researchers. If you are interested in these data, please speak to a member of the CPRD Observational Research team prior to submission of your protocol to the ISAC.

Modified linkage eligibility files are available upon request for records matched in steps 6-8 and for records linked to multiple HESIDs (see below). A linkage coverage file (linkage_coverage.txt) provides the start and end dates of HES PROMs encounter time.

A minority of patients are linked to multiple HESIDs. These patients have been removed from the HES PROMs dataset. However, the data have been retained and are available on request. If you are interested in these data, please speak to a member of the CPRD Observational Research team prior to submission of your protocol to the ISAC.

As far as possible, the linked HES PROMs data is supplied “as is”, without any modification or cleaning during processing by CPRD. Where CPRD has modified the data, these are detailed below.

Data structure and formatting

HES PROMs data provided by CPRD represents only a subset of the variables that are collected in the National PROMs dataset provided by NHS Digital. Fields such as organisation fields which may lead to the potential re-identification of patients or practices are not collected by the CPRD and/or not supplied to users.

The data are arranged by the procedure performed and are available in separate files comprising of general symptom information, health related quality of life (as measured by the EQ5D questionnaire) and health related quality of life as measured by the respective disease specific instrument and hospital episode information, where available. The PROMs record identifier (proms_serial_no) is unique in combination with the CPRD patient identifier (**patid**). The patient identifier may be used to link together PROM records for a single patient with CPRD HES admitted patient care, outpatient records and /or accident and emergency data.

For each patient cohort, HES PROMs data will be provided as separate text tab delimited files. Files can be uploaded into statistical software such as Stata or SAS, or into data management packages such as Microsoft Access, for further data processing and analysis.

The format of the HES PROMs data has been modified for linked patients in the following ways:

- CPRD has generated the HES patient identifier (**gen_hesid**), a patient key to identify a unique patient in the HES data. This is unique across all CPRD-linked HES datasets including HES admitted patient care (APC), HES Outpatient (OP) and HES A&E data. An individual that has contributed data to more than one CPRD practice will have the same patient key (gen_hesid) in the HES PROMs patient file but this may change between linkage sets.
- The **proms_serial_no** variable has been altered so that this is unique (by patient identifier) across all HES PROMs data. Licensing obligations require that no attempts are made to re-identify patients in CPRD datasets. The proms_serial_no variable has been encoded by CPRD to minimise the risk of breaching licensing conditions through linkage of these data to other HES data sources containing patient identifiable information. What this means is that the proms_serial_no variable will differ in each future release of HES PROMs linkage sets.

Changes introduced in HES PROMs sets

As of set 16, the data type and format of the following variables have been updated from string to an integer:

hes_matched, episode_matched, complete, q1 complete, q2 complete, q1_eq5d_profile_complete, q1_eq5d_scale_complete, q2_eq5d_profile_complete, q2_eq5d_scale_complete, hr_q1_score_complete, hr_q2_score_complete, kr_q1_score_complete, kr_q2_score_complete, vv_q1_score_complete, and vv_q2_score_complete.

Known issues

- PROMs questionnaires are not currently administered to all patients who are assessed for a procedure included in PROMs. Questionnaires are only administered to patients who are deemed eligible for a procedure.
- Some patients may have undergone more than one PROMs procedure in a single eligible episode; hence there will be more procedures than episodes.
- Not every pre-operative questionnaire will have had a post-operative questionnaire sent out, for various reasons including patient awaiting their procedure, the cancellation of an operation or the death of the patient.
- Provisional HES PROMs data are monthly publications of HES data. These data may be incomplete or contain errors for which no adjustments have yet been made by HES. Counts produced from provisional data are likely to be lower than those generated for the same period in the final dataset. It is also probable that clinical data are not complete, which may affect the last two months of any given period. There may also be errors due to coding inconsistencies that have not yet been investigated and corrected. At the end of the fiscal year there is a “month 13” annual refresh which corrects known data quality issues prior to locking the annual published data.
- Mandatory varicose vein surgery and groin-hernia surgery national PROMs collections ended on 1 October 2017. Providers are no longer required to offer Q1 questionnaires to patients undergoing these procedures. Patients who have already completed a Q1 questionnaire prior to 1 October 2017 would be sent a Q2 questionnaire to complete in the normal way. Patients who complete a Q1 and a Q2 questionnaire relating to a procedure which took place prior to 1 October 2017 will be included in the national dataset.

NHS Digital published its final PROMs annual data publication for the full year 2016/17 in February 2018. The final annual data publication for the year 2017/18 data was published in Feb 2019 and finalised data for 2018/2019 will be published in Feb 2020.

Look-up files

Lookup files relating to the use of HES PROMs data are not be provided by the CPRD. These can be obtained online from NHS Digital using this link: <https://digital.nhs.uk/data-and-information/data-tools-and-services/data-services/patient-reported-outcome-measures-proms#accessing-proms-data>

Annex A: PROMs procedures and instruments used to assess health related quality of life

| <i>Procedure</i> | <i>Generic PROM</i> | <i>Condition Specific PROM</i> |
|-----------------------|---------------------|--------------------------------------|
| Hip surgery | EQ5D | Oxford Hips Score |
| Knee surgery | EQ5D | Oxford Knees Score |
| Varicose vein surgery | EQ5D | Aberdeen varicose vein questionnaire |
| Hernia repair* | EQ5D | N/A |

*Data from SF-36 not collected by CPRD

HES PROMs: Data dictionary

1. Patient (hesproms_patient.txt)

| Column name | Description | Type | Format |
|--------------------------|--|---------|--------|
| patid | Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key] | INTEGER | 20 |
| pracid | Encrypted unique key given to a practice in CPRD GOLD or CPRD Aurum | INTEGER | 5 |
| gen_hesid ⁵ | A generated unique key assigned to a patient across all CPRD linked HES datasets within a linkage set. An individual that has contributed data to more than one CPRD practice has the same gen_hesid but this may change between linkage sets. | INTEGER | 20 |
| n_patid_hes ⁵ | Number of individuals in CPRD GOLD or CPRD Aurum assigned the same gen_hesid (unique patient identifier generated in HES) | INTEGER | 3 |
| match_rank ⁶ | Indicates the quality of matching between a record in HES and CPRD primary care data and gives the level of confidence that an HES record has been correctly matched to a patient in CPRD GOLD or CPRD Aurum. | INTEGER | 1 |
| hr | PROM hip replacement procedure record: 0-No; 1-Yes | INTEGER | 1 |
| kr | PROM knee replacement procedure record: 0-No; 1-Yes | INTEGER | 1 |
| vv | PROM varicose vein procedure record: 0-No; 1-Yes | INTEGER | 1 |
| gh | PROM groin hernia repair procedure record: 0-No; 1-Yes | INTEGER | 1 |

2. Episode (hesproms_episode_xx.txt)

| Column name | Description | Type | Format |
|------------------------|---|---------|--------|
| patid | Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with proms_serial_no] | INTEGER | 20 |
| proms_serial_no | Encrypted record identifier (unique in combination with patid) | CHAR | 8 |
| proms_proc_code | Code identifying the type of procedure the patient underwent | CHAR | 2 |
| hesid_matched | Indicates whether the PROMs questionnaire was linked to a patient in HES | INTEGER | 1 |
| hesid_rank | Indicates the quality of matching between a record in HES and PROMs data and gives the level of confidence that a PROMs patient has been correctly matched to a patient in HES. The lowest rank, that is, a rank = 1 represents the highest quality match | INTEGER | 1 |
| gen_hesid ⁵ | A generated unique key assigned to a patient across all CPRD linked HES datasets within a linkage set. An individual that has contributed data to more than one CPRD practice has the same gen_hesid but this may change between linkage sets. | INTEGER | 20 |
| episode_matched | Indicates whether the PROMs questionnaire was linked to a HES admitted patient care episode | INTEGER | 1 |
| episode_match_rank | Indicates the quality of matching between a PROMs questionnaire and a HES inpatient episode. A score is attributed to each part of the linking process, where the quality of the match is denoted by the rank, with the lowest | INTEGER | 3 |

⁵ Variable generated by CPRD.

⁶ An eight-step process is used to match patients in CPRD primary care data (CPRD GOLD or CPRD Aurum) and HES using some or all of the following: NHS number, date of birth, sex and postcode. Only data for patients matched using steps 1-5 has been provided.

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|--------------------|---|-------------|---------------|
| | rank (i.e. 1) being the highest quality match. The scores for each possible match are compared and the highest match is chosen. | | |
| epikey | Record key uniquely identifying an episode of care | INTEGER | 20 |
| fyear | Indicates the financial year when the episode ended | INTEGER | 4 |

3. General Health Questions (hesproms_general_xx.txt)

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|--------------------|---|-------------|---------------|
| patid | Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with proms_serial_no] | INTEGER | 20 |
| proms_serial_no | Encrypted record identifier (unique in combination with patid) | CHAR | 8 |
| proms_proc_code | Code identifying the type of procedure the patient underwent | CHAR | 2 |
| patient_death | Indicates whether the patient died since completing Q1 (taken from mortality data) | INTEGER | 1 |
| complete | Indicates that there is a complete Q1 and Q2 | INTEGER | 1 |
| status | Status of the questionnaire record | CHAR | 10 |
| status_date | Date on which status field was last updated | DATE | dd/mm/yyyy |
| modified_date | Indicates the date at which the record was last modified | DATE | dd/mm/yyyy |
| q1_complete | Indicates whether questionnaire 1 is complete | INTEGER | 1 |
| q1_completed_date | Date when questionnaire was completed. Corresponding Q1 general health question: Today's Date. Completed date is equal to the date entered for this question. If the completed date question is blank or invalid, the scan date is used for analysis. | DATE | dd/mm/yyyy |
| q1_assisted | Indicates whether the patient received any assistance in the completion of the questionnaire. Corresponding Q1 general health question: Is anyone helping you fill in this questionnaire? | INTEGER | 1 |
| q1_assisted_by | Indicates the relationship of the patient with the person assisting in the completion of the questionnaire. Corresponding Q1 general health question: If the answer is yes, please give the relationship to you of the person assisting you: 1 = Family member (e.g. spouse, child, parent); 2 = Other relative; 3 = Carer; 4 = Friend/Neighbour; 5 = Healthcare professional (e.g. nurse/doctor); 6 = Other; 9 = Missing | INTEGER | 1 |
| q1_received_date | Date on which questionnaire 1 was received | DATE | dd/mm/yyyy |
| q1_scan_date | Date on which questionnaire 1 was scanned | DATE | dd/mm/yyyy |
| q1_form_version | Questionnaire 1 form version. 2009 = Original version of the questionnaire; 2009A = Aberdeen Varicose Vein Questions modified slightly; 2011 = Consent model modified to include patients giving their consent for their care professional to see their responses | CHAR | 5 |
| q1_language | Language in which questionnaire 1 was administered | CHAR | 2 |
| q1_symptom_period | Indicates the duration for which the patient has had symptoms. Exact wording of question varies dependent on procedure therefore field is not directly comparable across procedure types. | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|------------------------|---|-------------|---------------|
| q1_previous_surgery | Indicates whether the patient has had previous surgery of the type they are going to undergo (exact wording of question varies dependent on procedure) | INTEGER | 1 |
| heart_disease | Response to corresponding Q1 general health question. Have you been told by a doctor that you have heart disease? | INTEGER | 1 |
| high_bp | Response to corresponding Q1 general health question. Have you been told by a doctor that you have high blood pressure? | INTEGER | 1 |
| stroke | Response to corresponding Q1 general health question. Have you been told by a doctor that you have problems caused by a stroke? | INTEGER | 1 |
| circulation | Response to corresponding Q1 general health question. Have you been told by a doctor that you have leg pain when walking due to poor circulation? | INTEGER | 1 |
| lung_disease | Response to corresponding Q1 general health question. Have you been told by a doctor that you have lung disease? | INTEGER | 1 |
| diabetes | Response to corresponding Q1 general health question. Have you been told by a doctor that you have diabetes? | INTEGER | 1 |
| kidney_disease | Response to corresponding Q1 general health question. Have you been told by a doctor that you have kidney disease? | INTEGER | 1 |
| nervous_system | Response to corresponding Q1 general health question. Have you been told by a doctor that you have diseases of the nervous system? | INTEGER | 1 |
| liver_disease | Response to corresponding Q1 general health question. Have you been told by a doctor that you have liver disease? | INTEGER | 1 |
| cancer | Response to corresponding Q1 general health question. Have you been told by a doctor that you have cancer? | INTEGER | 1 |
| depression | Response to corresponding Q1 general health question. Have you been told by a doctor that you have depression? | INTEGER | 1 |
| arthritis | Response to corresponding Q1 general health question. Have you been told by a doctor that you have arthritis? | INTEGER | 1 |
| q1_living_arrangements | Response to corresponding Q1 general health question. Which statement best describes your living arrangements? 1 = I live with partner/spouse/family/friends; 2 = I live alone; 3 = I live in a nursing home, hospital or other long-term care home; 4 = Other; 9 = Missing | INTEGER | 1 |
| q1_general_health | Response to corresponding Q1 general health question. In general, would you say your health is? 1 = Excellent; 2 = Very Good; 3 = Good; 4 = Fair; 5 = Poor; 9 = Missing | INTEGER | 1 |
| q1_disability | Response to corresponding Q1 general health question. Do you consider yourself to have a disability? | INTEGER | 1 |
| q2_complete | Indicates whether questionnaire 2 is complete | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|--------------------|---|-------------|---------------|
| q2_completed_date | Date when questionnaire 2 was completed. Corresponding Q2 general health question: Today's Date. Completed date is equal to the date entered for this question. If the completed date question is blank or invalid the scan date is used for analysis. | DATE | dd/mm/yyyy |
| q2_assisted | Indicates whether the patient received any assistance in the completion of the questionnaire. Corresponding Q2 general health question: Is anyone helping you fill in this questionnaire? | INTEGER | 1 |
| q2_assisted_by | Indicates the relationship of the patient with the person assisting in the completion of the questionnaire. Corresponding Q2 general health question: If the answer is yes, please give the relationship to you of the person assisting you: 1 = Family member (e.g. spouse, child, parent); 2 = Other relative; 3 = Carer; 4 = Friend/Neighbour; 5 = Healthcare professional (e.g. nurse/doctor); 6 = Other; 9 = Missing | INTEGER | 1 |
| q2_received_date | Date on which questionnaire 2 was received | DATE | dd/mm/yyyy |
| q2_scan_date | Date on which questionnaire 2 was scanned | DATE | dd/mm/yyyy |
| q2_form_version | Questionnaire 2 form version. 2009 = Original version of the questionnaire; 2011 = Consent model modified to include patients giving their consent for their care professional to see their responses. | INTEGER | 5 |
| q2_language | Language in which Questionnaire 2 was administered | CHAR | 2 |
| q2_surgery_date | The date on which the patient underwent surgery. Corresponding Q2 general health question: Please confirm when your operation took place | DATE | dd/mm/yyyy |
| q2_allergy | Indicates any drug allergies after the operation. Corresponding Q2 general health question: Did you experience any of the following problems after your operation: Allergy or reaction to drug? | INTEGER | 1 |
| q2_urine | Indicates any urinary problems after the operation. Corresponding Q2 general health question: Did you experience any of the following problems after your operation: Urinary Problems? | INTEGER | 1 |
| q2_bleeding | Indicates any bleeding after the operation. Corresponding Q2 general health question: Did you experience any of the following problems after your operation: Bleeding? | INTEGER | 1 |
| q2_wound | Indicates any wound problems after the operation. Corresponding Q2 general health question: Did you experience any of the following problems after your operation: Wound problems? | INTEGER | 1 |
| q2_readmitted | Indicates whether the patient has been readmitted since their operation. Corresponding Q2 general health question: Have you been readmitted to hospital since your operation? | INTEGER | 1 |
| q2_further_surgery | Indicates whether the patient has had another operation on the affected area | INTEGER | 1 |
| q2_satisfaction | Corresponding Q2 general health question: How would you describe the results of your operation? 1 = Excellent; 2 = Very Good; 3 = Good; 4 = Fair; 5 = Poor; 9 = Missing | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|------------------------|--|-------------|---------------|
| q2_success | Corresponding Q2 general health question: Overall, how are your problems now, compared to before your operation? 1 = Much better; 2 = A little better; 3 = About the same; 4 = A little worse; 5 = Much worse ;9 = Missing | INTEGER | 1 |
| q2_living_arrangements | Corresponding Q2 general health question: Which statement best describes your living arrangements? 1 = I live with partner/spouse/family/friends; 2 = I live alone; 3 = I live in a nursing home, hospital, or other long-term care home; 4 = Other; 9 = Missing | INTEGER | 1 |
| q2_general_health | Corresponding Q2 general health question: In general, would you say your health is? :1 = Excellent; 2 = Very Good; 3 = Good; 4 = Fair; 5 = Poor; 9 = Missing | INTEGER | 1 |
| q2_disability | Corresponding Q2 general health question: Do you consider yourself to have a disability? | INTEGER | 1 |

4. EQ5D (hesproms_eq5d_xx.txt)

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|--------------------------|---|-------------|---------------|
| patid | Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with proms_serial_no] | INTEGER | 20 |
| proms_serial_no | Encrypted record identifier (unique in combination with patid) | CHAR | 8 |
| proms_proc_code | Code identifying the type of procedure the patient underwent | CHAR | 2 |
| eq5d_index_change | EQ-5D index score on Q2 - EQ-5D index score on Q1. A positive value denotes an improvement, and negative value deterioration. Values between -1.594 and 1.594. Will be NULL if the change can't be calculated e.g. Q2 not returned yet or question not completed on either questionnaire | NUMERIC | 5,3 |
| eq5d_scale_change | EQ-5D health scale on Q2 - EQ-5D health scale on Q1. Health scale is rated from 0-100 (0 being worst, and 100 being best). A positive value therefore denotes an improvement, and a negative value a deterioration in the patients perceived health | NUMERIC | 4 |
| q1_eq5d_profile | EQ-5D Profile lists the responses to the EQ-5D questions for questionnaire 1 e.g. 11111 means the patient chose option 1 for each question which is best, 33333 means they chose option 3 for each question indicating the worst response | CHAR | 5 |
| q1_eq5d_profile_complete | Indicates whether the patient completed the EQ-5D questions of questionnaire 1 | INTEGER | 1 |
| q1_eq5d_index | EQ-5D Index score derived from the EQ-5D profile. 11111= 1. For every 2 or 3 present a fraction is deducted, the lower the score the worse the patient reports on the EQ-5D questions | NUMERIC | 5,3 |
| q1_eq5d_health_scale | Indicates how well the patient rates themselves to be feeling on the day of completing questionnaire 1 on a scale of 0-100 (0 being worst, and 100 being best) | INTEGER | 3 |
| q1_eq5d_scale_complete | Indicates whether the patient completed the health scale section of questionnaire 1 | INTEGER | 1 |
| q1_eq5d_mobility | Response to first of the EQ-5D questions. Rates the patient's self-perceived mobility: 1 = I have no problems in walking about; 2 = I have some problems in walking about; 3 = I am confined to bed; 9 = Missing. Corresponding Q1 general health question on mobility | INTEGER | 1 |
| q1_eq5d_self_care | Response to second of the EQ-5D questions. Rates the patient's self-perceived ability to care for themselves: 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; 9 = Missing. Corresponding Q1 general health question on self-care | INTEGER | 1 |
| q1_eq5d_activity | Response to third of the EQ-5D questions. Rates the patient's self-perceived ability to perform usual activities: 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; 9 = Missing. Corresponding Q1 general health question on usual activities | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|--------------------------|--|-------------|---------------|
| q1_eq5d_discomfort | Response to fourth of the EQ-5D questions. Rates the patient's self-perceived pain/discomfort: 1 = I have no pain or discomfort; 2 = I have moderate pain or discomfort; 3 = I have extreme pain or discomfort; 9 = Missing. Corresponding Q1 general health question on pain/discomfort. | INTEGER | 1 |
| q1_eq5d_anxiety | Response to fifth of the EQ-5D questions. Rates the patient's self-perceived level of Anxiety/Depression: 1 = I am not anxious or depressed; 2 = I am moderately anxious or depressed; 3 = I am extremely anxious or depressed; 9 = Missing. Corresponding Q1 general health question on anxiety/depression. | INTEGER | 1 |
| q2_eq5d_profile | EQ-5D Profile lists the responses to the EQ-5D questions for questionnaire 2 e.g. 11111 means the patient chose option 1 for each question which is best, 33333 means they chose option 3 for each question indicating the worst response | CHAR | 5 |
| q2_eq5d_profile_complete | Indicates whether the patient completed the EQ-5D questions of questionnaire 2 | INTEGER | 1 |
| q2_eq5d_index | EQ-5D Index score derived from the EQ-5D profile. 11111= 1. For every 2 or 3 present a fraction is deducted, the lower the score the worse the patient reports on the EQ-5D questions | NUMERIC | 5,3 |
| q2_eq5d_health_scale | Indicates how well the patient rates themselves to be feeling on the day of completing questionnaire 2 on a scale of 0-100 (0 being worst, and 100 being best) | INTEGER | 3 |
| q2_eq5d_scale_complete | Indicates whether the patient completed the health scale section of questionnaire 2 | INTEGER | 1 |
| q2_eq5d_mobility | Response to first of the EQ-5D questions. Rates the patient's self-perceived mobility: 1 = I have no problems in walking about; 2 = I have some problems in walking about; 3 = I am confined to bed; 9 = Missing. Corresponding Q2 general health question on mobility | INTEGER | 1 |
| q2_eq5d_self_care | Response to second of the EQ-5D questions. Rates the patient's self-perceived ability to care for themselves: 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; 9 = Missing. Corresponding Q2 general health question on self-care | INTEGER | 1 |
| q2_eq5d_activity | Response to third of the EQ-5D questions. Rates the patient's self-perceived ability to perform usual activities: 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; 9 = Missing. Corresponding Q2 general health question on usual activities | INTEGER | 1 |
| q2_eq5d_discomfort | Response to fourth of the EQ-5D questions. Rates the patient's self-perceived pain/discomfort: 1 = I have no pain or discomfort; 2 = I have moderate pain or discomfort; 3 = I have extreme pain or discomfort; 9 = Missing. Corresponding Q2 general health question on pain/discomfort. | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|--------------------|--|-------------|---------------|
| q2_eq5d_anxiety | Response to fifth of the EQ-5D questions. Rates the patient's self-perceived level of Anxiety/Depression: 1 = I am not anxious or depressed; 2 = I am moderately anxious or depressed; 3 = I am extremely anxious or depressed; 9 = Missing. Corresponding Q2 general health question on anxiety/depression. | INTEGER | 1 |

5. Hip Replacement Specific Questionnaire (hesproms_procedures_hr.txt)

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|----------------------|---|-------------|---------------|
| patid | Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with proms_serial_no] | INTEGER | 20 |
| proms_serial_no | Encrypted record identifier (unique in combination with patid) | CHAR | 8 |
| proms_proc_code | Code identifying the type of procedure the patient underwent | CHAR | 2 |
| hr_score_change | HR score on Q2 - HR score on Q1. A positive value denotes an improvement, while a negative value represents deterioration. Value can range between -48 and 48. Will be NULL if the predicted score can't be calculated, e.g. Q2 not returned yet, questionnaire not linked to HES or model-dependent variables not completed. | NUMERIC | 3,0 |
| hr_q1_score | Each of the Hip Replacement questions has 5 possible responses each of which can be attributed 0-4 points. The HR score is derived by adding the points for each question. The maximum number of points is 48 which would signify the best outcome, the minimum being 0. | INTEGER | 2 |
| hr_q1_score_complete | Indicates whether the submitted questionnaire has sufficient procedure specific data to derive a score | INTEGER | 1 |
| hr_q1_pain | Q1 Hip Replacement Question, number 1: During the past 4 weeks, how would you describe the pain you usually had from your hip? :0 = Severe; 1 = Moderate; 2 = Mild; 3 = Very Mild; 4 = None; 9 = Missing | INTEGER | 1 |
| hr_q1_sudden_pain | Q1 Hip Replacement Question, number 2: During the past 4 weeks, have you had any sudden, severe pain - 'shooting', 'stabbing' or 'spasms' - from the affected hip?: 0 = Every day; 1 = Most days; 2 = Some days; 3 = Only 1 or 2 days; 4 = No days; 9 = Missing | INTEGER | 1 |
| hr_q1_night_pain | Q1 Hip Replacement Question, number 3: During the past 4 weeks, have you been troubled by pain from your hip in bed at night? :0 = Every night; 1 = Most nights; 2 = Some nights; 3 = Only 1 or 2 nights; 4 = No nights; 9 = Missing | INTEGER | 1 |
| hr_q1_washing | Q1 Hip Replacement Question, number 4: During the past 4 weeks, have you had trouble washing and drying yourself (all over) because of your hip? :0 = Impossible to do; 1 = Extreme difficulty; 2 = Moderate trouble; 3 = Very little trouble; 4 = No trouble at all; 9 = Missing | INTEGER | 1 |
| hr_q1_transport | Q1 Hip Replacement Question, number 5: During the past 4 weeks, have you had any trouble getting in or out of your car or using public transport because of your hip?: 0 = Impossible to do; 1 = Extreme difficulty; 2 = Moderate trouble; 3 = Very little trouble; 4 = No trouble at all; 9 = Missing | INTEGER | 1 |
| hr_q1_dressing | Q1 Hip Replacement Question, number 6: During the past 4 weeks, have you been able to put on a pair of socks, stockings, or tights? :0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|----------------------|---|-------------|---------------|
| hr_q1_shopping | Q1 Hip Replacement Question, number 7: During the past 4 weeks, could you do the household shopping on your own? 0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| hr_q1_walking | Q1 Hip Replacement Question, number 8: During the past 4 weeks, for how long have you been able to walk before pain from your hip becomes severe? (with or without a stick) :0 = Not at all - pain severe on walking; 1 = Around the house only; 2 = 5-15 minutes; 3 = 16-30 minutes; 4 = No pain/more than 30 minutes; 9 = Missing | INTEGER | 1 |
| hr_q1_limping | Q1 Hip Replacement Question, number 9: During the past 4 weeks, have you been limping when walking, because of your hip? 0 = All of the time; 1 = Most of the time; 2 = Often, not just at first; 3 = Sometimes or just at first; 4 = Rarely/Never; 9 = Missing | INTEGER | 1 |
| hr_q1_stairs | Q1 Hip Replacement Question, number 10: During the past 4 weeks, have you been able to climb a flight of stairs? 0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| hr_q1_standing | Q1 Hip Replacement Question, number 11: During the past 4 weeks, after a meal (sat at a table), how painful has it been for you to stand up from a chair because of your hip? :0 = Unbearable; 1 = Very painful; 2 = Moderately painful; 3 = Slightly painful; 4 = not at all painful; 9 = Missing | INTEGER | 1 |
| hr_q1_work | Q1 Hip Replacement Question, number 12: During the past 4 weeks, how much has pain from your hip interfered with your usual work (including housework)? 0 = Totally; 1 = Greatly; 2 = Moderately; 3 = A little bit; 4 = Not at all; 9 = Missing | INTEGER | 1 |
| hr_q2_score | Each of the Hip Replacement questions has 5 possible responses each of which can be attributed 0-4 points. The HR score is derived by adding the points for each question. The maximum number of points is 48 which would signify the best outcome, the minimum being 0. | INTEGER | 2 |
| hr_q2_score_complete | Indicates whether the submitted questionnaire has sufficient procedure specific data to derive a score | INTEGER | 1 |
| hr_q2_pain | Q2 Hip Replacement Question, number 1: During the past 4 weeks, how would you describe the pain you usually had from your hip? :0 = Severe; 1 = Moderate; 2 = Mild; 3 = Very Mild; 4 = None; 9 = Missing | INTEGER | 1 |
| hr_q2_sudden_pain | Q2 Hip Replacement Question, number 2: During the past 4 weeks, have you had any sudden, severe pain - 'shooting', 'stabbing' or 'spasms' - from the affected hip? 0 = Every day; 1 = Most days; 2 = Some days; 3 = Only 1 or 2 days; 4 = No days; 9 = Missing | INTEGER | 1 |
| hr_q2_night_pain | Q2 Hip Replacement Question, number 3: During the past 4 weeks, have you been troubled by pain from your hip in bed at night? :0 = Every night; 1 = Most nights; 2 = Some nights; 3 = Only 1 or 2 nights; 4 = No nights; 9 = Missing | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|--------------------|--|-------------|---------------|
| hr_q2_washing | Q2 Hip Replacement Question, number 4: During the past 4 weeks, have you had trouble washing and drying yourself (all over) because of your hip? :0 = Impossible to do; 1 = Extreme difficulty; 2 = Moderate trouble; 3 = Very little trouble; 4 = No trouble at all; 9 = Missing | INTEGER | 1 |
| hr_q2_transport | Q2 Hip Replacement Question, number 5: During the past 4 weeks, have you had any trouble getting in or out of your car or using public transport because of your hip? 0 = Impossible to do; 1 = Extreme difficulty; 2 = Moderate trouble; 3 = Very little trouble; 4 = No trouble at all; 9 = Missing | INTEGER | 1 |
| hr_q2_dressing | Q2 Hip Replacement Question, number 6: During the past 4 weeks, have you been able to put on a pair of socks, stockings, or tights? :0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| hr_q2_shopping | Q2 Hip Replacement Question, number 7: During the past 4 weeks, could you do the household shopping on your own? :0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily;9 = Missing | INTEGER | 1 |
| hr_q2_walking | Q2 Hip Replacement Question, number 8: During the past 4 weeks, for how long have you been able to walk before pain from your hip becomes severe? (with or without a stick) :0 = Not at all - pain severe on walking; 1 = Around the house only; 2 = 5-15 minutes; 3 = 16-30 minutes; 4 = No pain/more than 30 minutes;9 = Missing | INTEGER | 1 |
| hr_q2_limping | Q2 Hip Replacement Question, number 9: During the past 4 weeks, have you been limping when walking, because of your hip? 0 = All of the time; = Most of the time; 2 = Often, not just at first; 3 = Sometimes or just at first; 4 = Rarely/Never; 9 = Missing | INTEGER | 1 |
| hr_q2_stairs | Q2 Hip Replacement Question, number 10: During the past 4 weeks, have you been able to climb a flight of stairs? 0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| hr_q2_standing | Q2 Hip Replacement Question, number 11: During the past 4 weeks, after a meal (sat at a table), how painful has it been for you to stand up from a chair because of your hip? 0 = Unbearable; 1 = Very painful; 2 = Moderately painful; 3 = Slightly painful; 4 = not at all painful; 9 = Missing | INTEGER | 1 |
| hr_q2_work | Q2 Hip Replacement Question, number 12: During the past 4 weeks, how much has pain from your hip interfered with your usual work (including housework)? 0 = Totally; 1 = Greatly; 2 = Moderately; 3 = A little bit; 4 = Not at all; 9 = Missing | INTEGER | 1 |

6. Knee Replacement Specific Questionnaire (hesproms_procedures_kr.txt)

| Column name | Description | Type | Format |
|----------------------|---|---------|--------|
| patid | Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with proms_serial_no] | INTEGER | 20 |
| proms_serial_no | Encrypted record identifier (unique in combination with patid) | CHAR | 8 |
| proms_proc_code | Code identifying the type of procedure the patient underwent | CHAR | 2 |
| kr_score_change | KR score on Q2 - KR score on Q1. A positive value denotes an improvement, while a negative value represents deterioration. Value can range between -48 and 48. Will be NULL if the predicted score can't be calculated, e.g. Q2 not returned yet, questionnaire not linked to HES or model-dependent variables not completed. | NUMERIC | 3,0 |
| kr_q1_score | Each of the KR questions has 5 possible responses each of which can be attributed 0-4 points. The KR score is derived by adding the points for each question. The maximum number of points is 48 which would signify the best outcome, the minimum being 0. | INTEGER | 2 |
| kr_q1_score_complete | Indicates whether the submitted questionnaire has sufficient procedure specific data to derive a score | INTEGER | 1 |
| kr_q1_pain | Q1 Knee Replacement Question, number 1: During the past 4 weeks, how would you describe the pain you usually had from your knee? :0 = Severe; 1 = Moderate; 2 = Mild; 3 = Very Mild; 4 = None; 9 = Missing | INTEGER | 1 |
| kr_q1_night_pain | Q1 Knee Replacement Question, number 2: During the past 4 weeks, have you been troubled by pain from your knee in bed at night? 0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| kr_q1_washing | Q1 Knee Replacement Question, number 3: During the past 4 weeks, have you had trouble washing and drying yourself (all over) because of your knee: 0 = Impossible to do; 1 = Extreme difficulty; 2 = Moderate trouble; 3 = Very little trouble; 4 = No trouble at all; 9 = Missing | INTEGER | 1 |
| kr_q1_transport | Q1 Knee Replacement Question, number 4: During the past 4 weeks, have you had any trouble getting in or out of your car or using public transport because of your knee? :0 = Impossible to do; 1 = Extreme difficulty; 2 = Moderate trouble; 3 = Very little trouble; 4 = No trouble at all; 9 = Missing | INTEGER | 1 |
| kr_q1_walking | Q1 Knee Replacement Question, number 5: During the past 4 weeks, for how long have you been able to walk before pain from your knee becomes severe? (with or without a stick): 0 = Not at all - pain severe on walking; 1 = Around the house only; 2 = 5-15 minutes; 3 = 16-30 minutes; 4 = No pain/more than 30 minutes; 9 = Missing | INTEGER | 1 |
| kr_q1_standing | Q1 Knee Replacement Question, number 6: During the past 4 weeks, after a meal (sat at a table), how painful has it been for you to stand up from a chair because of your knee? 0 = Unbearable; 1 = Very painful; 2 = Moderately painful; 3 = Slightly painful; 4 = not at all painful; 9 = Missing | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|----------------------|--|-------------|---------------|
| kr_q1_limping | Q1 Knee Replacement Question, number 7: During the past 4 weeks, have you been limping when walking, because of your knee? :0 = All of the time; 1 = Most of the time; 2 = Often, not just at first; 3 = Sometimes or just at first; 4 = Rarely/Never; 9 = Missing | INTEGER | 1 |
| kr_q1_kneeling | Q1 Knee Replacement Question, number 8: During the past 4 weeks, could you kneel down and get up again afterwards? 0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| kr_q1_work | Q1 Knee Replacement Question, number 9: During the past 4 weeks, how much has pain from your knee interfered with your usual work (including housework)? 0 = Totally; 1 = Greatly; 2 = Moderately; 3 = A little bit; 4 = Not at all; 9 = Missing | INTEGER | 1 |
| kr_q1_confidence | Q1 Knee Replacement Question, number 10: During the past 4 weeks, have you felt that your knee might suddenly 'give way' or let you down? 0 = All of the time; 1 = Most of the time; 2 = Often, not just at first; 3 = Sometimes or just at first; 4 = Rarely/Never; 9 = Missing | INTEGER | 1 |
| kr_q1_shopping | Q1 Knee Replacement Question, number 11: During the past 4 weeks, could you do the household shopping on your own? :0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| kr_q1_stairs | Q1 Knee Replacement Question, number 12: During the past 4 weeks, could you walk down one flight of stairs? :0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| kr_q2_score | Each of the KR questions has 5 possible responses each of which can be attributed 0-4 points. The KR score is derived by adding the points for each question. The maximum number of points is 48 which would signify the best outcome, the minimum being 0. | INTEGER | 2 |
| kr_q2_score_complete | Indicates whether the submitted questionnaire has sufficient procedure specific data to derive a score | INTEGER | 1 |
| kr_q2_pain | Q2 Knee Replacement Question, number 1: During the past 4 weeks, how would you describe the pain you usually had from your knee? :0 = Severe; 1 = Moderate; 2 = Mild; 3 = Very Mild; 4 = None; 9 = Missing | INTEGER | 1 |
| kr_q2_night_pain | Q2 Knee Replacement Question, number 2: During the past 4 weeks, have you been troubled by pain from your knee in bed at night? 0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| kr_q2_washing | Q2 Knee Replacement Question, number 3: During the past 4 weeks, have you had trouble washing and drying yourself (all over) because of your knee: 0 = Impossible to do; 1 = Extreme difficulty; 2 = Moderate trouble; 3 = Very little trouble; 4 = No trouble at all; 9 = Missing | INTEGER | 1 |
| kr_q2_transport | Q2 Knee Replacement Question, number 4: During the past 4 weeks, have you had any trouble getting in or out of your car or using public transport because of your knee? :0 = Impossible to do; 1 = Extreme difficulty; 2 = Moderate trouble; 3 = Very little trouble; 4 = No trouble at all; 9 = Missing | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|--------------------|---|-------------|---------------|
| kr_q2_walking | Q2 Knee Replacement Question, number 5: During the past 4 weeks, for how long have you been able to walk before pain from your knee becomes severe? (with or without a stick): 0 = Not at all - pain severe on walking; 1 = Around the house only; 2 = 5-15 minutes; 3 = 16-30 minutes; 4 = No pain/more than 30 minutes; 9 = Missing | INTEGER | 1 |
| kr_q2_standing | Q2 Knee Replacement Question, number 6: During the past 4 weeks, after a meal (sat at a table), how painful has it been for you to stand up from a chair because of your knee? 0 = Unbearable; 1 = Very painful; 2 = Moderately painful; 3 = Slightly painful; 4 = not at all painful; 9 = Missing | INTEGER | 1 |
| kr_q2_limping | Q2 Knee Replacement Question, number 7: During the past 4 weeks, have you been limping when walking, because of your knee? :0 = All of the time; 1 = Most of the time; 2 = Often, not just at first; 3 = Sometimes or just at first; 4 = Rarely/Never; 9 = Missing | INTEGER | 1 |
| kr_q2_kneeling | Q2 Knee Replacement Question, number 8: During the past 4 weeks, could you kneel down and get up again afterwards? :0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| kr_q2_work | Q2 Knee Replacement Question, number 9: During the past 4 weeks, how much has pain from your knee interfered with your usual work (including housework)? 0 = Totally; 1 = Greatly; 2 = Moderately; 3 = A little bit; 4 = Not at all; 9 = Missing | INTEGER | 1 |
| kr_q2_confidence | Q2 Knee Replacement Question, number 10: During the past 4 weeks, have you felt that your knee might suddenly 'give way' or let you down? :0 = All of the time; 1 = Most of the time; 2 = Often, not just at first; 3 = Sometimes or just at first; 4 = Rarely/Never; 9 = Missing | INTEGER | 1 |
| kr_q2_shopping | Q2 Knee Replacement Question, number 11: During the past 4 weeks, could you do the household shopping on your own? :0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |
| kr_q2_stairs | Q2 Knee Replacement Question, number 12: During the past 4 weeks, could you walk down one flight of stairs? :0 = No, impossible; 1 = With extreme difficulty; 2 = With moderate difficulty; 3 = With little difficulty; 4 = Yes, easily; 9 = Missing | INTEGER | 1 |

7. Varicose Veins Specific Questionnaire (hesproms_procedures_vv.txt)

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|-----------------------|--|-------------|---------------|
| patid | Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with proms_serial_no] | INTEGER | 20 |
| proms_serial_no | Encrypted record identifier (unique in combination with patid) | CHAR | 7 |
| proms_proc_code | Code identifying the type of procedure the patient underwent | CHAR | 2 |
| vv_score_change | VV score on Q2 - VV score on Q1. A negative value denotes an improvement, while a positive value represents deterioration | NUMERIC | 6,3 |
| vv_q1_score | Total score for the varicose vein specific questions answered divided by the maximum possible score for the questions answered (VV Q1 Total Score / VV Q1 Maximum Score). Score between 0 and 100 (0 best, 100 worst) | NUMERIC | 5,3 |
| vv_q1_score_complete | Indicates whether the submitted questionnaire has sufficient procedure specific data to derive a score | INTEGER | 1 |
| vv_q1_total_score | Total score for the varicose vein specific questions answered. Score between 0 and 100 (0 best, 100 worst) | NUMERIC | 5,3 |
| vv_q1_max_score | Maximum possible total score for the varicose vein specific questions based on the number of questions answered. Score between 0 and 100 (0 best, 100 worst) | NUMERIC | 5,3 |
| vv_q1_painkiller_days | Q1 Varicose Vein Question, number 1: During the last two weeks, on how many days did you take painkilling tablets for your varicose veins? 1= None at all; 2 = Between 1 and 5 days; 3 = Between 6 and 10 days; 4 = For more than 10 days; 9 = Missing | INTEGER | 1 |
| vv_q1_swelling | Q1 Varicose Vein Question, number 2: During the last two weeks, how much ankle swelling have you had? 1 = None at all; 2 = Slight ankle swelling; 3 = Moderate ankle swelling; 4 = Severe ankle swelling; 9 = Missing | INTEGER | 1 |
| vv_q1_concern | Q1 Varicose Vein Question, number 3: Does the appearance of your varicose veins cause you concern? 1 = No; 2 = Yes, their appearance causes me slight concern; 3= Yes, their appearance causes me moderate concern; 4= Yes, their appearance causes me a great deal of concern; 9= Missing | INTEGER | 1 |
| vv_q1_clothing | Q1 Varicose Vein Question, number 4: Does the appearance of your varicose veins influence your choice of clothing including tights? 1 = No; 2 = Occasionally; 3 = Often; 4 = Always; 9 = Missing | INTEGER | 1 |
| vv_q1_work | Q1 Varicose Vein Question, number 5: During the last two weeks, have your varicose veins interfered with your work/housework or other daily activities? 1 = No; 2 = I have been able to work but my work has suffered to some extent; 3 = I have been able to work but my work has suffered to a moderate extent; 4 = My veins have prevented me from working one day or more; 9 = Missing | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|-------------------------|---|-------------|---------------|
| vv_q1_leisure | Q1 Varicose Vein Question, number 6: During the last two weeks, have your varicose veins interfered with your leisure activities (including sport, hobbies and social life)? 1 = No; 2 = Yes, my enjoyment has suffered to a slight extent; 3 = Yes, my enjoyment has suffered to a moderate extent; 4 = My veins have prevented me from taking part in any leisure activities; 9 = Missing | INTEGER | 1 |
| vv_q1_left_front_count | Q1 Varicose Vein Question, number 7: Requests the patient to illustrate the number of visible varicose veins in each leg - left leg (front). Integer between 0 and 32 | INTEGER | 2 |
| vv_q1_left_back_count | Q1 Varicose Vein Question, number 7: Requests the patient to illustrate the number of visible varicose veins in each leg- left leg (back) Integer between 0 and 32 | INTEGER | 2 |
| vv_q1_right_front_count | Q1 Varicose Vein Question, number 7: Requests the patient to illustrate the number of visible varicose veins in each leg - right leg (front). Integer between 0 and 32 | INTEGER | 2 |
| vv_q1_right_back_count | Q1 Varicose Vein Question, number 7: Requests the patient to illustrate the number of visible varicose veins in each leg - right leg (back). Integer between 0 and 32 | INTEGER | 2 |
| vv_q1_left_pain_days | Q1 Varicose Vein Question, number 8: In the last two weeks, for how many days did your varicose veins cause you pain or ache in your left leg? 1= None at all; 2 = Between 1 and 5 days; 3 = Between 6 and 10 days; 4 = For more than 10 days; 9 = Missing | INTEGER | 1 |
| vv_q1_right_pain_days | Q1 Varicose Vein Question, number 8: In the last two weeks, for how many days did your varicose veins cause you pain or ache in your right leg? 1= None at all; 2 =Between 1 and 5 days; 3 = Between 6 and 10 days; 4 = For more than 10 days; 9 = Missing | INTEGER | 1 |
| vv_q1_left_support | Q1 Varicose Vein Question, number 9: In the last two weeks have you worn support tights or stockings on the left leg? 1 = No; 2 = Yes, those I bought myself without a doctor's prescription; 3 = Yes, those my doctor prescribed for me which I wear occasionally; 4 = Yes, those my doctor prescribed for me which I wear every day; 9 = Missing | INTEGER | 1 |
| vv_q1_right_support | Q1 Varicose Vein Question, number 9: In the last two weeks have you worn support tights or stockings on the right leg? 1 = No; 2 = Yes, those I bought myself without a doctor's prescription; 3 = Yes, those my doctor prescribed for me which I wear occasionally; 4 = Yes, those my doctor prescribed for me which I wear every day; 9 = Missing | INTEGER | 1 |
| vv_q1_left_itch | Q1 Varicose Vein Question, number 10: In the last two weeks, have you had any itching in association with your varicose veins on you left leg? 1 = No; 2 = Yes, but only above the knee; 3 = Yes, but only below the knee; 4 = Both above and below the knee; 9 = Missing | INTEGER | 1 |
| vv_q1_right_itch | Q1 Varicose Vein Question, number 10: In the last two weeks, have you had any itching in association with your varicose veins on you right leg? 1 = No; 2 = Yes, but only above the knee; 3 = Yes, but only below the knee; 4 = Both above and below the knee; 9 = Missing | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|-----------------------|--|-------------|---------------|
| vv_q1_left_discolour | Q1 Varicose Vein Question, number 11: Do you have purple discolouration caused by tiny blood vessels in the skin, in association with your varicose veins on the left leg? 1 = No; 2 = Yes; 9 = Missing | INTEGER | 1 |
| vv_q1_right_discolour | Q1 Varicose Vein Question, number 11: Do you have purple discolouration caused by tiny blood vessels in the skin, in association with your varicose veins on the right leg? 1 = No; 2 = Yes; 9 = Missing | INTEGER | 1 |
| vv_q1_left_rash | Q1 Varicose Vein Question, number 12: Do you have any rash or eczema in the area of your left ankle? 1 = No; 2 = Yes, but it does not require any treatment from a doctor or district nurse; 3 = Yes, and it requires treatment from my doctor or district nurse; 9 = Missing | INTEGER | 1 |
| vv_q1_right_rash | Q1 Varicose Vein Question, number 12: Do you have any rash or eczema in the area of your right ankle? 1 = No; 2 = Yes, but it does not require any treatment from a doctor or district nurse; 3 = Yes, and it requires treatment from my doctor or district nurse; 9 = Missing | INTEGER | 1 |
| vv_q1_left_ulcer | Q1 Varicose Vein Question, number 13: Do you have a skin ulcer associated with your varicose veins on your left leg? 1 = No; 2 = Yes; 9 = Missing | INTEGER | 1 |
| vv_q1_right_ulcer | Q1 Varicose Vein Question, number 13: Do you have a skin ulcer associated with your varicose veins on your right leg? 1 = No; 2 = Yes; 9 = Missing | INTEGER | 1 |
| vv_q2_score | Total score for the varicose vein specific questions answered divided by the maximum possible score for the questions answered (VV Q2 Total Score / VV Q2 Maximum Score). Score between 0 and 100 (0 best, 100 worst) | NUMERIC | 5,3 |
| vv_q2_score_complete | Indicates whether the submitted questionnaire has sufficient procedure specific data to derive a score | INTEGER | 1 |
| vv_q2_total_score | Total score for the varicose vein specific questions answered. Score between 0 and 100 (0 best, 100 worst) | NUMERIC | 5,3 |
| vv_q2_max_score | Maximum possible total score for the varicose vein specific questions based on the number of questions answered. Score between 0 and 100 (0 best, 100 worst) | NUMERIC | 5,3 |
| vv_q2_painkiller_days | Q2 Varicose Vein Question, number 1: During the last two weeks, on how many days did you take painkilling tablets for your varicose veins? 1= None at all; 2 = Between 1 and 5 days; 3 = Between 6 and 10 days; 4 = For more than 10 days; 9 = Missing | INTEGER | 1 |
| vv_q2_swelling | Q2 Varicose Vein Question, number 2: During the last two weeks, how much ankle swelling have you had? 1 = None at all; 2 = Slight ankle swelling; 3 = Moderate ankle swelling; 4 = Severe ankle swelling; 9 = Missing | INTEGER | 1 |
| vv_q2_concern | Q2 Varicose Vein Question, number 3: Does the appearance of your varicose veins cause you concern? 1 = No; 2 = Yes, their appearance causes me slight concern; 3= Yes, their appearance causes me moderate concern; 4= Yes, their appearance causes me a great deal of concern; 9= Missing | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|-------------------------|---|-------------|---------------|
| vv_q2_clothing | Q2 Varicose Vein Question, number 4: Does the appearance of your varicose veins influence your choice of clothing including tights? 1 = No; 2 = Occasionally; 3 = Often; 4 = Always; 9 = Missing | INTEGER | 1 |
| vv_q2_work | Q2 Varicose Vein Question, number 5: During the last two weeks, have your varicose veins interfered with your work/housework or other daily activities? 1 = No; 2 = I have been able to work but my work has suffered to some extent; 3 = I have been able to work but my work has suffered to a moderate extent; 4 = My veins have prevented me from working one day or more; 9 = Missing | INTEGER | 1 |
| vv_q2_leisure | Q2 Varicose Vein Question, number 6: During the last two weeks, have your varicose veins interfered with your leisure activities (including sport, hobbies and social life)? 1 = No; 2 = Yes, my enjoyment has suffered to a slight extent; 3 = Yes, my enjoyment has suffered to a moderate extent; 4 = My veins have prevented me from taking part in any leisure activities; 9 = Missing | INTEGER | 1 |
| vv_q2_left_front_count | Q2 Varicose Vein Question, number 7: Requests the patient to illustrate the number of visible varicose veins in each leg - left leg (front). Integer between 0 and 32 | INTEGER | 2 |
| vv_q2_left_back_count | Q2 Varicose Vein Question, number 7: Requests the patient to illustrate the number of visible varicose veins in each leg- left leg (back) Integer between 0 and 32 | INTEGER | 2 |
| vv_q2_right_front_count | Q2 Varicose Vein Question, number 7: Requests the patient to illustrate the number of visible varicose veins in each leg - right leg (front). Integer between 0 and 32 | INTEGER | 2 |
| vv_q2_right_back_count | Q2 Varicose Vein Question, number 7: Requests the patient to illustrate the number of visible varicose veins in each leg - right leg (back). Integer between 0 and 32 | INTEGER | 2 |
| vv_q2_left_pain_days | Q2 Varicose Vein Question, number 8: In the last two weeks, for how many days did your varicose veins cause you pain or ache in your left leg? 1= None at all; 2 = Between 1 and 5 days; 3 = Between 6 and 10 days; 4 = For more than 10 days; 9 = Missing | INTEGER | 1 |
| vv_q2_right_pain_days | Q2 Varicose Vein Question, number 8: In the last two weeks, for how many days did your varicose veins cause you pain or ache in your right leg? 1= None at all; 2 =Between 1 and 5 days; 3 = Between 6 and 10 days; 4 = For more than 10 days; 9 = Missing | INTEGER | 1 |
| vv_q2_left_support | Q2 Varicose Vein Question, number 9: In the last two weeks have you worn support tights or stockings on the left leg? 1 = No; 2 = Yes, those I bought myself without a doctor's prescription; 3 = Yes, those my doctor prescribed for me which I wear occasionally; 4 = Yes, those my doctor prescribed for me which I wear every day; 9 = Missing | INTEGER | 1 |
| vv_q2_right_support | Q2 Varicose Vein Question, number 9: In the last two weeks have you worn support tights or stockings on the right leg? 1 = No; 2 = Yes, those I bought myself without a doctor's prescription; 3 = Yes, those my doctor prescribed for me which I wear occasionally; 4 = Yes, those my doctor prescribed for me which I wear every day; 9 = Missing | INTEGER | 1 |

| <i>Column name</i> | <i>Description</i> | <i>Type</i> | <i>Format</i> |
|-----------------------|--|-------------|---------------|
| vv_q2_left_itch | Q2 Varicose Vein Question, number 10: In the last two weeks, have you had any itching in association with your varicose veins on you left leg? 1 = No; 2 = Yes, but only above the knee; 3 = Yes, but only below the knee; 4 = Both above and below the knee; 9 = Missing | INTEGER | 1 |
| vv_q2_right_itch | Q2 Varicose Vein Question, number 10: In the last two weeks, have you had any itching in association with your varicose veins on you right leg? 1 = No; 2 = Yes, but only above the knee; 3 = Yes, but only below the knee; 4 = Both above and below the knee; 9 = Missing | INTEGER | 1 |
| vv_q2_left_discolour | Q2 Varicose Vein Question, number 11: Do you have purple discolouration caused by tiny blood vessels in the skin, in association with your varicose veins on the left leg? 1 = No; 2 = Yes; 9 = Missing | INTEGER | 1 |
| vv_q2_right_discolour | Q2 Varicose Vein Question, number 11: Do you have purple discolouration caused by tiny blood vessels in the skin, in association with your varicose veins on the right leg? 1 = No; 2 = Yes; 9 = Missing | INTEGER | 1 |
| vv_q2_left_rash | Q2 Varicose Vein Question, number 12: Do you have any rash or eczema in the area of your left ankle? 1 = No; 2 = Yes, but it does not require any treatment from a doctor or district nurse; 3 = Yes, and it requires treatment from my doctor or district nurse 9 = Missing | INTEGER | 1 |
| vv_q2_right_rash | Q2 Varicose Vein Question, number 12: Do you have any rash or eczema in the area of your right ankle? 1 = No; 2 = Yes, but it does not require any treatment from a doctor or district nurse; 3 = Yes, and it requires treatment from my doctor or district nurse 9 = Missing | INTEGER | 1 |
| vv_q2_left_ulcer | Q2 Varicose Vein Question, number 13: Do you have a skin ulcer associated with your varicose veins on your left leg? 1 = No; 2 = Yes; 9 = Missing | INTEGER | 1 |
| vv_q2_right_ulcer | Q2 Varicose Vein Question, number 13: Do you have a skin ulcer associated with your varicose veins on your right leg? 1 = No; 2 = Yes; 9 = Missing | INTEGER | 1 |
| vv_q2_left_visible | Left leg response - corresponding Q2 varicose vein question: Do you have any visible varicose veins on your legs at the moment? 1 = No; 2 = Yes; 9 = Missing | INTEGER | 1 |
| vv_q2_right_visible | Right leg response - corresponding Q2 varicose vein question: Do you have any visible varicose veins on your legs at the moment? 1 = No; 2 = Yes; 9 = Missing | INTEGER | 1 |