Conventions for Populating OMOP CDM v5.0 to Support PCORnet v3 Requirements

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| --- | --- | --- | --- |
| Version | Date | Author | Summary |
| 1.0 | 3/3/2016 | Don Torok | Initial document for OMOP v5 to PCORnet v3 |
| 2.0 | 3/31/2016 | Don Torok | Move items previously stored in the observation table: |
| 2.1 | 4/7/2016 | Don Torok | Move DRG to Cost Table |
| 2.1.1 | 7/21/2016 | Don Torok | Include changes/comments from Rimma and Lisa’s review. |
|  | 8/24/2016 | Rimma | Change:  Visit\_Occurrence:   * visit\_concept\_id, added new visit type Emergency/Inpatient; also added to the Outstanding Issues * admitting\_source\_value, admitting\_source\_concept\_id, discharge\_to\_source\_value, discharge\_to\_concept\_id - changed from “non-standard” to bonafide OMOP CDM fields   Cost:   * DRG\_source\_value, DRG\_concept\_id - changed from “non-standard” to bonafide OMOP CDM fields   Condition\_Occurrence:   * condition\_status\_source\_value, condition\_status\_concept\_id - changed from “non-standard” to bonafide OMOP CDM fields * Removed “Discharge” from possible values for condition\_status\_concept\_id |
| 2.2 | 8/25/2016 | Don Torok | Update tobacco section |
| 3.0 | 14 Sept 2016 | Don Torok | Reorganized to ONLY include additions and conventions necessary to capture data needed to populate PCORnet. |
| 3.1 | 01 Nov 2016 | Don Torok | Responded to group review |

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# Purpose

This document defines a set of conventions for storing information within the OMOP CDM, with the intent that information needed to populate the PCORnet CDM can be obtained from the OMOP CDM using a common set of procedures.  Populating OMOP CDMv5 is addressed in the OMOP Common Data Model Specification, Version 5.  This document only addresses areas where the standards spelled out in the OMOP Common Data Model Specification, Version 5 will not support data elements, referential integrity, cardinality or other structural requirements necessary for the PCORnet CDM or where there is ambiguity in how medical data or observations needed for PCORnet might be recorded in the OMOP CDM.

This is an evolving specification, based in structure on the OMOP Common Data Model with focus on PCORnet requirements.

# General Conventions

1. Concept IDs are taken from OMOP vocabularies v5 or later using the complete (“restricted”) version that includes licensed terminologies such as CPT and others.
2. PCORnet CDM V3.0 requires some concepts that are not currently part of the OMOP standard vocabulary. To represent PCORnet concepts that are not represented in the standard OMOP vocabulary, we will be using non-standard concepts from vocabulary\_id  =  ‘PCORnet’ (former vocabulary\_id = 60). While this violates the OMOP conventions to use only concept\_ids from OMOP standard vocabularies, this CDRN-specific convention enables a uniform ETL from OMOP CDM to PCORnet CDM.
3. Representation of PCORNet “Unknown” flavors.

To support PCORnet conventions for representation of “Unknown” flavors, we will follow these conventions:

|  |  |
| --- | --- |
| **Null Name** | **Definition of each field** |
| A data field is not present in the source system | A corresponding field in the OMOP CDM will be populated with concept\_ID=0. Not Present in Source |
| A data field is present in the source system, but the source value is null or blank | A corresponding field in the OMOP CDM will be populated with “No Information” (44814650) from vocabulary\_id = ‘PCORNet’ |
| A data field is present in the source system, but the source value explicitly denotes an unknown value | A corresponding field in the OMOP CDM will be populated with “Unknown”( 44814653) from vocabulary\_id = ‘PCORNet’ |
| A data field is present in the source system, but the source value cannot be mapped to the CDM | A corresponding field in the OMOP CDM will be populated with “Other” (44814649) from vocabulary\_id = ‘PCORNet’ |

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**This set of concept ids will be referred to as ‘Unknown flavors’ throughout the rest of this document.**

# Person

The allowable concepts ids for the following attributes are expanded as shown below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field** | **Type** | **Required** | **Description** | **PCORnet Convention** |
| gender concept id | Integer | Yes | Foreign key to a standard concept identifier in the Vocabulary for the gender of the person. | Valid OMOP concept\_ids are:  Female: 8532  Male: 8507  Allowable concepts have been extended to include the following from vocabulary\_id = ‘PCORNet’:  Ambiguous: 44814664  and PCORnet ‘Unknown flavors’ |
| Race concept id | Integer | Yes | Foreign key to a standard concept identifier in the Vocabulary for the race of the person. | All standard concepts from vocabulary\_id = ‘Race’ plus the following concepts from vocabulary\_id = ‘PCORnet’:  Multiple Race: 44814659  Refuse to answer: 44814660  and PCORnet ‘Unknown flavors’ |
| Ethnicity concept id | Integer | Yes | Foreign key to a standard concept identifier for the ethnicity | In addition to the standard OMOP values vocabulary\_id = ‘PCORnet’:  Refuse to answer: 44814660  and PCORnet ‘Unknown flavors’ |

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# Observation Period

The OBSERVATION\_PERIOD table is designed to capture the time intervals in which data are being recorded for the person. The allowable concepts are limited to the following standard concepts from vocabulary\_id = ‘Obs Period Type’:

* Insurance: 44814722
* Geography: 44814723
* Algorithmic: 44814725
* Encounter-based: 44814724

**Conventions**

According to PCORnet requirements, “Enrollment” is an insurance-based concept that defines a period during which all medically-attended events are expected to be observed. For partners that do not have enrollment information for some of their patients, other approaches for identifying periods during which complete medical capture is expected can be used.

The Enrollment data can be loaded from OMOP Payer\_Plan\_period table; which in turn is built based on patients' encounters ('E' – encounter based). For Claims based source data this ENR\_BASIS is 'I' – Insurance based.

In the absence of claims data, Encounter-based (44814724) method will be used: where observation period start and end date correspond to the start date of the earliest and end date of the latest available patient visit occurrence respectively.

# Visit Occurrence

The VISIT\_OCCURRENCE table contains the spans of time a person continuously receives medical services from one or more providers at a facility in a given setting within the healthcare system. The OMOP Visit Occurrence corresponds with the PCORnet Encounter table. The allowed values for the *visit\_concept\_id* is expanded to accommodate values requested by PCORnet. There are also a number of columns added to support the PCORnet Encounter table hospital admission admission, discharge disposition and discharge status.

## Expanded Values for Visit Concept Id

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field** | **Type** | **Required** | **Description** | **PCORnet Convention** |
| Visit concept id | Integer | Yes | Foreign key to standard concept identifier for a visit. | In addition to the standard OMOP values add the follow concepts from PCORnet vocabulary.  Non-Acute Institutional Stay: 44814710  Other Ambulatory Visit: 44814711  and PCORnet ‘Unknown flavors’ |

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### Discussion

There is NOT a one to one relationship between the OMOP visit properties and PCORnet for all the possible types of visits. The ETL designer will need to make judgements as to how some visits will be classified and which types of visits will be included. The ETL designer will need to determine how the different values assigned to the *visit concept id* may affect analysis. The following points out the potential problems.

**OMOP PCORnet**

Non-Acute Institutional

Inpatient

Outpatient

Emergency Room

Inpatient

Emergency Department Admit to Hospital

Other Ambulatory

Emergency Department

Ambulatory

Emergency Room Admit to Hospital

Long Term Care

### Emergency room and Inpatient

The OMOP and PCORnet definitions for emergency room, inpatient and emergency room visits that result in a hospital admission are similar and no special consideration is necessary when determining the visit concept id for these visits.

However, it is not so obvious how to classify Non-Acute Institutional stays. The PCORnet definition for a Non-Acute Institutional Stay includes hospice, skilled nursing facility, rehab center, nursing home, residential, overnight non-hospital dialysis, and other non-hospital stays. OMOP lacks this classification. These types of encounters would either be classified as Inpatient or Long Term care visits.

### Outpatient visit

The OMOP Outpatient visit definition overlaps two PCORnet encounter types, Ambulatory and Other Ambulatory. PCORnet defines an Ambulatory Visit as visits at outpatient clinics, physician offices, same day/ambulatory surgery centers, urgent care facilities, and other same-day ambulatory hospital encounters, but excludes emergency department encounters. And Other Ambulatory Visit as other non-overnight encounters such as hospice visits, home health visits, skilled nursing visits, other non-hospital visits, as well as telemedicine, telephone and email consultations. May also include "lab only" visits (when a lab is ordered outside of a patient visit), "pharmacy only" (e.g., when a patient has a refill ordered without a face-to-face visit), "imaging only", etc.

Here the ETL into OMOP needs to make a few decisions. Is it important to distinguish between the PCORNet Ambulatory and Other Ambulatory visits? If not, then it should be sufficient to classify all these visits as Outpatient. If the distinction is important enough to maintain both Ambulatory and Other Ambulatory, then use the OMOP concept for Outpatient to correspond to the Ambulatory visits and the OMOP concept for 44814711(Other Ambulatory) for those visits that meet the Other Ambulatory definition.

Also to be decided is if the OMOP CDM should include visit information for PCORnet that otherwise might not be included. For example, an ETL into the OMOP CDM may not be expected to include a telephone or email consultation, but PCORnet does make allowances for these encounters. These decisions will be site specific, but if these types of visits are included, the visit concept id should be Other Ambulatory visit.

## Visit Occurrence Table

The following columns have been accepted by the OHDSI community as additions to the version 5 Visit Occurrence table. They are listed here as “added” because the OMOP CDM v5 documentation does not include them.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field** | **Type** | **Required** | **Description** | **PCORnet Convention** |
| Admitting\_source\_value | Text( 50) | No | Code or identifier as it appears in the source data | Define, when available in the source data, for ER, Inpatient and Long term care visits |
| Admitting\_source\_concept\_id | Integer | Yes | Concept from the Place of Service vocabulary and Unknown flavors  Set to zero when not applicable. | Same rule as above. |
| Discharge\_to\_source\_value | Text(50) | No | Place of service values, unless it is known that the person died in which case enter ‘Patient Died’  or Patient absent without leave, enter ‘AWOL’ or Patient self discharged against medical advice, enter ‘Self discharge’ | Define, when available in the source data, for ER, Inpatient and Long term care visits |
| Discharge\_to\_  concept\_id | Integer | Yes | Concept from the Place of Service vocabulary.  In addition to the “Place of Service” vocabulary, the following SNOMED concepts for discharge disposition can be used:  Patient died: 4216643  Absent without leave: 44814693  Patient self-discharge against medical advice: 4021968  and Unknown flavors  Set to zero when not applicable. | Same rule as above. |

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# Condition Occurrence

The CONDITION\_OCCURRENCE table captures records of a disease or a medical condition based on evaluation by a provider or reported by a patient. The corresponding table in PCORnet is the Diagnosis table.

### Conventions

The *condition\_status\_source\_value* and *condition\_status\_concept\_id* columns have been adopted by OHDSI after CDMv5 was released. They are included here because they may not exist in your schema. The *condition\_origin* column is added to record the the condition origin for a column with the same name added in PCORnet CDMv3.1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field** | **Type** | **Required** | **Description** | **PCORnet Convention** |
| condition\_type\_  concept\_id | integer | Yes | Concept reflecting the source data from which the condition was recorded. For example, conditions may be defined as primary or secondary diagnoses, problem lists and person statuses. | Only the following two types are relevant to PCORnet Principal discharge diagnosis flag:   * Primary Condition: 44786627 * Secondary Condition: 44786629 * PCORnet ‘Unknown’ flavors |
| Condition\_status\_concept\_id | Integer | Yes | Possible standard value\_as\_concept\_id:  Admitting diagnosis: 4203942  Final diagnosis: 4230359  Preliminary diagnosis: 4033240  Interim: 45880831  Set to zero when not applicable. | Also allowed are the PCORnet ‘Unknown’ flavors |
| Condition\_status\_source\_value | Text(50) | No | Classification of diagnosis status. Potential values are ‘Admitting’, ‘Final’ (interchangeable with ‘Discharge’), or ‘Interim’.  Outpatient Visits would generally be expected to have a source of “Final.” | The context is to capture available diagnoses recorded during a specific encounter. It is not necessary to populate interim diagnoses unless readily available.  Ambulatory encounters would generally be expected to have a source of “Final.” |
| Condition\_Origin  (V3.1) | Text(2) | Yes | Billing pertains to internal healthcare processes and data sources. Claim pertains to data from the bill fulfillment, generally data sources held by insurers and other health plans. | BI=Billing  CL=Claim  PCORnet ‘Unknown’ flavors  Use OT=Other is the origin is electronic health records |

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# Measurement

Values from the Measurement table are used to populate both the Vital and the Lab Result CM tables in PCORnet. No additional columns are added to the Measurement table, but there are a number of conventions that need to be followed to enable the OMOP to PCORnet ETL to find the correct values.

## Measurement Type Concept id

The PCORnet ‘Unknown’ flavors added addee as possible values for *measurement\_type\_concept\_id*.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field** | **Type** | **Required** | **Description** | **PCORnet Convention** |
| measurement\_  type\_concept\_id | Integer | Yes | A foreign key to the concept  identifier in the Standardized Vocabularies reflecting the type of data on which the  measurement record is based. | Concept\_ids where vocabulary\_id = ‘Meas Type’  Also allowed are the PCORnet ‘Unknown’ flavors |

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## Vitals

The Measure records that hold information used to fill in the attributes of the Vital table are identified by setting the *measurement concept\_id* to the LOINC codes given in the following table*.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Vital Measurement** | **Concept Name** | **Code** | **Concept Id** |
| Height | Body height | 8302-2 | 3036277 |
| Weight | Body weight | 29463-7 | 3025315 |
| Body Mass Index (BMI) | Body mass index | 39156-5 | 3038553 |
| Diastolic Blood Pressure | Diastolic Blood Pressure - Sitting | 8453-3 | 3034703 |
|  | Diastolic Blood Pressure - Standing | 8454-1 | 3019962 |
|  | Diastolic Blood Pressure - Supine | 8455-8 | 3013940 |
|  | Diastolic BP | 8462-4 | 3012888 |
| Systolic Blood Pressure | Systolic Blood Pressure - Sitting | 8459-0 | 3018586 |
|  | Systolic Blood Pressure - Standing | 8460-8 | 3035856 |
|  | Systolic Blood Pressure - Supine | 8461-6 | 3009395 |
|  | Systolic BP | 8480-6 | 3004249 |

To synchronize Diastolic and Systolic BP in case of multiple measurements, measurement\_date and measurement\_time of the same measurement should be the same. Additionally, records for the same measurement are linked together via FACT\_RELATIONSHIP table. For each pair of BP measurements, there will be two records in the FACT\_RELATIONSHIP table. The first record will contain: domain\_concept\_id\_1 and domain\_concept\_id\_2 equal to 21 (‘Measurement’), Fact\_id\_1 and Fact\_id\_2 equal to the respective measurement\_id of diastolic and systolic BP records in the Measurement table coming from the same measurement, and relationship\_concept\_id equal to 46233682 (‘ Diastolic to systolic blood pressure measurement’). The second record will contain: domain\_concept\_id\_1 and domain\_concept\_id\_2 equal to 21 (‘Measurement’), Fact\_id\_1 and Fact\_id\_2 equal to the respective measurement\_id of systolic and diastolic BP records in the Measurement table coming from the same measurement, and relationship\_concept\_id equal to 46233683 (‘Systolic to diastolic blood pressure measurement’).

## PCORnet Lab Values

The PCORnet Lab Result CM table has columns for the *order date*, *specimen date and time*, and a *result date and time.* Whereas the OMOP Measurement table only has a measurement date. The most meaningful date for a lab test is when the sample was drawn. Therefore the convention will be to fill the *measurement date and time* with the source values that best represents the when the sample was drawn.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field** | **Type** | **Required** | **Description** | **PCORnet Convention** |
| measurement\_date | date | yes | Date the sample being tested was taken |  |
| measurement\_time | time | no | Time the sample being tested was taken |  |

Add the following columns to the Observation table to accommodate the other two date fields and priority requested by PCORnet. Note these columns are optional. It is not necessary to add these columns if your source data does not have these dates and times or priority.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field** | **Type** | **Required** | **Description** | **PCORnet Convention** |
| result\_date | date | no | Date the results received | Optional |
| result\_time | time | no | Time the results received | Optional |
| order\_date | date | no | Date the lab was ordered | Optional |
| priority | char 2 | no | Immediacy of test. The intent of this variable is to determine whether the test was obtained as part of routine care or as an emergent/urgent diagnostic test (designated as Stat or Expedite). | E=Expedite  R=Routine  S=Stat  NI=No information  UN=Unknown  OT=Other |

Note: depending on the database there might not be a separated data type for time, use the date/time data type that is capable of representing time. It will be the responsibility of the ETL to parse out the date and times for PCORnet.

### PCORnet Laboratory Results of Interest

PCORnet is currently limiting the laboratory results to a finite set of Labs. However, all laboratory results should be loaded into the OMOP Measurement table. The OMOP to PCORnet ETL is responsible for selecting the labs of interest for PCORnet.

Laboratory results will be copied into the PCORnet Lab Result CM table when the *measurement\_concept\_id* is equal any of the OMOP Concept Id listed in the table below. This table is included here, as a potential aid in prioritizing if your site is in the process of mapping internal lab identifiers into LOINC codes. This table should NOT be used to limit what labs are loading into the OMOP Observation table.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **PCORnet Lab Name** | **LOINC Code** | **OMOP Concept ID** | **LOINC long common name** | **Component** | **Specimen** | **Units** | **Unit OMOP Concept ID** |
| Creatinine | 12190-5 | 3016662 | Creatinine [Mass/volume] in Body fluid | Creatinine | Body fld | mg/dL | 8840 |
| Creatinine | 2160-0 | 3016723 | Creatinine [Mass/volume] in Serum or Plasma | Creatinine | Ser/Plas | mg/dL | 8840 |
| Creatinine | 38483-4 | 3051825 | Creatinine [Mass/volume] in Blood | Creatinine | Bld | mg/dL | 8840 |
| Creatinine kinase MB | 13969-1 | 3005785 | Creatine kinase.MB [Mass/volume] in Serum or Plasma | Creatine kinase.MB | Ser/Plas | ng/mL | 8842 |
| Creatinine kinase MB | 32673-6 | 3029790 | Creatine kinase.MB [Enzymatic activity/volume] in Serum or Plasma | Creatine kinase.MB | Ser/Plas | U/L | 8923 |
| Creatinine kinase MB | 5912-1 | 3017761 | Creatine kinase isoenzymes [interpretation] in Serum or Plasma | Creatine kinase isoenzymes | Ser/Plas |  |  |
| Creatinine kinase MB/creatinine kinase total | 12187-1 | 3007150 | Creatine kinase.MB/Creatine kinase.total in Serum or Plasma by Electrophoresis | Creatine kinase.MB/Creatine kinase.total | Ser/Plas | % | 8554 |
| Creatinine kinase MB/creatinine kinase total | 20569-0 | 3016311 | Creatine kinase.MB/Creatine kinase.total in Serum or Plasma | Creatine kinase.MB/Creatine kinase.total | Ser/Plas | % | 8554 |
| Creatinine kinase MB/creatinine kinase total | 49136-5 | 3048863 | Creatine kinase.MB/​Creatine kinase.total [Ratio] in Serum or Plasma | Creatine kinase.MB/Creatine kinase.total | Ser/Plas |  |  |
| Creatinine kinase total | 2157-6 | 3007220 | Creatine kinase [Enzymatic activity/volume] in Serum or Plasma | Creatine kinase | Ser/Plas | U/L | 8923 |
| Hemoglobin | 718-7 | 3000963 | Hemoglobin [Mass/volume] in Blood | Hemoglobin | Bld | g/dL | 8713 |
| Hemoglobin A1c | 4548-4 | 3004410 | Hemoglobin A1c/Hemoglobin.total in Blood | Hemoglobin A1c/Hemoglobin.total | Bld | % | 8554 |
| International normalized ratio | 6301-6 | 3022217 | INR in Platelet poor plasma by Coagulation assay | Coagulation tissue factor induced.INR | PPP |  |  |
| Low-density lipoprotein | 13457-7 | 3028288 | Cholesterol in LDL [Mass/​volume] in Serum or Plasma by calculation | Cholesterol.in LDL | Ser/Plas |  |  |
| Low-density lipoprotein | 18262-6 | 3009966 | Cholesterol in LDL [Mass/volume] in Serum or Plasma by Direct assay | Cholesterol.in LDL | Ser/Plas | mg/dL | 8840 |
| Low-density lipoprotein | 2089-1 | 3028437 | Cholesterol in LDL [Mass/​volume] in Serum or Plasma | Cholesterol.in LDL | Ser/Plas | mg/dL | 8840 |
| Low-density lipoprotein | 22748-8 | 3001308 | Cholesterol in LDL [Moles/​volume] in Serum or Plasma | Cholesterol.in LDL | Ser/Plas |  |  |
| Low-density lipoprotein | 43727-7 | 3046549 | Lipoprotein.beta.subparticle.small [Moles/volume] in Serum or Plasma | Lipoprotein.beta.subparticle | Ser/Plas | nmol/L | 8736 |
| Low-density lipoprotein | 47213-4 | 3053190 | Cholesterol in LDL real size pattern [Identifier] in Serum or Plasma | Cholesterol.in LDL real size pattern | Ser/Plas |  |  |
| Low-density lipoprotein | 54434-6 | 40757565 | Lipoprotein.beta.subparticle [Moles/volume] in Serum or Plasma | Lipoprotein.beta.subparticle | Ser/Plas | nmol/L | 8736 |
| Low-density lipoprotein | 55440-2 | 40758569 | Cholesterol.in LDL (real) [Mass/volume] in Serum or Plasma by VAP | Cholesterol.in LDL | Ser/Plas | mg/dL | 8840 |
| Troponin I cardiac | 10839-9 | 3021337 | Troponin I.cardiac [Mass/volume] in Serum or Plasma | Troponin I.cardiac | Ser/Plas | ng/mL | 8842 |
| Troponin I cardiac | 42757-5 | 3033745 | Troponin I.cardiac [Mass/volume] in Blood | Troponin I.cardiac | Bld | ng/mL | 8842 |
| Troponin T cardiac (qualitative) | 33204-9 | 3042837 | Troponin T.cardiac [Presence] in Serum or Plasma | Troponin T.cardiac | Ser/Plas |  |  |
| Troponin T cardiac (qualitative) | 48426-1 | 3052931 | Troponin T.cardiac [Presence] in Blood | Troponin T.cardiac | Bld |  |  |
| Troponin T cardiac (quantitative) | 48425-3 | 3048529 | Troponin T.cardiac [Mass/volume] in Blood | Troponin T.cardiac | Bld | ug/L | 8748 |
| Troponin T cardiac (quantitative) | 6597-9 | 3019572 | Troponin T.cardiac [Mass/volume] in Venous blood | Troponin T.cardiac | BldV | ug/L | 8748 |
| Troponin T cardiac (quantitative) | 6598-7 | 3019800 | Troponin T.cardiac [Mass/volume] in Serum or Plasma | Troponin T.cardiac | Ser/Plas | ug/L | 8748 |

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# PCORnet Values Stored in the Observation Table

Information to populate the PCORnet the *biobank\_flag* in the Demographic table, the *chart* in the Enrollment table and the *smoking*, *tobacco*, and *tobacco\_type* values in the Vital table is stored in the OMOP Observation table.

## Biobank Flag

The *biobank flag* is in the PCORnet Demographic table and indicates that one or more biobanked specimens are stored and available for research use. If a biobanked specimen is available for a person, then add a record to the Observation table with the *observation\_concept\_id* set to 4001345 (Specimen from patient). Set the *value\_as\_concept\_id* to 4188539 (Yes). If a biobanked specimen is not available, either do not add a record to the Observation table or add a record and set the *value\_as\_concept\_id* to 4188540 (No). Set the *observation\_date* to the same date as the *observation\_period\_start\_date* in the Observation Period table for that person.

## Chart

The *chart* is in the PCORnet Enrollment table, the Yes/No values are intended to answer the question, “Are you able to request (or review) charts for this person?" If the answer is ‘Yes’ then create a record in the Observation table with the *observation\_concept\_id* set to 4030450 (Patient chart) and the *value\_as\_concept\_id* set to 4188539 (Yes). If the *chart* is NOT available, either do not add a record or add a record and set the *value\_as\_concept\_id* to 4188540 (No). Since the PCORnet Enrollment table corresponds to the OMOP Observation Period table set the *observation\_date* to the *observation\_period\_start\_date.*

## Smoking and Tobacco Vital Values

All tobacco related patient observations should have the *Observation.observation\_concept\_id* set to 4041306 (Tobacco use and exposure).  The concept describing the observations will be in the *value\_as\_concept\_id* column. The existence of a record, assumes that the answer to the question is Yes. Do not add a record when the answer to the question is any value other than Yes.

Observations regarding a person’s smoking behavior are time dependent, for an example at one point in time a person may report that they have never smoked, but later on they start smoking.  As a result, it is important that the observation date be defined.

|  |  |  |
| --- | --- | --- |
| **Description** | **SNOMED Code** | **Concept Id** |
| Chews tobacco | 81703003 | 4218741 |
| Cigar smoker | 59978006 | 4246415 |
| Cigarette smoker | 65568007 | 4276526 |
| Current nonsmoker but past smoking history unknown | 405746006 | 4233486 |
| Current non-smoker | 160618006 | 4052464 |
| Ex-cigar smoker | 160621008 | 4052949 |
| Ex-cigarette smoker | 281018007 | 4092281 |
| Ex-cigarette smoker amount unknown | 266928006 | 4148416 |
| Ex-heavy cigarette smoker (20-39/day) | 266924008 | 4141783 |
| Ex-light cigarette smoker (1-9/day) | 266922007 | 4145798 |
| Ex-moderate cigarette smoker (10-19/day) | 266923002 | 4141782 |
| Ex-pipe smoker | 160620009 | 4052465 |
| Ex-smoker | 8517006 | 4310250 |
| Ex-trivial cigarette smoker (<1/day)) | 266921000 | 4148415 |
| Ex-user of moist powdered tobacco | 228503001 | 4038733 |
| Ex-very heavy cigarette smoker (40+/day) | 266925009 | 4141784 |
| Heavy cigarette smoker (20-39 cigs/day) | 160605003 | 4052947 |
| Light cigarette smoker (1-9 cigs/day) | 160603005 | 4052029 |
| Moderate cigarette smoker (10-19 cigs/day) | 160604004 | 4052030 |
| Never chewed tobacco | 228512004 | 4036090 |
| Never smoked tobacco | 266919005 | 4144272 |
| Never used moist powdered tobacco | 228502006 | 4036557 |
| Non-smoker | 8392000 | 4222303 |
| Patient not asked | 1631000175102 | 46273465 |
| Pipe smoker | 82302008 | 4218917 |
| Second hand cigarette smoke | 102409004 | 4009853 |
| Smoker | 77176002 | 4298794 |
| Smokes tobacco daily | 449868002 | 42709996 |
| Snuff user | 228494002 | 4043053 |
| Tobacco smoking consumption unknown | 266927001 | 4141786 |
| Trivial cigarette smoker (less than one cigarette/day) | 266920004 | 4144273 |
| User of moist powdered tobacco | 228504007 | 4043056 |

The following SNOMED codes may be seen in the source data, but they are NOT in the current vocabulary.  They should be mapped to the closest equivalent concept from the table above.

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | **SNOMED Code** | **Mapped to Concept** | **Description** |
| Current some day smoker | 428041000124106 | 4298794 | Smoker |
| Heavy tobacco smoker | 428071000124103 | 4052947 | Heavy cigarette smoker (20-39 cigs/day) |
| Light cigarette smoker (1-9 cigs/day) | 428061000124105 | 4052029 | Light cigarette smoker (1-9 cigs/day) |
| Occasional tobacco smoker | 428041000124106 | 4144273 | Trivial cigarette smoker (less than one cigarette/day) |

Other smoking or tobacco use concept may exist in the source data. However only the above values are currently included in the scheme to translate the OMOP smoking values to the PCORnet vital values. A separate document explains how this mapping is accomplished.

## 

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# Outstanding Items

### Immediate

1. Check with OHDSI if concept 44814723  has been corrected: ‘Period while enrolled in study’ should be changed to ‘Geography based’.
2. Ask OHDSI to add new concept for Emergency-Inhospital Visit

### Parking lot

1. Lab handling
   1. PRIORITY
   2. RESULT\_LOC
   3. LAB\_PX
   4. LAB\_PX\_TYPE
   5. LAB\_ORDER\_DATE– add to OMOP CDM and also add TIME
   6. RESULT\_DATE – add to OMOP CDM
   7. RESULT\_TIME - add to OMOP CDM
   8. NORM\_MODIFIER\_LOW
   9. NORM\_MODIFIER\_HIGH
   10. Abnormal indicator
   11. Lab order – add concept
2. When observation period and chart availability determination is clear, address how Chart Availability in the Observation table connects with Observation\_period table.
3. Handling of Providers with multiple NPIs in PCORnet???
4. Discuss distributions of records across the CDM tables based on the concept domain and how this affects interoperability with PCORnet.
5. Test of edits that must be accepted.