**Specification for ETL**

**from OMOP CDM v5 to PCORnet CDM v3**

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**Versions**

|  |  |  |
| --- | --- | --- |
| **Date** | **Author** | **Note** |
| 4/7/2016 | Toan | Added the version table |
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**dddst**

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Outstanding Issues:

| Table | New in PCORnet CDM V3 | Comment | Status |
| --- | --- | --- | --- |
| All tables with date field | * Change from text to date * All tables have an ID field as primary key |  |  |
| Demographic | Hispanic   * The new categorical value of “Refuse to answer” has been added.   Sex   * The “Ambiguous” category may be used for individuals who are physically undifferentiated from birth. |  |  |
| Enrollment | No changes |  |  |
| Encounter | Enc\_type   * The new categorical value of EI has been added.   Facility location   * Geographic location (3 digit zip code). Should be null if not recorded in source system (modification made from “blank” to “null” in v3.0).   Discharge\_status, discharge\_disposition, admitting\_source will come from visit\_occurrence  DRG will come from the Cost table. |  |  |
| Diagnosis | Dx Source in Condition Occurrence.condition status  Primary Diagnosis, one per encounter |  |  |
| Procedure | New column px\_date; px\_source |  |  |
| Vital | New vital source values  Smoking, tobacco and tobacco type |  |  |
| Lab\_Result\_CM |  | Needs review by group |  |
| Condition |  | Needs review by group |  |
| Prescribing | New table | Needs review by group |  |
| Dispensing |  | Needs review by group |  |
| Death | New Table | Needs to be added to doc |  |
| Death Condition | New Table | Needs to be added to doc |  |

# Introduction

The purpose of this document is to provide a mechanism for PCORnet data partners to communicate information about how they transformed data stored in OMOP Common Data Model (CDM) Version 5 format into the PCORnet Common Data Model (CDM) Version 3.0. To describe how the information will be used to help the PCORnet Coordinating Center better understand the transformation process, appropriate uses of the PCORnet data, and the comparability of data sources. This document details the approach used for the Extract, Transform, and Load (ETL) process to transform OMOP CDMv5 data elements to the data elements in the PCORnet CDM Version 3.0.

The document, 2015-06-01-PCORnet-Common-Data-Model-v3dot0-RELEASE.pdf, should be used in conjunction with this document, as the PCORnet Common Data Model has the data types and descriptions of the PCORnet tables.

This document assumes that the conventions outlined in CDRN Conventions for Populating OMOP CDM were followed in populating the OMOP CDMv5 database. It also requires that OMOP Vocabulary 5 or later be used for the ETL.

# Source Data Mapping Approach

This document describes mapping of the target PCORnet Common Data Model (CDM) tables and columns from source OMOP CDM model v5.

The mapping was designed based on OMOP CDM v5 specification, data samples, and PCORnet CDM specification. The mapping should provide sufficient information in order to design and develop ETL processes.

# Source Data Mapping

This section describes mapping process and ETL conversions for transforming data from an OMOP CDM (source) to a PCORNet CDM (destination).

## Data Mapping

Data mapping expects source and target data to be stored in any conventional relational database system per OMOP CDM v5 and PCORNet CDM v1 specifications respectively.

### Table: Demographic

PCORI DEMOGRAPHIC table contains one record per patient. Load Demographic data from OMOP Person table as described below.

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Demographic field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Person.Person\_id |  | Convert to text |
| BIRTH\_DATE | Use Person.year\_of\_birth, month\_of\_birth and day\_of\_birth to construct date as text in 'YYYY-MM-DD' format. Substitute month and day (each) as '01' if not available in the source. | Format date as text 'YYYY-MM-DD'. |  |
| BIRTH\_TIME | Person.time\_of\_birth | Use NULL if not available | Convert to text format ‘HH:MI’ using 24-hour clock and zero-padding for hour and minute |
| SEX | Person.gender\_concept\_id | |  |  | | --- | --- | | OMOP to PCORnet | | | 44814664 | A = Ambiguous | | 8532 | F = Female | | 8507 | M = Male | | 44814650 | NI = No information | | 44814653 | UN = Unknown | | 44814649 | OT = Other | | 0 | NULL | | |  |  | | --- | --- | | OMOP Concepts | | | 44814664 | Ambiguous | | 8532 | Female | | 8507 | Male | | 44814650 | No Information | | 44814653 | Unknown | | 44814649 | Other | | 0 | Field does not exist in the source | |
| HISPANIC | Derive from Person.ethnicity\_concept\_id | |  |  | | --- | --- | | OMOP to PCORnet | | | 38003563 | Y = Yes | | 38003564 | N = No | | 44814650 | NI = No information | | 44814653 | UN = Unknown | | 44814649 | OT = Other | | 0 | NULL | | |  |  | | --- | --- | | OMOP Concepts | | | 38003563 | Hispanic or Latino | | 38003564 | Not Hispanic or Latino | | 44814650 | No Information | | 44814653 | Unknown | | 44814649 | Other | | 0 | Field does not exist in the source | |
| RACE | Derive from Person.Race\_Concept\_id |  | The mapping for Race from OMOP to PCORnet is given in a table below. |
| BIOBANK\_FLAG | Observation.value\_as\_concept\_id | If at least one record in Specimen table for the patient exist or  in the Observation table observation\_concept\_id is 4001345 (Biobank flag) with  value\_as\_concept\_id = 4188539 (Yes) then set biobank\_flag as ‘Y’  else ‘N’ | The allowable values are ‘Y’ or ‘N’. The absence of a record indicates that there are no biobank specimens. |
| RAW\_SEX | Person.gender\_source\_value |  |  |
| RAW\_ HISPANIC | Person.ethnicity\_source\_value |  |  |
| RAW\_RACE | Person.race\_source\_value |  |  |

OMOP to PCORnet Race Mapping

| **OMOP** | | **PCORnet** |
| --- | --- | --- |
| **concept** | **description** | **Value** |
| 38003600 | African | 03 = Black or African American |
| 38003599 | African American | 03 = Black or African American |
| 38003573 | Alaska Native | 01 = American Indian or Alaska Native |
| 38003572 | American Indian | 01 = American Indian or Alaska Native |
| 8657 | American Indian or Alaska Native | 01 = American Indian or Alaska Native |
| 38003616 | Arab | 05 = White |
| 8515 | Asian | 02 = Asian |
| 38003574 | Asian Indian | 02 = Asian |
| 38003601 | Bahamian | 03 = Black or African American |
| 38003575 | Bangladeshi | 02 = Asian |
| 38003602 | Barbadian | 03 = Black or African American |
| 38003576 | Bhutanese | 02 = Asian |
| 38003598 | Black | 03 = Black or African American |
| 8516 | Black or African American | 03 = Black or African American |
| 38003577 | Burmese | 02 = Asian |
| 38003578 | Cambodian | 02 = Asian |
| 38003579 | Chinese | 02 = Asian |
| 38003604 | Dominica Islander | 03 = Black or African American |
| 38003603 | Dominican | 03 = Black or African American |
| 38003614 | European | 05 = White |
| 38003581 | Filipino | 02 = Asian |
| 38003605 | Haitian | 03 = Black or African American |
| 38003582 | Hmong | 02 = Asian |
| 38003583 | Indonesian | 02 = Asian |
| 38003593 | Iwo Jiman | 02 = Asian |
| 38003606 | Jamaican | 03 = Black or African American |
| 38003584 | Japanese | 02 = Asian |
| 38003585 | Korean | 02 = Asian |
| 38003586 | Laotian | 02 = Asian |
| 38003597 | Madagascar | 02 = Asian |
| 38003587 | Malaysian | 02 = Asian |
| 38003594 | Maldivian | 02 = Asian |
| 38003612 | Melanesian | 04 = Native Hawaiian or OtherPacific Islander |
| 38003611 | Micronesian | 04 = Native Hawaiian or OtherPacific Islander |
| 38003615 | Middle Eastern or North African | 05 = White |
| 8557 | Native Hawaiian or Other Pacific Islander | 04 = Native Hawaiian or OtherPacific Islander |
| 38003595 | Nepalese | 02 = Asian |
| 38003588 | Okinawan | 02 = Asian |
| 38003613 | Other Pacific Islander | 04 = Native Hawaiian or OtherPacific Islander |
| 38003589 | Pakistani | 02 = Asian |
| 38003610 | Polynesian | 04 = Native Hawaiian or OtherPacific Islander |
| 38003596 | Singaporean | 02 = Asian |
| 38003590 | Sri Lankan | 02 = Asian |
| 38003580 | Taiwanese | 02 = Asian |
| 38003591 | Thai | 02 = Asian |
| 38003607 | Tobagoan | 03 = Black or African American |
| 38003608 | Trinidadian | 03 = Black or African American |
| 38003592 | Vietnamese | 02 = Asian |
| 38003609 | West Indian | 03 = Black or African American |
| 8527 | White | 05 = White |
| 44814659 | Multiple Race | 06 = Multiple Race |
| 44814660 | Refuse to answer | 07 = Refuse to answer |
| 44814650 | No Information | NI = No information |
| 44814653 | Unknown | UN = Unknown |
| 44814649 | Other | OT = Other |
| 0 | Field does not exist in the source | NULL |

### Table: Enrollment

The ENROLLMENT table has a start/stop structure that contains records for continuous enrollment periods.

“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.

This table is designed to identify periods during which a person is expected to have complete data capture. Members with medical coverage, drug coverage, or both should be included.

A record is expected to represent a unique combination of PATID, ENR\_START\_DATE.

*Currently OMOP CDM is using the earliest and latest encounter dates (‘E’), which is in violation of the PCORnet requirement. This is to be discussed with PCORnet.*

Enrollment field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Observation\_Period.person\_id |  | Convert to text |
| ENR\_START\_DATE | Observation\_Period.observation\_period\_start\_date | Convert to text formatted as 'YYYY-MM-DD' |  |
| ENR\_END\_DATE | Observation\_Period.observation\_period\_end\_date | Convert to text formatted as 'YYYY-MM-DD' |  |
| CHART | Observation.value\_as\_concept\_id where observation\_type\_concept\_id = 4030450 (Patient chart) | Join to Observation table on person\_id, observation\_start\_date and observation\_type\_concept\_id = 4030450 (Patient chart). If the value\_as\_concept\_id = 4188539 (Yes) then ‘Y’ else ‘N’ | The absence of an Observation record for a person for an Observation Period will be interpreted as No. |
| ENR\_BASIS | Observation\_Period.period\_type\_concept\_id | |  |  | | --- | --- | | OMOP to PCORnet | | | 44814722 | I = Insurance | | 44814723 | G = Geography | | 44814725 | A = Algorithmic | | 44814724 | E = Encounter Based | | |  |  | | --- | --- | | OMOP Concepts | | | 44814722 | Insurance | | 44814723 | Geography | | 44814725 | Algorithmic | | 44814724 | Encounter Based | |

### Table: Encounter

The ENCOUNTER Table contains one record per PATID and ENCOUNTERID (which reflects a unique combination of PATID, ADMIT\_DATE, PROVIDERID and ENC\_TYPE).

The encounter table should include information on interactions between patients and providers. Each diagnosis and procedure recorded during the encounter should have a separate record in the Diagnosis or Procedure Tables.

Multiple visits to the same provider on the same day may be considered one encounter (especially if defined by a reimbursement basis); if so, the ENCOUNTER record should be associated with all diagnoses and procedures that were recorded during those visits.

Encounter field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Visit\_Occurrence.person\_id |  | Convert to text |
| ENCOUNTERID | Visit\_Occurrence.visit\_occurrence\_id |  |  |
| ADMIT\_DATE | Visit\_Occurrence.visit\_start\_date | Text. Format as 'YYYY-MM-DD'. |  |
| ADMIT\_TIME | Visit\_Occurrence.visit\_start\_time | If available format as ‘hh:mm:ss’ military time otherwise is should be NULL |  |
| DISCHARGE\_DATE | Visit\_Occurrence.visit\_end\_date | Text. Format as 'YYYY-MM-DD'. |  |
| DISCHARGE\_TIME | Visit\_Occurrence.visit\_end\_time | If available format as ‘hh:mm:ss’ otherwise is should be NULL |  |
| PROVIDERID | Visit\_Occurrence.provider\_id |  |  |
| FACILITY\_LOCATION | Location.zip | Join Visit\_Occurrence to Care\_Site on care\_site\_id, then to Location on location\_id. NULL if it cannot be derived. | Only if zipcode is available. Otherwise NULL  3-digit zip for PCORNet |
| ENC\_TYPE | Visit\_Occurrence.visit\_concept\_id | |  |  | | --- | --- | | OMOP to PCORnet | | | 9201 | IP = Inpatient Hospital Stay | | 9202 | AV = Ambulatory Visit | | 9203 | ED = Emergency Department | | 42898160 | IS = Non-Acute Institutional Stay | | 44814710 | IS = Non-Acute Institutional Stay | | 44814711 | OA = Other Ambulatory Visit | | 44814650 | NI = No information | | 44814653 | UN = Unknown | | 44814649 | OT = Other | | 0 | NULL | | |  |  | | --- | --- | | OMOP Concepts | | | 9201 | Inpatient Visit | | 9202 | Outpatient Visit | | 9203 | Emergency Room Visit | | 42898160 | Long Term Care Visit | | 44814710 | Non-Acute Institutional Stay | | 44814711 | Other ambulatory visit | | 44814650 | No information | | 44814653 | Unknown | | 44814649 | Other | | 0 | Field does not exist in the source | |
| FACILITYID | Visit\_Occurrence.care\_site\_id |  |  |
| DISCHARGE\_DISPOSITION | Based on Observation.value\_as\_concept\_id – see Applied Rule column | Join to Observation table on visit\_occurrence\_id and observation\_concept\_id = 44813951 (Discharge details). The mapping below is based on the value\_as\_concept\_id:   |  |  | | --- | --- | | OMOP to PCORnet | | | 4161979 | A = Discharged alive | | 4216643 | E = Expired | | 44814650 | NI = No information | | 44814653 | UN = Unknown | | 44814649 | OT = Other | | 0 | NULL | | |  |  | | --- | --- | | OMOP Concepts | | | 4161979 | Discharged alive | | 4216643 | Patient died | | 44814650 | No Information | | 44814653 | Unknown | | 44814649 | Other | | 0 | Field does not exist in the source | |
| DISCHARGE\_STATUS | Based on Observation.value\_as\_concept\_id – see Applied Rule column | Join to Observation table on visit\_occurrence\_id and observation\_ concept\_id = 4137274 (Discharge to establishment). The mapping below is based on the value\_as\_concept\_id:   |  |  | | --- | --- | | OMOP to PCORnet | | | 38004205 | AF = Adult Foster Home | | 38004301 | AL = Assisted Living Facility | | 4021968 | AM = Against Medical Advice | | 44814693 | AW = Absent without leave | | 4216643 | EX = Expired | | 38004195 | HH = Home Health | | 8536 | HO = Home / Self Care | | 8546 | HS = Hospice | | 38004279 | IP = Other Acute Inpatient Hospital | | 8676 | NH = Nursing Home (Includes ICF) | | 8920 | RH = Rehabilitation Facility | | 44814680 | RS = Residential Facility | | 8717 | SH = Still In Hospital | | 8863 | SN = Skilled Nursing Facility | | 44814650 | NI = No information | | 44814653 | UN = Unknown | | 44814649 | OT = Other | | 0 | NULL | | |  |  | | --- | --- | | OMOP Concepts | | | 38004205 | Agencies, Foster Care Agency | | 38004301 | Nursing & Custodial Care Facilities, Assisted Living Facility | | 4021968 | Patient self-discharge against medical advice | | 44814693 | Absent without leave | | 4216643 | Patient died | | 38004195 | Agencies, Home Health | | 8536 | Home | | 8546 | Hospice | | 38004279 | Hospitals, General Acute Care Hospital | | 8676 | Nursing Facility | | 8920 | Comprehensive Inpatient Rehabilitation Facility: | | 44814680 | Residential Facility | | 8717 | Inpatient Hospital | | 8863 | Skilled Nursing Facility | | 44814650 | No information | | 44814653 | Unknown | | 44814649 | Other | | 0 | No matching concept | |
| DRG | Observation.Value\_as\_concept\_id | Look for observation record associated with the visit with observation\_concept\_id = 3040464 (Hospital discharge DRG). If the record is not found or value\_as\_concept\_id is 44814650 or 44814649 use NULL.  Only populate for IP (Inpatient), IS (Non-Acute Institutional Stay) and ED (Emergency Department) encounters. Use NULL for other encounter types. | Concepts from vocabulary\_id = ‘DRG’ or   |  |  | | --- | --- | | OMOP Concepts | | | 44814650 | No information | | 44814649 | Other | |
| DRG\_TYPE | See Applied Rule | OMOP CDMv5 does not have this information. Use the appropriate value from the vocabulary below:  01 = CMS-DRG (old system)  02 = MS-DRG (current system)  NI = No information  UN = Unknown  OT = Other | 02- double check |
| ADMITTING\_SOURCE | Based on Observation.value\_as\_concept\_id | Join to Observation table on visit\_occurrence\_id and observation\_concept\_id = 4145666 (Admission from Establishment). The mapping below is based on the value\_as\_concept\_id:   |  |  | | --- | --- | | OMOP to PCORnet | | | 38004205 | AF = Adult Foster Home | | 38004195 | HH = Home Health | | 38004207 | AV = Ambulatory Visit | | 8920 | RH = Rehabilitation Facility | | 8870 | ED = Emergency Department | | 8536 | HO = Home / Self Care | | 8546 | HS = Hospice | | 38004279 | IP = Other Acute Inpatient Hospital | | 38004301 | AL = Assisted Living Facility | | 8676 | NH = Nursing Home (Includes ICF) | | 44814680 | RS = Residential Facility | | 8863 | SN = Skilled Nursing Facility | | 44814650 | NI = No information | | 44814653 | UN = Unknown | | 44814649 | OT = Other | | 0 | NULL | | |  |  | | --- | --- | | OMOP Concepts | | | 38004205 | Agencies, Foster Care Agency | | 38004195 | Agencies, Home Health | | 38004207 | Ambulatory Health Care Facilities, Clinic/Center, Ambulatory Surgical | | 8920 | Comprehensive Inpatient Rehabilitation Facility | | 8870 | Emergency Room - Hospital | | 8536 | Home | | 8546 | Hospice | | 38004279 | Hospitals, General Acute Care Hospital | | 38004301 | Nursing & Custodial Care Facilities, Assisted Living Facility | | 8676 | Nursing Facility | | 44814680 | Residential facility | | 8863 | Skilled Nursing Facility | | 44814650 | No Information | | 44814653 | Unknown | | 44814649 | Other | | 0 | Field does not exist in the source | |
| RAW\_ ENC\_TYPE | Visit\_Occurrence.visit\_source\_value |  |  |
| RAW\_ DISCHARGE\_DISPOSITION | Observation.observation\_source\_value | Join to Observation table on visit\_occurrence\_id and observation\_type\_concept\_id = 44813951 (Discharge details).  If data is not available populate with NULL. |  |
| RAW\_ DISCHARGE\_STATUS | Observation.observation\_source\_value | Join to Observation table on visit\_occurrence\_id and observation\_type\_concept\_id = 4137274 (Discharge to establishment). If data is not available populate with NULL. |  |
| RAW\_ DRG\_TYPE | NULL |  |  |
| RAW\_ ADMITTING\_SOURCE | Observation.observation\_source\_value | Join to Observation table on visit\_occurrence\_id and observation\_type\_concept\_id = 4145666 (Admission from Establishment). |  |

### Table: Diagnosis

DIAGNOSIS should capture all uniquely recorded diagnoses for all encounters, except those generated from problem lists. If a patient has multiple diagnoses associated with one encounter, then there should be one record in this table for each diagnosis. Exclude records from the OMOP CDM where the Condition Type Concept is EHR problem list entry (38000245).

If a local ontology is used, but cannot be mapped to a standard ontology such as ICD-9-CM, DX\_TYPE should be populated as “Other”.

Note: The admit date for the diagnosis is copied from the encounter record which is the admission or appointment date, where in the OMOP CDM, the condition occurrence date is when the condition was defined. Therefore, it is possible that there will be more than one of the same diagnoses during a visit in the OMOP CDM. Duplicate records are also possible due to the mapping of one source code to multiple standard codes. These duplicated diagnoses should be reduced to a single record in PCORnet based on the following attributes: Condition\_Occurrence.visit\_occurrence\_id, Condition\_Occurrence.condition\_source\_value, Condition\_Occurrence.condition\_type\_concept\_id, and related Observation.value\_as\_concept\_id (for Observation.concept\_id = 4021918. ‘Qualifier for type of diagnosis).

Diagnosis field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Condition\_Occurrence.person\_id |  | Convert to text |
| ENCOUNTERID | Condition\_Occurrence.visit\_occurrence\_id |  |  |
| ENC\_TYPE | Encounter.enc\_type | Join to [target] Encounter table on Condition\_Occurrence.visit\_occurrence\_id = Encounter.encounterid | Copied from ENCOUNTER record |
| ADMIT\_DATE | Encounter.admit\_date | Join to Encounter table on Condition\_Occurrence.visit\_occurrence\_id = Encounter.encounterid | Text. Format as 'YYYY-MM-DD'.  Copied from ENCOUNTER record |
| PROVIDERID | Encounter.provider\_id | Join to encounter table on Condition\_Occurrence.visit\_occurrence\_id = Encounter.providerid | Copied from ENCOUNTER record |
| DX | Condition\_Occurrence.condition\_source\_value  Otherwise,  Concept.concept\_code | If condition\_ source\_concept\_id is 44814649 (‘Other’), use Condition\_Occurrence.condition\_source\_value.  Otherwise,  join condition\_ source\_concept\_id to Concept.concept\_id. | PCORnet expects to see all diagnosis codes as they were represented in the source system. Therefore, use source\_concept\_id or source\_value to represent DX in the source coding system. |
| DX\_TYPE | Derive from Concept.vocabulary\_id | Join source\_condition\_concept\_id to Concept.concept\_id to get vocabulary\_id   |  |  | | --- | --- | | OMOP to PCORnet Vocabulary Mapping | | | ICD9CM | 09 = ICD-9-CM | | ICD10CM | 10 = ICD-10-CM | | SNOMED | SM = SNOMED CT | | PCORNet | OT = Other |   Otherwise  use ‘OT’ (‘Other’) | |  | | --- | | OMOP Vocabularies | | ICD9CM | | ICD10CM | | SNOMED | | PCORNet | |
| DX\_SOURCE | Derive from  Condition\_Occurrence.condition\_status\_concept\_id | |  |  | | --- | --- | | OMOP to PCORnet | | | 4203942 | AD = Admitting | | 4230359 | FI = Final/Discharge | | 4033240 | IN = Interim | | 44814650 | No Information | | 44814653 | Unknown | | 44814649 | Other |   If record does not exist, then NULL. | |  |  | | --- | --- | | OMOP Concepts | | | 4203942 | Admitting diagnosis | | 4230359 | Final/Discharge diagnosis | | 4033240 | Preliminary diagnosis | | 44814650 | No Information | |  | Unknown | | 44814649 | Other | |
| PDX | Derive from Condition\_Occurrence.condition\_type\_concept\_id | If condition\_type\_concept\_id = 44786627  Then 'P' (Principal)  Else If condition\_type\_concept\_id =  44786629  Then 'S' (Secondary)  Else  If respective Visit\_Occurrence.visit\_concept\_id are  9202 (Outpatient Visit)  9203 (Emergency Room Visit)  44814711 (Other ambulatory visit)  Then ‘X’ (Unable to Classify)  Else   |  |  | | --- | --- | | OMOP to PCORnet | | | 44814650 | No Information | | 44814653 | Unknown | | 44814649 | Other | | Only Primary Condition (44786627)  and Secondary Condition(44786629)  are relevant. Also, relevant only to IS and IP encounter types. |
| RAW\_DX | Condition\_Occurrence.condition\_source\_value |  | Load source values 'as is' - with source-specific suffixes and prefixes. |
| RAW\_ DX\_TYPE | Concept.vocabulary\_id | If condition\_ source\_concept\_id is 44814649 (‘Other’), use ‘OT’ (‘Other’).  Otherwise, join condition\_source\_concept\_id to Concept.concept\_id |  |
| RAW\_ DX\_SOURCE | Condition.condition\_status\_source\_value | Join to Fact\_Relationship table on  fact\_id\_1 = condition\_occurrence\_id  domain\_concept\_id\_1 = 19  domain\_concept\_id\_2 = 27  relationship\_concept\_id = 0  and Observation table on  fact\_id\_2 = observation\_id  and observation\_concept\_id is Qualifier for type of diagnosis (4021918) |  |
| RAW\_ PDX | Concept.concept\_name | If condition\_type\_concept\_id IN(44786627, 44786629 ) join to Concept.concept\_id  Otherwise  NULL | Primary Condition (44786627)  Secondary Condition (44786629) |

### Table: Procedure

The PROCEDURE Table contains one record per unique combination of PATID, ENCOUNTERID, PX, and PX\_TYPE. Because the date in the procedure table is that of the encounter, not necessarily when the procedure was performed, there may be multiples of the same procedure for the person/encounter/date when selecting from the OMOP procedure table. Duplicate records are also possible due to the mapping of one source code to multiple standard codes. These duplicated procedure records should be reduced to a single record in PCORnet based on procedure\_occurrence.visit\_occurrence\_id and procedure\_occurrence. procedure\_source\_value.

In OMOP CDM Procedure\_Occurrence.visit\_occurrence\_id is optional, however PCORNet CDM specification requires mandatory encounter id for DIAGNOSIS and PROCEDURE. Exclude procedures where the visit\_occurrence\_id is NULL.

Procedure field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Procedure\_Occurrence.person\_id |  | Convert to text |
| ENCOUNTERID | Procedure\_Occurrence.visit\_occurrence\_id |  | . |
| ENC\_TYPE | Encounter.enc\_type | Join to [target] Encounter table on Procedure\_Occurrence.visit\_occurrence\_id = Encounter.encounterid | Copied from ENCOUNTER record |
| ADMIT\_DATE | Encounter.admit\_date | Join to Encounter table on Procedure\_Occurrence.visit\_occurrence\_id = Encounter.encounterid | Text. Format as 'YYYY-MM-DD'.  Copied from ENCOUNTER record |
| PROVIDERID | Encounter.provider\_id | Join to encounter table on Procedure\_Occurrence.visit\_occurrence\_id = Encounter.providerid | Copied from ENCOUNTER record. |
| PX | procedure\_occurrence.procedure\_source\_value  Otherwise  Concept.concept\_code | If procedure\_source\_concept\_id is 44814649 (‘Other’), use procedure\_occurrence. procedure\_source\_value.  Otherwise  join procedure\_ source\_concept\_id to Concept.concept\_id. | PCORnet expects to see all procedure codes as they were represented in the source system. Therefore, use source\_concept\_id or source\_value to represent PX in the source coding system. |
| PX\_TYPE | Derive from Concept.vocabulary\_id | Join procedure\_source\_concept\_id to Concept.concept\_id to get vocabulary\_id   |  |  | | --- | --- | | OMOP to PCORnet Vocabulary Mapping | | | ICD9CM | 09 = ICD-9-CM | | ICD9Proc | 09 = ICD-9-CM | | ICD10PCS | 10 = ICD-10-PCS | | CPT4 | C4 = CPT-4 (i.e., HCPCS Level I) | | HCPCS | HC = HCPCS (i.e., HCPCS Level II) | | LOINC | LC = LOINC | | NDC | ND = NDC | | Revenue Code | RE = Revenue | | PCORNet | OT = Other |   Otherwise  Use ‘OT’ (‘Other’). | |  | | --- | | OMOP Vocabulary Codes | | ICD9CM | | ICD9Proc | | ICD10PCS | | CPT4 | | HCPCS | | LOINC | | NDC | | Revenue Code | | PCORNet | |
| RAW\_PX | Procedure\_Occurrence.procedure\_source\_value |  |  |
| RAW\_PX\_TYPE | Concept.concept\_id | If source\_condition\_concept\_id is 44814649 (‘Other’), use ‘OT’ (‘Other’).  Otherwise, join procedure\_source\_concept\_id to Concept.concept\_id |  |

### Table: Vital

Multiple measurements per encounter can be populated (for example, 3 blood pressure readings). There will be records where not all the vital statistics are defined. Create a record any time there is at least one of the attributes, weight, blood pressure, height or BMI is defined.

Vital signs data are sourced from OMOP Measurement and Observation tables.

Records corresponding to one visit may be grouped into one Vital record or represented as one Vital record per one vital sign.

Systolic and diastolic blood pressure coming from the same measurement must be by grouped into one record by utilizing Fact\_Relationship link between the two records in the Measurement table as follows. Fact\_id\_1 and fact\_id\_2 should be equal to the respective measurement\_id of diastolic and systolic BP records. Domain\_concept\_id\_1 and domain\_concept\_id\_2 should be equal to 21 (‘Measurement’). Relationship\_concept\_id should be equal to 46233682 (‘Diastolic to systolic blood pressure measurement’).

OMOP Measurement to PCORnet VITAL field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Measurement.person\_id |  | Convert to text |
| ENCOUNTERID | Measurement.visit\_occurrence\_id  or  NULL |  | Arbitrary encounter-level identifier. This is an optional relationship; the ENCOUNTERID should be present if the vitals were measured as part of healthcare delivery: Measurement.measurement\_type\_concept\_id = ‘Observation Recorded from EHR’ (38000276). |
| MEASURE\_DATE | Measurement. measurement\_date | Text. Format as 'YYYY-MM-DD'. |  |
| MEASURE\_TIME | Measurement.measurement\_time | Text. Format as 'HH:MI' as 24 hours clock with zero-padding for hours and minutes. |  |
| VITAL\_SOURCE | Measurement. measurement\_type\_concept\_id | |  |  | | --- | --- | | OMOP to PCORnet | | | 44814721 | PR = Patient-reported | | 38000276 | HC = Healthcare delivery setting | | All other codes | OT = Other | | Relevant OMOP concepts are: ‘Patient reported’ (44814721) or ‘Observation Recorded from EHR’ (38000276).  If multiple vital signs are compiled together in one record, Measurement.measurement\_Type\_Concept\_ID must be the same. |
| HT | Measurement.value\_as\_number | Where Measurement .measurement\_concept\_id = 3036277 (Body height)  Parse the string and convert to inches. | Have to parse string which is in format of 9’9.9’’ to inches. |
| WT | Measurement.value\_as\_number | Where Measurement .measurement\_concept\_id = 3025315 (Body weight)  Divided by 16 to get pounds | Have to convert from ounces to pounds. Round to pounds. |
| DIASTOLIC | Measurement.value\_as\_number | Where Measurement .measurement\_concept\_id in (3012888, 3034703, 3019962, 3013940 ) |  |
| SYSTOLIC | Measurement.value\_as\_number | Where Measurement .measurement\_concept\_id in (3004249, 3018586, 3035856, 3009395 ) |  |
| ORIGINAL\_BMI | Measurement.value\_as\_number | Where Measurement .measurement\_concept\_id = 3038553 (Body mass index) |  |
| BP\_POSITION | derived from Measurement.measurement\_concept\_id | |  |  |  | | --- | --- | --- | | Concept | Description | PCORnet Value | | 3034703 | Diastolic Blood Pressure - Sitting | ‘01’ | | 3019962 | Diastolic Blood Pressure - Standing | ‘02’ | | 3013940 | Diastolic Blood Pressure - Supine | ‘03’ | | 3012888 | Diastolic BP | ‘NI’ | | 3018586 | Systolic Blood Pressure - Sitting | ‘01’ | | 3035856 | Systolic Blood Pressure - Standing | ‘02’ | | 3009395 | Systolic Blood Pressure - Supine | ‘03’ | | 3004249 | Systolic BP | ‘NI’ |   NULL if no blood pressure reading in this record. | Position when blood pressure taken is derived from the diastolic and systolic code provided. |
| RAW\_ VITAL\_SOURCE | Measurement.measurement\_source\_value | Derived from Measurement. measurement\_Type\_Concept\_ID for a respective vital sign.  Measurement.measurement\_Type\_Concept\_ID values:   |  |  | | --- | --- | | OMOP to PCORnet | | | 44814721 | Patient-reported | | 38000276 | Healthcare delivery setting | | All other codes | Other | | If multiple vital signs are compiled together in one record, Observation.Observation\_Type\_Concept\_ID must be the same. |
| RAW\_ DIASTOLIC | Measurement.measurement\_source\_value | Where Measurement .measurement\_concept\_id in (3012888, 3034703, 3019962, 3013940 ) | |  |  | | --- | --- | | OMOP Concepts | | | 3012888 | BP diastolic | | 3034703 | Diastolic blood pressure--sitting | | 3019962 | Diastolic blood pressure--standing | | 3013940 | Diastolic blood pressure--supine | |
| RAW\_ SYSTOLIC | Measurement.measurement\_source\_value | Measurement .measurement\_concept\_id in (3004249, 3018586, 3035856, 3009395 ) | |  |  | | --- | --- | | OMOP Concepts | | | 3004249 | BP systolic | | 3018586 | Systolic blood pressure--sitting | | 3035856 | Systolic blood pressure--standing | | 3009395 | Systolic blood pressure--supine | |
| RAW\_ BP\_POSITION | NULL |  | Not available |

Tobacco status and tobacco type Observation records are grouped into one VITAL record by utilizing Fact\_Relationship link between the two records in the Observation table as follows. Fact\_id\_1 and fact\_id\_2 should be equal to the respective observation\_id of tobacco status and tobacco type records. Domain\_concept\_id\_1 and domain\_concept\_id\_2 should be equal to 27 (‘Observation’). Relationship\_concept\_id should be equal to TBD. There may be multiple tobacco type records per one tobacco status record. PCORnet TOBACCO\_TYPE is determined based on the combination of OMOP tobacco type concepts as described below.

OMOP Observation to PCORnet VITAL field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Observation.person\_id |  | Convert to text |
| ENCOUNTERID | Observation.visit\_occurrence\_id  or  NULL |  | Arbitrary encounter-level identifier. This is an optional relationship; the ENCOUNTERID should be present if the vitals were measured as part of healthcare delivery: Observation.Observation\_type\_concept\_id = ‘Observation Recorded from EHR’ (38000276). |
| MEASURE\_DATE | Observation. Observation\_date | Text. Format as 'YYYY-MM-DD'. |  |
| MEASURE\_TIME | Observation.Observation\_time | Text. Format as 'HH:MI' as 24 hours clock with zero-padding for hours and minutes. |  |
| VITAL\_SOURCE | Observation. Observation\_type\_concept\_id | |  |  | | --- | --- | | OMOP to PCORnet | | | 44814721 | PR = Patient-reported | | 38000276 | HC = Healthcare delivery setting | | All other codes | OT = Other | | Relevant OMOP concepts are: ‘Patient reported’ (44814721) or ‘Observation Recorded from EHR’ (38000276).  If multiple vital signs are compiled together in one record, Observation.Observation\_Type\_Concept\_ID must be the same. |
| TOBACCO | Observation.value\_as\_concept\_id | Where Observation.observation\_concept\_id = 4275495 (‘Tobacco smoking behavior - finding’)   |  |  | | --- | --- | | OMOP to PCORnet | | | 4209585 | 08 = Light tobacco smoker | | 4209006 | 07 = Heavy tobacco smoker | | 4044778 | 07 = Heavy tobacco smoker | | 42709996 | 01 = current every day smoker | | Occasional tobacco smoker | 02 = current some day smoker | | 4298794 | 05 = Smoker, current status unknown | | 4144272 | 04 = Never smoker | | 4222303 | OT = Other | | 4310250 | 03 = Former smoker | | 4141786 | 06 = Unknown if ever smoked | | 44814650 | NI = No Information | | 44814649 | OT = Other | | |  |  | | --- | --- | | OMOP Concepts | | | **Concept ID** | **Concept Name** | | 4209585 | Moderate smoker (20 or less per day) | | 4209006 | Heavy smoker (over 20 per day) | | 4044778 | Chain smoker | | 42709996 | Smokes tobacco daily | | TBD | Occasional tobacco smoker | | 4298794 | Smoker | | 4144272 | Never smoked tobacco | | 4222303 | Non-smoker | | 4310250 | Ex-smoker | | 4141786 | Tobacco smoking consumption(status) unknown | | 44814650 | No Information | | 44814649 | Other | |
| TOBACCO\_TYPE | Observation.value\_as\_concept\_id | If a fact for Observation.observation\_concept\_id = 4275495 (‘Tobacco smoking behavior - finding’) is linked to a fact for Observation.observation\_concept\_id = 4298794 (‘Smoker’) in Fact\_Relationship table, use the following values for Observation.observation\_concept\_id = 4298794   |  |  | | --- | --- | | OMOP to PCORnet | | | Any of:  4276526,  4298794  But not any of:  4246415,  4218917,  4144272,  4222303 | 01 = Cigarettes only | | Any of:  4246415,  4218917,  4144272,  4222303  But not any of:  4276526,  4298794 | 02 = Other tobacco only | | 4276526 and any of the (424615, 4218917)  Or  4298794 and any of the (4052949, 4052465) | 03 = Cigarettes and other tobacco | | 44814653 | UN | | 44814650 | NI | | 44814649 | OT |   If a fact for Observation.observation\_concept\_id = 4275495 (‘Tobacco smoking behavior - finding’) is not linked to a fact for Observation.observation\_concept\_id = 4298794 (‘Smoker’) in Fact\_Relationship table, use the following values for Observation.observation\_concept\_id = 4275495   |  |  | | --- | --- | | OMOP to PCORnet | | | 4222303,  4144272 | 04 = None | | 4141786,  4209585,  4209006,  42709996,  Occasional tobacco smoker,  4298794,  4310250 | NULL | | 44814653 | UN | | 44814650 | NI | | 44814649 | OT | | |  |  | | --- | --- | | OMOP Concepts for Tobacco Smoking Status | | | **Concept ID** | **Concept Name** | | 4209585 | Moderate smoker (20 or less per day) | | 4209006 | Heavy smoker (over 20 per day) | | 42709996 | Smokes tobacco daily | | TBD | Occasional tobacco smoker | | 4298794 | Smoker | | 4144272 | Never smoked tobacco | | 4222303 | Non-smoker | | 4310250 | Ex-smoker | | 44814653 | Unknown | | 44814650 | No Information | | 44814649 | Other |  |  |  | | --- | --- | | OMOP Concepts for Tobacco Type | | | **Concept ID** | **Concept Name** | | 4276526 | Cigarette smoker | | 4246415 | Cigar smoker | | 4218917 | Pipe smoker | | 4298794 | Ex-cigarette smoker | | 4144272 | Ex-cigar smoker | | 4222303 | Ex-pipe smoker | |

### Table: LAB\_RESULT\_CM

The LAB\_RESULT\_CM table contains one record per LAB\_RESULT\_CM\_ID.

Only records with actual lab results should be included in this table. If the results suggest that the test was run (e.g., result is “borderline”) include it. But if the test is not resulted for any reason then do not include it.

The source for Lab results in OMOP CDM is the Measurement table, all measurement records where Measurement.measurement\_type\_concept\_id is 44818702 (‘Lab result’). In OMOP CDM, lab tests are represented by LOINC codes. The following LAB\_RESULT\_CM fields are derived from the LOINC codes: LAB\_NAME, LAB\_LOINC, SPECIMEN\_SOURCE, and RESULT\_UNIT. Mappings for selected LOINC codes between OMOP concepts and these attributes are presented in the table below. This list will have to be expanded as the list of target LOINC codes grow.

| **PCORnet Lab Name** | **OMOP Concept ID** | **LAB\_NAME** | **LAB\_LOINC** | **SPECIMEN\_SOURCE** | **RESULT\_UNIT** |
| --- | --- | --- | --- | --- | --- |
| Troponin I cardiac | 3021337 | TROP\_I | 10839-9 | SR\_PLS | NG/ML |
| Creatinine kinase MB/creatinine kinase total | 3007150 | CK-MBI | 12187-1 | SR\_PLS | PERCENT |
| Creatinine | 3016662 | CREATININE | 12190-5 | OT | MG/DL |
| Low-density lipoprotein | 3028288 | LDL | 13457-7 | SR\_PLS |  |
| Creatinine kinase MB | 3005785 | CK\_MB | 13969-1 | SR\_PLS | NG/ML |
| Low-density lipoprotein | 3009966 | LDL | 18262-6 | SR\_PLS | MG/DL |
| Creatinine kinase MB/creatinine kinase total | 3016311 | CK-MBI | 20569-0 | SR\_PLS | PERCENT |
| Low-density lipoprotein | 3028437 | LDL | 2089-1 | SR\_PLS | MG/DL |
| Creatinine kinase total | 3007220 | CK | 2157-6 | SR\_PLS | U/L |
| Creatinine | 3016723 | CREATININE | 2160-0 | SR\_PLS | MG/DL |
| Low-density lipoprotein | 3001308 | LDL | 22748-8 | SR\_PLS |  |
| Creatinine kinase MB | 3029790 | CK\_MB | 32673-6 | SR\_PLS | U/L |
| Troponin T cardiac (qualitative) | 3042837 | Trop\_T\_QL | 33204-9 | SR\_PLS |  |
| Creatinine | 3051825 | CREATININE | 38483-4 | BLOOD | MG/DL |
| Troponin I cardiac | 3033745 | TROP\_I | 42757-5 | BLOOD | NG/ML |
| Low-density lipoprotein | 3046549 | LDL | 43727-7 | SR\_PLS | OT |
| Hemoglobin A1c | 3004410 | A1C | 4548-4 | BLOOD | PERCENT |
| Low-density lipoprotein | 3053190 | LDL | 47213-4 | SR\_PLS |  |
| Troponin T cardiac (qualitative) | 3048529 | Trop\_T.QN | 48425-3 | BLOOD | UG/L |
| Troponin T cardiac (qualitative) | 3052931 | Trop\_T\_QL | 48426-1 | BLOOD |  |
| Creatinine kinase MB/creatinine kinase total | 3048863 | CK-MBI | 49136-5 | SR\_PLS |  |
| Low-density lipoprotein | 40757565 | LDL | 54434-6 | SR\_PLS | OT |
| Low-density lipoprotein | 40758569 | LDL | 55440-2 | SR\_PLS | MG/DL |
| Creatinine kinase MB | 3017761 | CK\_MB | 5912-1 | SR\_PLS |  |
| International normalized ratio | 3022217 | INR | 6301-6 | PPP |  |
| Troponin T cardiac (qualitative) | 3019572 | Trop\_T.QN | 6597-9 | OT | UG/L |
| Troponin T cardiac (qualitative) | 3019800 | Trop\_T.QN | 6598-7 | SR\_PLS | UG/L |
| Hemoglobin | 3000963 | HGB | 718-7 | BLOOD | G/DL |

Lab Result CM field Mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| LAB\_RESULT\_CM\_ID | Measurement.measurement \_id |  | Convert to text |
| PATID | Measurement.person\_id |  | Convert to text |
| ENCOUNTERID | Measurement.visit\_occurrence\_id  or  NULL |  | Arbitrary encounter-level identifier. This is an optional relationship; the ENCOUNTERID should be present if the labs were taken as part of healthcare delivery |
| LAB\_NAME | Measurement.measurement\_concept\_id | Derived from Measurement. measurement\_concept\_id., see the mapping table above. |  |
| SPECIMEN\_SOURCE | Measurement.measurement\_concept\_id | Derived from Measurement. measurement\_concept\_id., see the mapping table above. |  |
| LAB\_LOINC | Measurement.measurement\_concept\_id | Derived from Measurement. measurement\_concept\_id., see the mapping table above. |  |
| PRIORITY | NULL |  | Not populated |
| RESULT\_LOC | NULL |  | Not populated |
| LAB\_PX | NULL |  | Not populated |
| LAB\_PX\_TYPE | NULL |  | Not populated |
| LAB\_ORDER\_DATE | NULL |  | Not populated |
| SPECIMEN\_DATE | Measurement.measurement\_date |  |  |
| SPECIMEN\_TIME | Measurement.measurement\_time | Text. Format as 'HH:MI' as 24 hours clock with zero-padding for hours and minutes. |  |
| RESULT\_DATE | NULL |  | Not populated |
| RESULT\_TIME | NULL |  | Not populated |
| RESULT\_QUAL | Measurement.value\_as\_concept\_id |  | Not populated for the PCORnet required labs but may be populated for other labs. |
| RESULT\_NUM | Measurement.value\_as\_number |  |  |
| RESULT\_MODIFIER | Concept.concept\_code  Isn’t this coming from the omop measurement.operator\_concept\_id | Derived by linking Measurement.measurement\_source\_concept\_id to Concept.concept\_ id.   |  |  | | --- | --- | | OMOP to PCORnet | | | 4171756 | LT = Less than | | 4171754 | LE = Less than or equal to | | 4172703 | EQ = Equal | | 4172704 | GT = Greater than | | 4171755 | GE = Greater than or equal to | | |  |  | | --- | --- | | OMOP Concepts for Operators | | | **Concept ID** | **Concept Name** | | 4171756 | < | | 4171754 | <= | | 4172703 | = | | 4172704 | > | | 4171755 | >= | |
| RESULT\_UNIT | Measurement.measurement\_concept\_id | Derived from Measurement. measurement\_concept\_id., see the mapping table above. |  |
| NORM\_RANGE\_LOW | NULL |  | Not populated |
| NORM\_MODIFIER\_LOW | NULL |  | Not populated |
| NORM\_RANGE\_HIGH | NULL |  | Not populated |
| NORM\_MODIFIER\_HIGH | NULL |  | Not populated |
| ABN\_IND | NULL |  | Not populated |
| RAW\_ LAB\_NAME | Measurement.measurement\_source\_value |  |  |
| RAW\_ LAB\_CODE | Concept.concept\_code | Derived by linking Measurement.measurement\_source\_concept\_id to Concept.concept\_id |  |
| RAW\_ PANEL | NULL |  | Not populated |
| RAW\_ RESULT | Measurement.value\_source\_value |  |  |
| RAW\_ UNIT | Measurement.unit\_source\_value |  |  |
| RAW\_ ORDER\_DEPT | NULL |  |  |
| RAW\_ FACILITY\_CODE | NULL |  |  |

### Table: CONDITION

A condition represents a patient’s diagnosed and self-reported health conditions and diseases. The patient’s medical history and current state may both be represented.

CONDITION should capture all records from the OMOP CDM where the Condition Type Concept is EHR problem list entry (38000245). Test.

The CONDITION table contains one record per CONDITIONID.

Condition field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Condition\_Occurrence.person\_id |  | Convert to text |
| ENCOUNTERID | Condition\_Occurrence.visit\_occurrence\_id |  |  |
| REPORT\_DATE | Encounter.admit\_date | Join to [target] Encounter table on Condition\_Occurrence.visit\_occurrence\_id = Encounter.encounterid | Text. Format as 'YYYY-MM-DD'.  Copied from ENCOUNTER record |
| RESOLVE\_DATE | Encounter.discharge\_date | Join to Encounter table on Condition\_Occurrence.visit\_occurrence\_id = Encounter.encounterid | Text. Format as 'YYYY-MM-DD'.  Copied from ENCOUNTER record |
| ONSET\_DATE | NULL | Join to encounter table on Condition\_Occurrence.visit\_occurrence\_id = Encounter.providerid | Copied from ENCOUNTER record |
| CONDITION\_STATUS | Derive from condition\_end\_date | If condition\_end\_date is null then  'AC' – Active  Else  'RS' - Resolved | Condition Status = Inactive will not be populated. |
| CONDITION | Condition\_Occurrence.condition\_source\_value  Otherwise,  Concept.concept\_code | If condition\_ source\_concept\_id is 44814649 (‘Other’), use Condition\_Occurrence.condition\_source\_value.  Otherwise,  join condition\_ source\_concept\_id to Concept.concept\_id. |  |
| CONDITION\_TYPE | Derive from Concept.vocabulary\_id | Join source\_condition\_concept\_id to Concept.concept\_id to get vocabulary\_id   |  |  | | --- | --- | | OMOP to PCORnet Vocabulary Mapping | | | ICD9CM | 09 = ICD-9-CM | | ICD10CM | 10 = ICD-10-CM | | SNOMED | SM = SNOMED CT | | PCORNet | OT = Other |   Otherwise  use ‘OT’ (‘Other’) | |  | | --- | | OMOP Vocabularies | | ICD9CM | | ICD10CM | | SNOMED | | PCORNet | |
| CONDITION\_SOURCE | Derive from Condition\_Occurrence.condition\_type\_concept\_id | If condition\_type\_concept\_id = 38000245  Then 'HC' (Healthcare problem list)  Else If condition\_type\_concept\_id =  44819221  Then 'PR' (Patient-reported medical history)  Else If condition\_type\_concept\_id =  #######  Then 'RG’ (Registry cohort)  Else If condition\_type\_concept\_id =  #######  Then 'PC’ (PCORnet-defined condition algorithm)  Else   |  |  | | --- | --- | | OMOP to PCORnet | | | 44814650 | No Information | | 44814653 | Unknown | | 44814649 | Other | |  |
| RAW\_CONDITION\_STATUS | NULL |  |  |
| RAW\_CONDITION | Condition\_Occurrence.condition\_source\_value |  |  |
| RAW\_CONDITION\_TYPE | Observation.vocabulary\_id | If condition\_ source\_concept\_id is 44814649 (‘Other’), use ‘OT’ (‘Other’).  Otherwise, join condition\_source\_concept\_id to Concept.concept\_id |  |
| RAW\_CONDITION\_SOURCE | NULL |  |  |

### Table: PRESCRIBING

Provider orders for medication dispensing and/or administration.

PRESCRIBING should capture all uniquely recorded in-patient medication dispensing and administration. The PRESCRIBING table in the PCORnet CDM is populated with all records in the DRUG EXPOSURE table with Drug\_type\_concept\_id =

* 38000180 (Inpatient administration),
* 38000179 (Physician administered drug (identified as procedure)),
* 43542358 (Physician administered drug (identified from EHR observation)),
* 43542357 (Physician administered drug (identified from referral record)),
* 38000177 (Prescription written)

The PRESCRIBING table contains one record per PRESCRIBINGID.

Prescribing field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Drug\_exposure.person\_id |  | Convert to text |
| ENCOUNTERID | Drug\_exposure.visit\_occurrence\_id |  | Convert to text |
| RX\_PROVIDERID | Drug\_exposure.provider\_id |  | Convert to text |
| RX\_ORDER\_DATE | Drug\_exposure.drug\_exposure\_start\_date |  | Text. Format as 'YYYY-MM-DD'. |
| RX\_ORDER\_TIME | Drug\_exposure.drug\_exposure\_start\_time |  | Text. Format as 'HH:MM'. |
| RX\_START\_DATE | Drug\_exposure.drug\_exposure\_start\_date |  | Text. Format as 'YYYY-MM-DD'. |
| RX\_END\_DATE | Drug\_exposure.drug\_exposure\_end\_date |  | Text. Format as 'YYYY-MM-DD'. |
| RX\_QUANTITY | Drug\_exposure.quantity |  |  |
| RX\_REFILLS | Drug\_exposure.refills |  |  |
| RX\_DAYS\_SUPPLY | Drug\_exposure.days\_supply |  |  |
| RX\_FREQUENCY | NULL |  |  |
| RX\_BASIC | Derive from drug\_type\_concept\_id | If drug\_type\_concept\_id is ‘38000177’ Then 01 (Dispensing)  If drug\_type\_concept\_id is IN (‘38000180’,’ 38000179’,’ 43542358’,’ 43542357’) Then 02 (Administration)  Else  Other |  |
| RXNORM\_CUI | Concept.concept\_code | Join to Concept table on drug\_concept\_id = concept\_id | vocabulary\_id = 'RxNorm' |
| RAW\_RX\_MED\_NAME | Concept.concept\_name | Join to Concept table on drug\_concept\_id = concept\_id | vocabulary\_id = 'RxNorm' |
| RAW\_RX\_FREQUENCY | Drug\_exposure.effective\_dose |  |  |
| RAW\_RXNORM\_CUI | Concept.concept\_code | Join to Concept table on drug\_source\_concept\_id = concept\_id | Not limited to RXNORM |

### Table: Death

The DEATH table contains one record per unique combination of PATID, DEATH\_DATE, and DEATH\_SOURCE.

Death field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Person\_id |  |  |
| DEATH\_DATE | Death.death\_date |  |  |
| DEATH\_DATE\_IMPUTE | ‘N’= Not Imputed |  | When date of death is imputed, this field indicates which parts of the date were imputed. |
| DEATH\_SOURCE | ‘L’ = Other, Locally defined | “Other, locally defined” may be used to indicate presence of deaths reported from EHR systems, such as in-patient hospital deaths or dead on arrival. | Possible values:  L=Other, locally defined  N=National Death Index  D=Social Security  S=State Death files  T=Tumor data  NI=No information  UN=Unknown  OT=Other |
| DEATH\_MATCH\_ CONFIDENCE | ’E’ Excellent |  | Possible values:  E=Excellent  F=Fair  P=Poor  NI=No information  UN=Unknown  OT=Other |

### Table: Death Cause

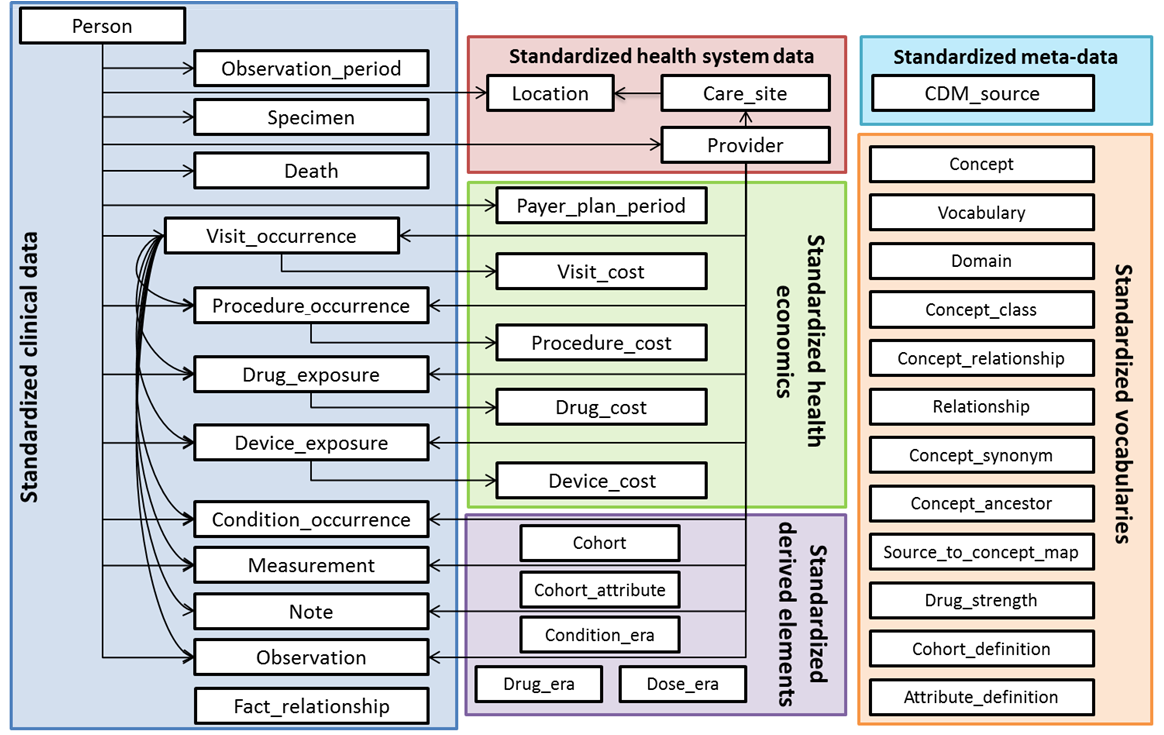
The DEATH\_CAUSE table contains one record per unique combination of PATID, DEATH\_CAUSE, DEATH\_CAUSE\_CODE, DEATH\_CAUSE\_TYPE, and DEATH\_CAUSE\_SOURCE.

Only create a record when the cause\_of\_death\_concept\_id is defined in the OMOP death table.

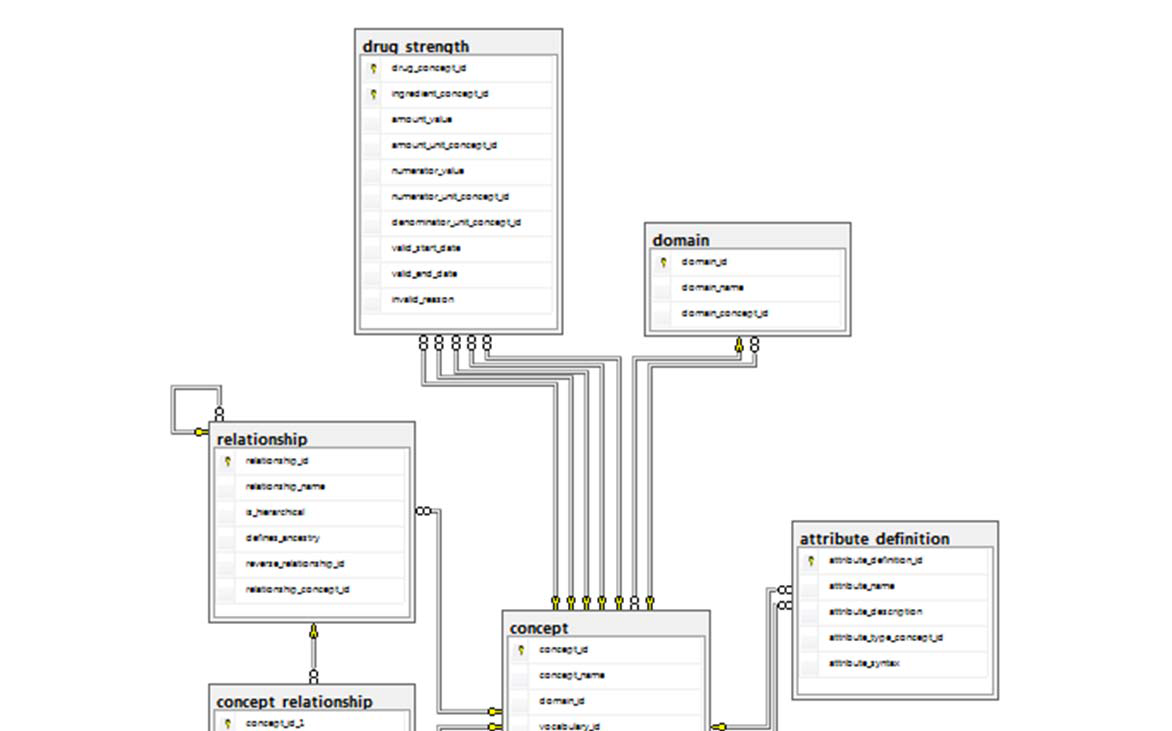
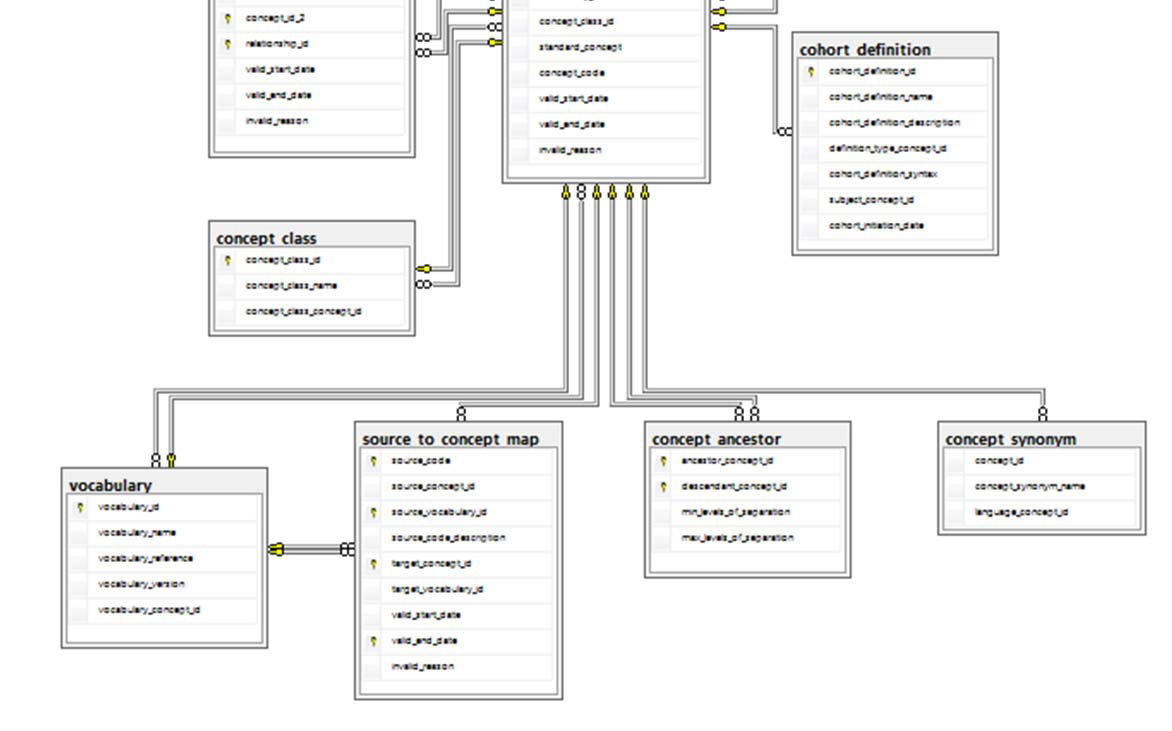
Death Cause field mapping:

| **Destination Field** | **Source Field** | **Applied Rule** | **Comment** |
| --- | --- | --- | --- |
| PATID | Person\_id |  |  |
| DEATH\_CAUSE | Death.cause\_of\_death\_source\_value |  |  |
| DEATH\_CAUSE\_ CODE | Death.cause\_of\_death\_concept\_id | Join to vocabulary.concept and derive from vocabulary\_id. Use the following:  2 – ‘09  34 – ‘10’  0 – ‘UN’  Else ‘OT’ | Cause of death code type.  Possible values:  09=ICD-9  10=ICD-10  NI=No information  UN=Unknown  OT=Other |
| DEATH\_CAUSE \_ TYPE | ‘NI’= No Information |  | Possible values:  C=Contributory  I=Immediate/Primary  O=Other  U=Underlying  NI=No information  UN=Unknown  OT=Other |
| DEATH\_CAUSE\_ SOURCE | ‘L’ = Other, Locally defined | “Other, locally defined” may be used to indicate presence of deaths reported from EHR systems, such as in-patient hospital deaths or dead on arrival. | Possible values:  C=Contributory  I=Immediate/Primary  O=Other  U=Underlying  NI=No information  UN=Unknown  OT=Other |
| DEATH\_CAUSE\_ CONFIDENCE | F=Fair |  | Possible values:  E=Excellent  F=Fair  P=Poor  NI=No information  UN=Unknown  OT=Other |

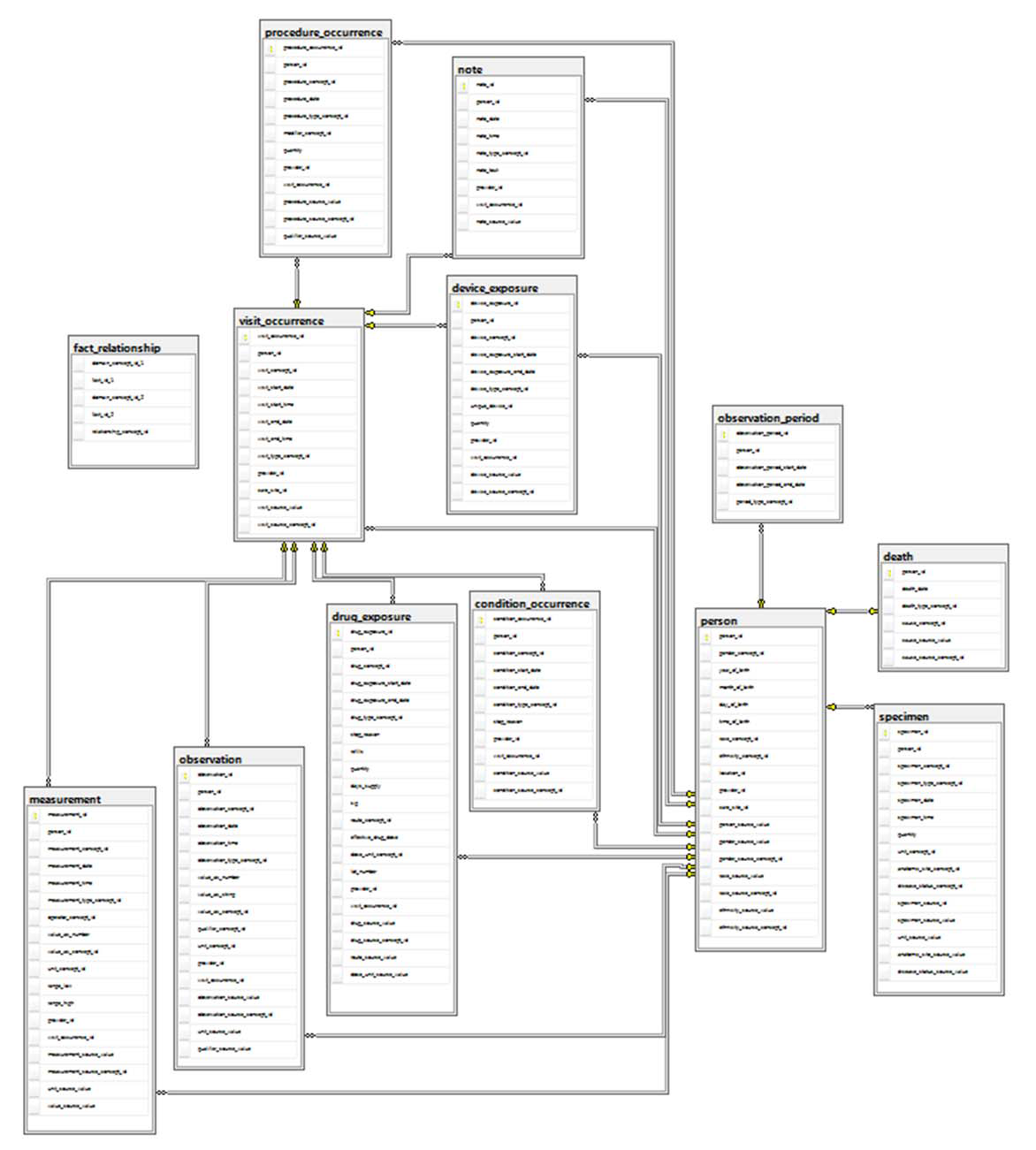
Appendix 1: OMOP CDMv5 Source Tables



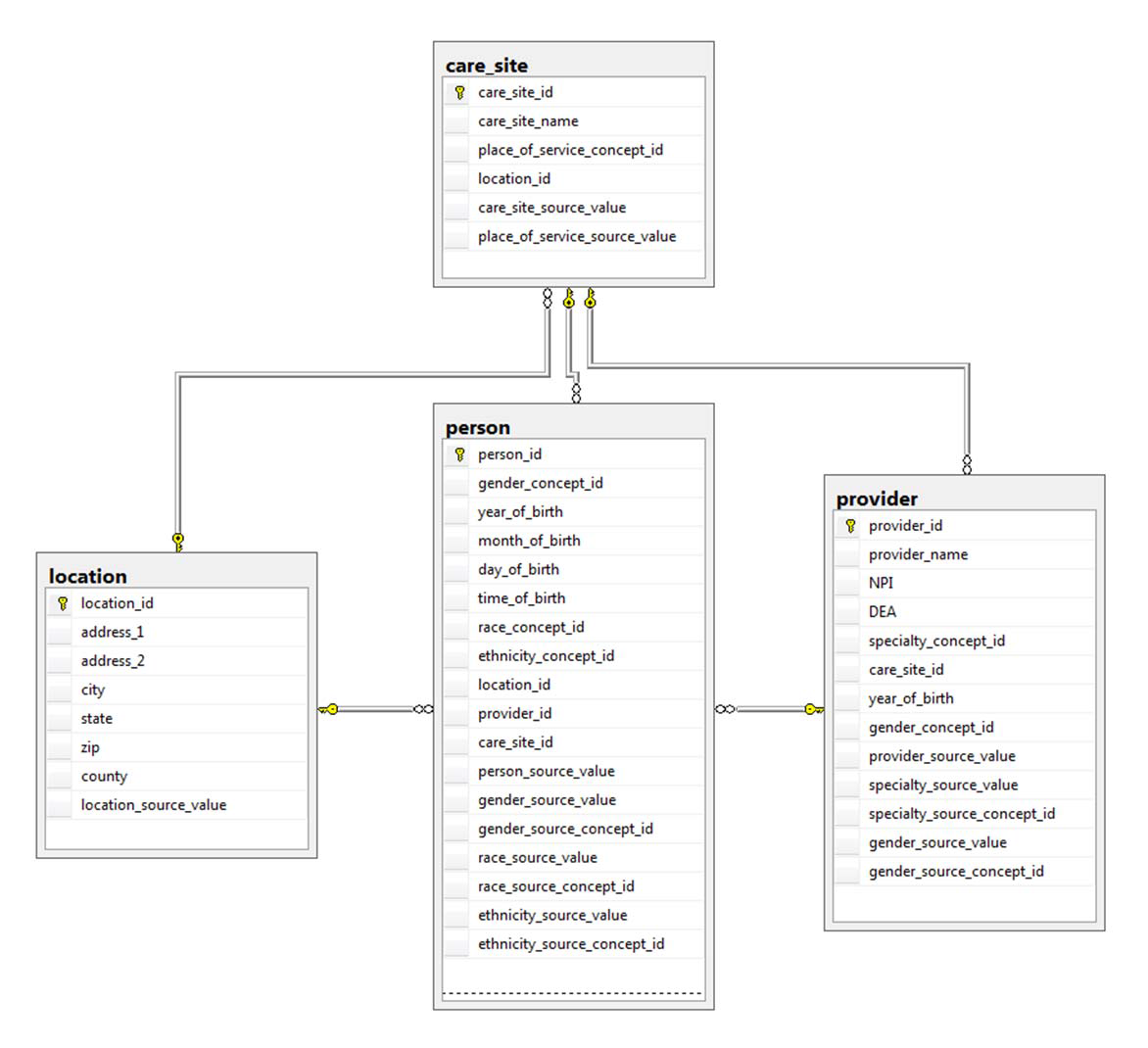
## Appendix 2: OMOP CDM Version 5.0 ERD

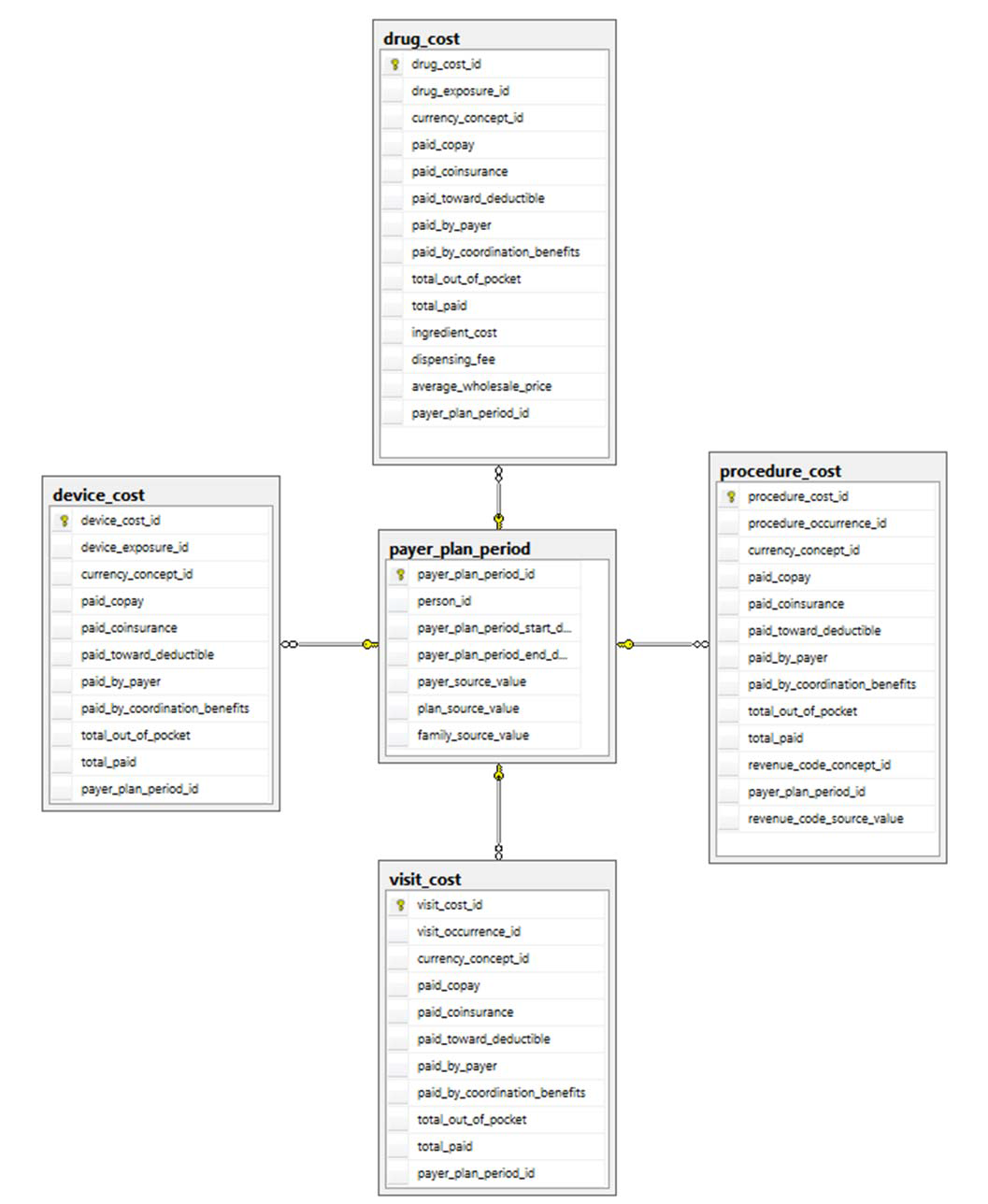
Standardized Vocabularies entity-relationship diagram 

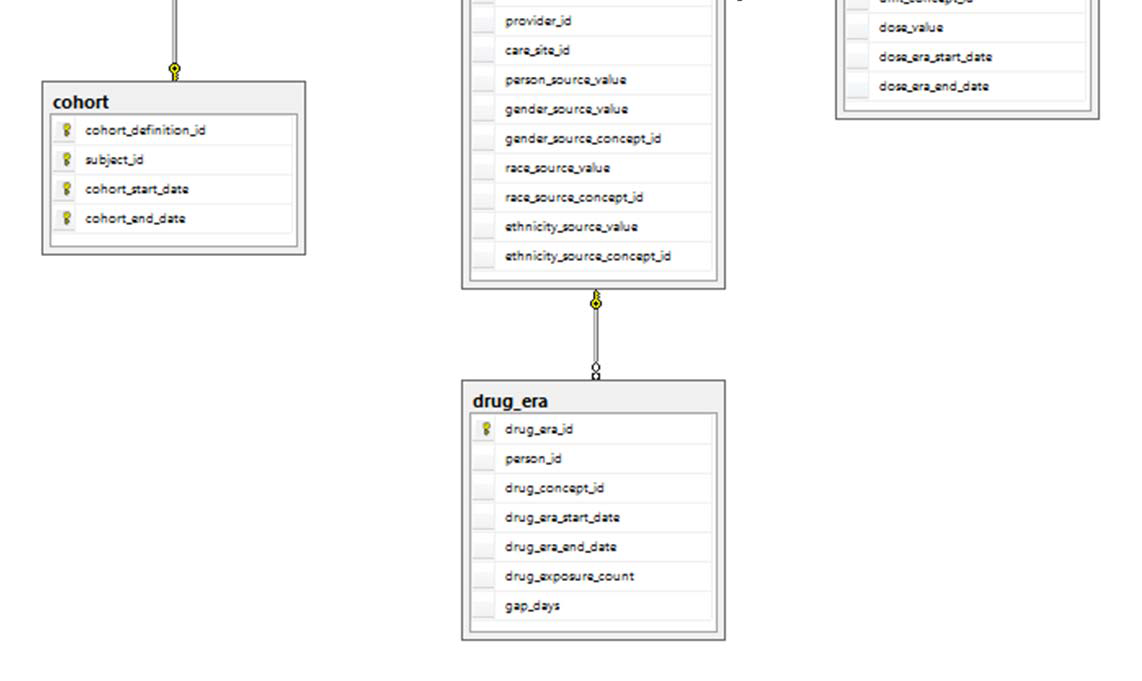
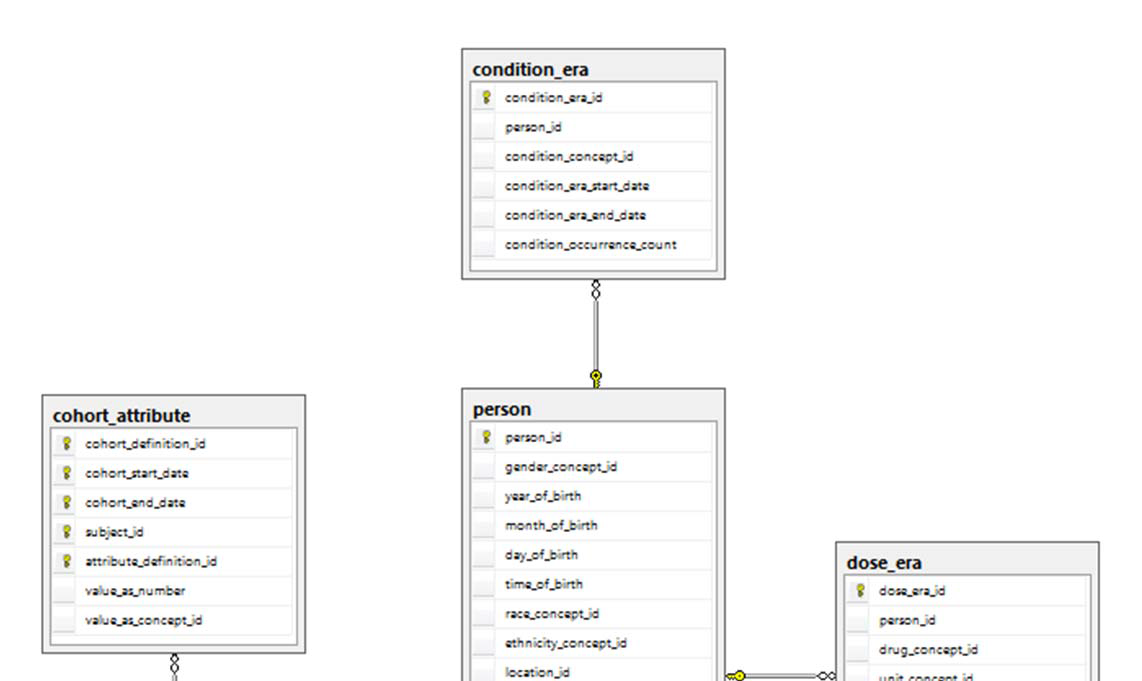
Standardized Clinical Data Tables Entity Relationship Diagram

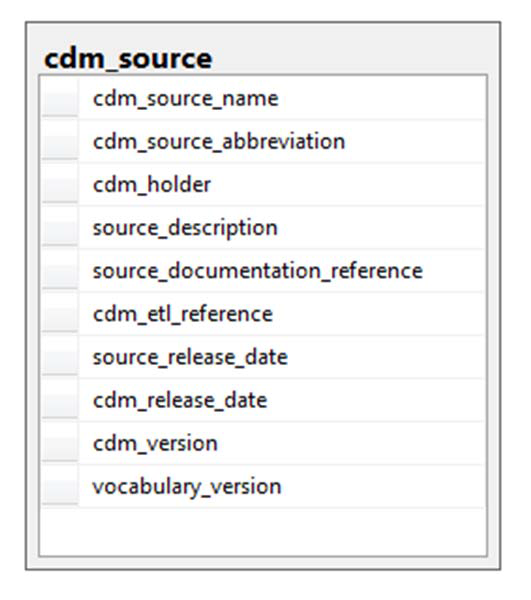


Standardized Health System Data Entity Relationship Diagram

Standardized Health Economic Data Entity Relationship Diagram

Standardized Derived Elements Entity Relationship Diagram

Standardized Metadata Entity Relationship Diagram



# Outstanding Issues

Immediate

1. Check with Chris is concept 44814723 has been corrected: ‘Period while enrolled in study’ should be changed to ‘Geography based’.

Parking lot

TBD: Enrollment Period: PCORNet table could be sourced from either the Observation\_Period or the Pay Plan Period in OMOP. Derviing from Pay Plan Period needs to be done.

1. TBD: Do we transfer to PCORI ‘invalid’ DX’s? For example ‘250.x’ Indicates diabetes but it is not a valid ICD9 code. Those will be stored in OMOP with source\_concept\_id=0. If yes, will we have DX\_TYPE of ‘Other’? Need PCORnet feedback