

# ETL Conventions for use with PEDSnet CDM V2.0 OMOP V5

The PEDSnet Common Data Model is an evolving specification, based in structure on the OMOP Common Data Model, but expanded to accommodate requirements of both the PCORnet Common Data Model and the primary research cohorts established in PEDSnet.

Version 2 of the PEDSnet CDM reflects the ETL processes developed after the first six months of network development. As such, it proposes to align with version 2 of the PCORnet CDM.

This document provides the ETL processing assumptions and conventions developed by the PEDSnet data partners that should be used by a data partner for ensuring common ETL business rules. This document will be modified as new situations are identified, incorrect business rules are identified and replaced, as new analytic use cases impose new/different ETL rules, and as the PEDSnet CDM continues to evolve.

Comments on this specification and ETL rules are welcome. Please send email to [pedsnetdcc@email.chop.edu](mailto:pedsnetdcc@email.chop.edu), or contact the PEDSnet project management office (details available via <http://www.pedsnet.info>).

## PEDSnet Data Standards and Interoperability Policies:

1. The PEDSnet data network will store data using structures compatible with the PEDSnet Common Data Model (PCDM).
2. The PCDM v2 is based on the Observational Medical Outcomes Partnership (OMOP) data model, version 5.
3. A subset of data elements in the PCDM will be identified as principal data elements (PDEs). The PDEs will be used for population-level queries. Data elements which are NOT PDEs will be marked as Optional (ETL at site discretion) or Non-PDE (ETL required, but data need not be transmitted to DCC), and will not be used in queries without prior approval of site.
4. It is anticipated that PEDSnet institutions will make a good faith attempt to obtain as many of the data elements not marked as Optional as possible.
5. The data elements classified as PDEs and those included in the PCDM will be approved by the PEDSnet Executive Committee (comprised of each PEDSnet institution's site principal investigator).
6. Concept IDs are taken from OMOP 5 vocabularies for PEDSnet CDM v2, using the complete (restricted) version that includes licensed terminologies such as CPT and others.
7. PCORnet CDM V2.0 requires data elements that are not currently considered "standard concepts". Vocabulary version 5 has a new vocabulary (*vocabularyid=PCORNet*) that was added by OMOP to capture all of the PCORnet concepts that are not in the standard terminologies. We use *conceptids* from *vocabularyid=PCORNet* where there are no existing standard concepts. We highlight where we are pulling *conceptids* from *vocabularyid=PCORNet* in the tables. While terms from *vocabularyid=PCORNet* violates the OMOP rule to use only *conceptids* from standard vocabularies (*vocabularyid=PCORNet* is a non-standard vocabulary), this convention enables a clean extraction from PEDSnet CDM to PCORnet CDM.
8. Some source fields may be considered sensitive by data sites. Potential examples include *patientsourcevalue*, *providersourcevalue*, *caresitesourcevalue*. Many of these fields are used to generate an ID field, such as *PERSON.patientsourcevalue* *PERSON.personid*, that is used as a primary key in *PERSON* and a foreign key in many other tables. Sites are free to obfuscate or not provide source values that are used to create ID variables. Sites must maintain a mapping from the ID variable back to the original site-specific value for local re-identification tasks.
  1. Source fields that contain clinical data, such as source condition occurrence, should be included
  2. The PEDSnet DCC will never release source values to external data partners.
  3. Source value obfuscation techniques may include replacing the real source value with a random number, an encrypted derivative value/string, or some other site-specific algorithm.
9. Regarding the nullability of all source value (string) fields only, the PEDSnet CDM will accommodate the following values, taken from the PCORnet CDM:

Null Name	Definition of each field
NULL	A data field is not present in the source system. Note. This is not a 'NULL' string but the NULL value.
'NI' = No Information	A data field is present in the source system, but the source value is null or blank
'UN' = Unknown	A data field is present in the source system, but the source value explicitly denotes an unknown value
'OT' = Other	A data field is present in the source system, but the source value cannot be mapped to the CDM

**ETL Recommendation:** Due to PK/FK constraints, the most efficient order for ETL table is location, caresite, provider, person, visitoccurrence, conditionoccurrence, observation, procedureoccurrence, measurement, drug exposure and observation\_period

It is recommended to refer to the vocabulary documentation as provided by ODHSII for guidance on how to populate "conceptid" fields in the model and for any specific transformations in the vocabulary. <http://www.ohdsi.org/web/wiki/doku.php?id=documentation:vocabulary:dataetl>

---

## Table of Contents

---

<a href="#">1.1 Person</a>
<a href="#">1.2 Death</a>
<a href="#">1.3 Location</a>
<a href="#">1.4 Caresite</a>
<a href="#">1.5 Provider</a>
<a href="#">1.6 Visit Occurrence</a>
<a href="#">1.7 Condition Occurrence</a>
<a href="#">1.8 Procedure Occurrence</a>
<a href="#">1.9 Observation</a>
<a href="#">1.10 Observation Period</a>
<a href="#">1.11 Drug Exposure</a>
<a href="#">1.12 Measurement</a>
<a href="#">1.13 Fact Relationship</a>
<a href="#">1.14 Visit Payer</a>

## Appendix

---

### 1.1 PERSON

---

The person domain contains records that uniquely identify each patient in the source data who is time at-risk to have clinical observations recorded within the source systems. Each person record has associated demographic attributes, which are assumed to be constant for the patient throughout the course of their periods of observation. All other patient-related data domains have a foreign-key reference to the person domain.

PEDSnet uses a specific definition of an active PEDSnet patient. Only patients who meet the PEDSnet definition of an active patient should be included in this table. The criteria for identifying an active patient are:

- Has a unique identifier AND
- At least 1 "in person" clinical encounter on or after January 1, 2009 AND
- At least 1 coded diagnoses recorded on or after January 1, 2009 AND
- Is not a test patient or a research-only patient

The definition of an "in person" clinical encounter remains heuristic -any encounter type that involves a meaningful **physical** interaction with a clinician that involved clinical content. An encounter for a suture removal or a telephone encounter or a lab blood draw does not meet this definition.

**NOTE: While the 1/1/2009 date and "in person" clinical encounter restrictions apply to defining an active PEDSnet patient, once a patient has met this criteria, PEDSnet will extract ALL available clinical encounters/clinical data of any type across all available dates. That is, 1/1/2009 and 1 'in person' clinical encounter applies only to defining the active patient cohort. It does NOT apply to data extraction on active patients.**

Field	Required	Data Type	Description	PEDSnet Conventions
person_id	Yes*	Integer	A unique identifier for each person; this is created by each	This is not a value found in the EHR.

			contributing site.	<p>PERSON_ID must be unique for all patients within a single data set.</p> <p>Sites may choose to use a sequential value for this field</p>
genderconceptid	Yes*	Integer	A foreign key that refers to a standard concept identifier in the Vocabulary for the gender of the person.	<p>Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid conceptids found in <i>CONCEPT</i> table <i>select * from concept where domainid='Gender'</i>):</p> <ul style="list-style-type: none"> <li>Ambiguous: conceptid = 44814664</li> <li>Female: conceptid = 8532</li> <li>Male: conceptid = 8507</li> <li>No Information: conceptid = 44814650 (Vocabularyid='PCORNet')</li> <li>Unknown: conceptid = 44814653</li> <li>Other: concept_id = 44814649</li> </ul>
gendersourceconcept_id	No	Integer	A foreign key to the gender concept that refers to the code used in the source.	
yearofbirth	Yes*	Integer	The year of birth of the person.	<p>For data sources with date of birth, the year is extracted. For data sources where the year of birth is not available, the approximate year of birth is derived based on any age group categorization available.</p> <p>Please keep all accurate/real dates (No date shifting)</p>
monthofbirth	No*	Integer	The month of birth of the person.	<p>For data sources that provide the precise date of birth, the month is extracted and stored in this field.</p> <p>Please keep all accurate/real dates (No date shifting)</p>
dayofbirth	No	Integer	The day of the month of birth of the person.	<p>For data sources that provide the precise date of birth, the day is extracted and stored in this field.</p> <p>Please keep all accurate/real dates (No date shifting)</p>
timeofbirth	No*	Datetime	The birth date and time	<p>Do not include timezone.</p> <p>Please keep all accurate/real dates (No date shifting). If there is no time associated with the date assert midnight.</p>
raceconceptid	No*	Integer	A foreign key that refers to a standard concept identifier in the Vocabulary for the race of the person.	<p>Details of categorical definitions:</p> <ul style="list-style-type: none"> <li><b>-American Indian or Alaska Native:</b> A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.</li> <li><b>-Asian:</b> A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.</li> <li><b>-Black or African American:</b> A person having origins in any of the black racial groups of Africa.</li> <li><b>-Native Hawaiian or Other Pacific Islander:</b> A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.</li> <li><b>-White:</b> A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.</li> </ul> <p>For patients with multiple races (i.e. biracial), race is considered a single concept, meaning there is only one race slot. If there are multiple races in the source system, concatenate all races into one <i>racessourcevalue</i> (see below) and use <i>conceptid code as 'Multiple Race.'</i></p> <p><i>Predefined values (valid conceptids found in CONCEPT table where ((domainid='Race' and vocabularyid = 'Race') or (vocabularyid = 'PCORNet' and conceptclassid='Race') or vocabularyid='PCORNet' and conceptclassid='Undefined') and invalidreason is null:</i></p> <ul style="list-style-type: none"> <li>American Indian/Alaska Native: conceptid = 8657</li> <li>Asian: conceptid = 8515</li> <li>Black or African American: conceptid = 8516</li> <li>Native Hawaiian or Other Pacific Islander: conceptid = 8557</li> <li>White: conceptid = 8527</li> <li>Multiple Race: conceptid = 44814659 (vocabularyid='PCORNet')</li> <li>Refuse to answer: conceptid = 44814660 (vocabularyid='PCORNet')</li> <li>No Information: conceptid = 44814650 vocabularyid='PCORNet')</li> </ul>

				<ul style="list-style-type: none"> <li>Unknown: <i>conceptid</i> = 44814653</li> <li>Other: <i>conceptid</i> = 44814649</li> </ul>
<i>race</i> sourceconcept_id	No	Integer	A foreign key to the race concept that refers to the code used in the source.	
<i>ethnicity</i> conceptid	No*	Integer	A foreign key that refers to the standard concept identifier in the Vocabulary for the ethnicity of the person.	<p>For PEDSnet, a person with Hispanic ethnicity is defined as "A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race."</p> <p>Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid <i>conceptids</i> found in <i>CONCEPT</i> table where <i>vocabularyid</i>='Ethnicity' or <i>vocabularyid</i>=PCORNet where noted):</p> <ul style="list-style-type: none"> <li>Hispanic: <i>conceptid</i> = 38003563</li> <li>Not Hispanic: <i>conceptid</i> = 38003564</li> <li>No Information: <i>conceptid</i> = 44814650 (<i>vocabularyid</i>='PCORNet')</li> <li>Unknown: <i>conceptid</i> = 44814653 (<i>vocabularyid</i>='PCORNet')</li> <li>Other: <i>conceptid</i> = 44814649 (<i>vocabulary_id</i>='PCORNet')</li> </ul>
<i>ethnicity</i> sourceconcept_id	No	Integer	A foreign key to the ethnicity concept that refers to the code used in the source.	
<i>location</i> _id	No	Integer	A foreign key to the place of residency (ZIP code) for the person in the location table, where the detailed address information is stored.	
<i>provider</i> _id	No	Integer	Foreign key to the primary care provider the person is seeing in the provider table.	For PEDSnet CDM V2.0: Sites will use site-specific logic to determine the best primary care provider and document how that decision was made (e.g., billing provider).
<i>caresite</i> id	Yes	Integer	A foreign key to the site of primary care in the care_site table, where the details of the care site are stored	For patients who receive care at multiple care sites, use site-specific logic to select a care site that best represents where the patient obtains the majority of their recent care. If a specific site within the institution cannot be identified, use a <i>caresiteid</i> representing the institution as a whole.
<i>pngestational</i> age	No	Integer	The post-menstrual age in weeks of the person at birth, if known	Use granularity of age in weeks as is recorded in local EHR.
<i>person</i> sourcevalue	Yes	Varchar	An encrypted key derived from the person identifier in the source data.	Insert a unique pseudo-identifier (random number, encrypted identifier) into the field. Do not insert the actual MRN or PATID from your site. A mapping from the pseudo-identifier for <i>personsource_value</i> in this field to a real patient ID or MRN from the source EHR must be kept at the local site. This mapping is not shared with the data coordinating center. It is used only by the site for re-identification for study recruitment or for data quality review.
<i>gender</i> sourcevalue	No*	Varchar	The source code for the gender of the person as it appears in the source data.	The person's gender is mapped to a standard gender concept in the Vocabulary; the original value is stored here for reference. See <i>genderconceptid</i>
<i>race</i> sourcevalue	No*	Varchar	The source code for the race of the person as it appears in the source data.	<p>The person race is mapped to a standard race concept in the Vocabulary and the original value is stored here for reference.</p> <p>For patients with multiple races (i.e. biracial), race is considered a single concept, meaning there is only one race slot. If there are multiple races in the source system, concatenate all races into one source value, and use the <i>concept_id</i> for Multiple Race.</p>
<i>ethnicity</i> sourcevalue	No*	Varchar	The source code for the ethnicity of the person as	The person ethnicity is mapped to a standard ethnicity concept in the Vocabulary and the

		it appears in the source data.	original code is, stored here for reference.
--	--	--------------------------------	--

\* This field is important for responding to PCORNet queries. If sites have any information on this filed in the source EHR then these fields should be populated in the PEDSnet CDM instance

## 1.2 DEATH

The death domain contains the clinical event for how and when a person dies. Living patients should not contain any information in the death table.

Field	Required	Data Type	Description	PEDSnet Conventions
person_id	Yes	Integer	A foreign key identifier to the deceased person. The demographic details of that person are stored in the person table.	See PERSON.person_id (primary key)
death_date	Yes	Date	The date the person was deceased.	If the precise date including day or month is not known or not allowed, December is used as the default month, and the last day of the month the default day. If no date available, use date recorded as deceased. When the date of death is not present in the source data, use the date the source record was created.
death_time	Yes	Datetime	The date the person was deceased.	<b>This field is custom to PEDSnet</b>  If the precise date including day or month is not known or not allowed, December is used as the default month, and the last day of the month the default day. If no date available, use date recorded as deceased.  When the date of death is not present in the source data, use the date the source record was created. If there is no time associated with the date assert midnight.
deathtypeconcept_id	Yes	Integer	A foreign key referring to the predefined concept identifier in the Vocabulary reflecting how the death was represented in the source data.	Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid conceptids found in CONCEPT table where domainid ='Death Type')  select * from concept where domainid ='Death Type' yields 9 valid conceptids. If none are correct, use conceptid = 0  <i>Note: Most current ETLs are extracting data from EHR so most likely conceptid to insert here is 38003569 ("EHR record patient status "Deceased")</i> <i>Note: These terms only describe the source from which the death was reported. It does not describe our certainty/source of the date of death, which may have been created by one of the heuristics described in death_date.</i>
causeconceptid	No	Integer	A foreign referring to a standard concept identifier in the Vocabulary for conditions.	
causesourcevalue	No	Varchar	The source code for the cause of death as it appears in the source. This code is mapped to a standard concept in the Vocabulary and the original code is stored here for reference.	
causesourceconcept_id	No	Integer	A foreign key to the vocabulary concept that refers to the code used in the source.	This links to the concept id of the vocabulary of the cause of death concept id as stored in the source. For example, if the cause of death is "Acute myeloid leukemia, without mention of having achieved remission" which has an icd9 code of 205.00 the cause source concept id is 44826430 which is the icd9 code concept that corresponds to the diagnosis 205.00.

### 1.2.1 Additional Notes

- Each Person may have more than one record of death in the source data. It is OK to insert multiple death records for an individual.

- If the Death Date cannot be precisely determined from the data, the best approximation should be used.

### 1.3 LOCATION

The Location domain represents a generic way to capture physical location or address information. Locations are used to define the addresses for Persons and Care Sites. The most important field is ZIP for location-based queries.

Field	Required	Data Type	Description	PEDSnet Conventions
location_id	Yes*	Integer	A unique identifier for each geographic location.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field
state	No	Varchar	The state field as it appears in the source data.	
zip	No*	Varchar	The zip code. For US addresses, valid zip codes can be 3, 5 or 9 digits long, depending on the source data.	While optional, this is the most important field in this table to support location-based queries.
location_sourcevalue	No	Varchar	Optional - Do not transmit to DCC. The verbatim information that is used to uniquely identify the location as it appears in the source data.	<p>If location source values are deemed sensitive by your organization, insert a pseudo-identifier (random number, encrypted identifier) into the field. Sites electing to obfuscate location_sourcevalues will keep the mapping between the value in this field and the original clear text location source value. This value is only used for site-level re-identification for study recruitment and for data quality review.</p> <p>Sites may consider using the locationid field value in this table as the pseudo-identifier as long as a local mapping from locationid to the real site identifier is maintained.</p>
address_1	No	Varchar		Optional - Do not transmit to DCC
address_2	No	Varchar		Optional - Do not transmit to DCC
city	No	Varchar		Optional - Do not transmit to DCC
county	No	Varchar		Optional - Do not transmit to DCC

**\* This field is important for responding to PCORNet queries. If sites have any information on this filed in the source EHR then these fields should be populated in the PEDSnet CDM instance**

#### 1.3.1 Additional Notes

- Each address or Location is unique and is present only once in the table
- Locations in this table are restricted to locations that are applicable to persons and care\_sites in the Pedsnet cohort at each site. When external data is implemented, valid(data containing) locations may be expanded beyond locations of those only present in clinical tables.

### 1.4 CARE\_SITE

The Care Site domain contains a list of uniquely identified physical or organizational units where healthcare delivery is practiced (offices, wards, hospitals, clinics, etc.).

Field	Required	Data Type	Description	PEDSnet Conventions
caresiteid	Yes*	Integer	A unique identifier for each defined location of care within an organization. Here, an organization is defined as a collection of one or more care sites that share a single EHR database.	<p>This is not a value found in the EHR.</p> <p>Sites may choose to use a sequential value for this field</p>
caresitename	No	Varchar	The description of the care site	
				<p>Please include valid concept ids (consistent with OMOP CDMv5). Predefined value</p> <p>not valid conceptids found in CONCEPT table when conceptid_Mapping</p>

placeofserviceconceptid	No	Integer	A foreign key that refers to a place of service concept identifier in the Vocabulary	<p>set (valid concepts found in CONCEPT table where domainid='Visit' or (vocabularyid='PCORNet' and conceptclassid='Encounter Type') or (vocabularyid='PCORNet' and conceptclassid='Undefined') and invalidreason is null)</p> <p><i>select * from concept where domainid='Visit' or (vocabularyid='PCORNet' and conceptclassid='Encounter Type') or (vocabularyid='PCORNet' and conceptclassid='Undefined') and invalidreason is null yields 12 valid concepts.</i></p> <p>If none are correct, use conceptid = 0</p> <ul style="list-style-type: none"> <li>• Inpatient Hospital Stay: conceptid = 9201</li> <li>• Ambulatory Visit: conceptid = 9202</li> <li>• Emergency Department: conceptid = 9203</li> <li>• Long Term Care Visit = 42898160</li> <li>• Other ambulatory Visit = 44814711</li> <li>• Non-Acute Institutional Stay: conceptid = 44814710</li> <li>• Unknown: conceptid = 44814653</li> <li>• Other: conceptid = 44814649</li> <li>• No information: conceptid = 44814650</li> </ul>
location_id	No*	Integer	A foreign key to the geographic location of the administrative offices of the organization in the location table, where the detailed address information is stored.	
caresitesource_value	Yes	Varchar	The identifier for the organization in the source data, stored here for reference.	<p>If care site source values are deemed sensitive by your organization, insert a pseudo-identifier (random number, encrypted identifier) into the field. Sites electing to obfuscate care sitesourcevalues will keep the mapping between the value in this field and the original clear text location source value. This value is only used for site-level re-identification for study recruitment and for data quality review.</p> <p>For EPIC EHRs, map caresiteid to Clarity Department.</p> <p>Sites may consider using the caresiteid field value in this table as the pseudo-identifier as long as a local mapping from caresiteid to the real site identifier is maintained.</p>
placeofservicesourcevalue	No	Varchar	The source code for the place of service as it appears in the source data, stored here for reference.	
specialtyconceptid	No	Integer	The specialty of the department linked to a standard specialty concept as it appears in the Vocabulary	<p>Care sites could have one or more specialties or a Care site could have no specialty information.</p> <p><b>Valid specialty concept ids for PEDSnet are found in the <a href="#">appendix</a></b></p> <p><b>Please use the following rules:</b></p> <ul style="list-style-type: none"> <li>• If care site specialty information is unavailable, please follow the convention on reporting values that are unknown,null or unavailable.</li> <li>• If a care site has a single specialty associated with it, sites should link the specialty to the <b>valid specialty concepts as assigned in the <a href="#">appendix</a></b>. If the specialty does not correspond to a value in this listing, please use the NUCC Listing (vocabularyid='NUCC') provided in the vocabulary as a reference.</li> <li>• If there are multiple specialties associated with a particular care site and sites are not able to assign a specialty value on the visit occurrence level, sites should use the specialty concept id=38004477 "Pediatric Medicine".</li> <li>• If there are multiple specialties associated with a particular care site and this information is attainable, sites should document the strategy used to obtain this information and the strategy used to link the correct care site/specialty pair for each visit occurrence. Sites should also link the specialty to the <b>valid specialty concepts as assigned in the <a href="#">appendix</a></b></li> </ul> <p><i>If the specialty does not correspond to a value in this listing, please use the NUCC Listing (vocabularyid='NUCC') provided in the vocabulary as a</i></p>

				<i>NUCC Listing (vocabularyid='NUCC')</i> provided in the vocabulary as a reference.
specialtysourcevalue	No	Varchar	The source code for the specialty as it appears in the source data, stored here for reference.	

\* This field is important for responding to PCORNet queries. If sites have any information on this filed in the source EHR then these fields should be populated in the PEDSnet CDM instance

#### 1.4.1 Additional Notes

- Care sites are primarily identified based on the specialty or type of care provided, and secondarily on physical location, if available (e.g. North Satellite Endocrinology Clinic)
- The Place of Service Concepts are based on a catalog maintained by the CMS (see vocabulary for values)

## 1.5 PROVIDER

The Provider domain contains a list of uniquely identified health care providers. These are typically physicians, nurses, etc.

Field	Required	Data Type	Description	PEDSnet Conventions
provider_id	Yes	Integer	A unique identifier for each provider. Each site must maintain a map from this value to the identifier used for the provider in the source data.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field. See Additional Comments below. Sites should document who they have included as a provider.
provider_name	No	Varchar	A description of the provider	DO NOT TRASMIT TO DCC
genderconceptid	No	Integer	The gender of the provider	A foreign key to the concept that refers to the code used in the source.
specialtyconceptid	No	Integer	A foreign key to a standard provider's specialty concept identifier in the Vocabulary.	<p>Please map the source data to the mapped provider speciality concept associated with the American Medical Board of Specialties as seen in <b>Appendix A1</b>. Predefined value set (valid conceptids found in <i>CONCEPT</i> table where domainid='Provider Specialty' and vocabularyid = <i>Specialty</i>)</p> <p><i>select * from concept where domainid ='Provider Specialty' and vocabularyid='Specialty' and invalidreason is null yields 107 valid conceptids.</i></p> <p><i>If none are correct, use conceptid = 0</i></p> <p>For providers with more than one specialty, use site-specific logic to select one specialty and document the logic used. For example, sites may decide to always assert the <b>**first**</b> specialty listed in their data source. If the specialty does not correspond to a value in this listing, please use the NUCC Listing (vocabulary_id='NUCC') provided in the vocabulary as a reference.</p>
caresiteid	Yes	Integer	A foreign key to the main care site where the provider is practicing.	See CARESITE.caresite_id (primary key)
yearofbirth	No	Integer	The year of birth of the provider	
NPI	No	Varchar	The National Provider Identifier (NPI) of the provider.	Optional - Do not transmit to DCC.
DEA	No	Varchar	The Drug Enforcement Administration (DEA) number of the provider.	Optional - Do not transmit to DCC.
			The identifier used for the	Insert a pseudo-identifier (random number, encrypted identifier) into the field. Do not insert the actual PROVIDERID from your site. A mapping from the pseudo-identifier for providersourcevalue in this field to a real provider ID from the source EHR must be kept at



providersourcevalue	Yes	Varchar	provider in the source data, stored here for reference.	<p><i>the local site. This mapping is not shared with the data coordinating center. It is used only by the site for re-identification for study recruitment or for data quality review.</i></p> <p><i>Sites may consider using the providerid field value in this table as the pseudo-identifier as long as a local mapping from provider_id to the real site identifier is maintained.</i></p>
specialtysourcevalue	No	Varchar	The source code for the provider specialty as it appears in the source data, stored here for reference.	Optional. May be obfuscated if deemed sensitive by local site.
specialtysourceconcept_id	No	Integer	A foreign key to a concept that refers to the code used in the source.	If providing this information, sites should document how they determine the specialty associated with the provider. <b>Valid specialty concept ids for PEDSnet are found in the <a href="#">appendix</a></b> If the specialty does not correspond to a value in this listing, please use the NUCC Listing (vocabulary_id='NUCC') provided in the vocabulary as a reference
gendersourcevalue	No	Varchar	The source value for the provider gender.	
gendersourceconcept_id	No	Integer	The gender of the provider as represented in the source that maps to a concept in the vocabulary	

### 1.5.1 Additional Notes

- For PEDSnet, a provider is any individual (MD, DO, NP, PA, RN, etc) who is authorized to document care.
- Providers are not duplicated in the table.

## 1.6 VISIT\_OCCURRENCE

The visit occurrence domain contains the spans of time a person continuously receives medical services from one or more providers at a care site in a given setting within the health care system.

Field	Required	Data Type	Description	PEDSnet Conventions
visitoccurrenceid	Yes*	Integer	A unique identifier for each person's visits or encounter at a healthcare provider.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field. Do not use institutional encounter ID.
person_id	Yes*	Integer	A foreign key identifier to the person for whom the visit is recorded. The demographic details of that person are stored in the person table.	
visitstartdate	Yes*	Date	The start date of the visit.	No date shifting. Full date and time. If there is no time associated with the date assert midnight.
visitenddate	No*	Date	The end date of the visit.	<p>No date shifting.</p> <p>If this is a one-day visit the end date should match the start date.</p> <p>If the encounter is on-going at the time of ETL, this should be null. Full date and time. If there is no time associated with the date assert midnight.</p>
visitstarttime	Yes	Datetime	The start date of the visit.	No date shifting. Full date and time. If there is no time associated with the date assert midnight.
visitendtime	No	Datetime	The end date of the visit.	<p>No date shifting.</p> <p>If this is a one-day visit the end date should match the start date.</p> <p>If the encounter is on-going at the time of ETL, this should be null. Full date and time. If there is no time associated with the date assert midnight.</p>
provider_id	No*	Integer	A foreign key to the provider in the provider table who was associated with the visit.	Use attending or billing provider for this field if available, even if multiple providers were involved in the visit. Otherwise, make site-specific decision on which provider to associate with visits and document.

				<b>NOTE: this is NOT required in OMOP CDM v4, but appears in OMOP CDMv5.</b>
caresiteid	No*	Integer	A foreign key to the care site in the care site table that was visited.	See CARESITE.caresite_id (primary key)
visitconceptid	Yes	Integer	A foreign key that refers to a place of service concept identifier in the vocabulary.	<p><b>In PEDSnet CDM v1, this field was previously called placeofserviceconceptid</b></p> <p>Please include valid concept ids (consistent with OMOP CDMv5).            Predefined value set (valid conceptids found in CONCEPT table where domainid='Visit' or (vocabularyid='PCORNet' and conceptclassid='Encounter Type') or (vocabularyid='PCORNet' and conceptclassid='Undefined') and invalidreason is null).</p> <p><i>select * from concept where domainid='Visit' or (vocabularyid='PCORNet' and conceptclassid='Encounter Type') or (vocabularyid='PCORNet' and conceptclassid='Undefined') and invalidreason is null yields 12 valid conceptids.</i></p> <p>If none are correct, use conceptid = 0</p> <ul style="list-style-type: none"> <li>Inpatient Hospital Stay: conceptid = 9201</li> <li>Ambulatory Visit: conceptid = 9202</li> <li>Emergency Department: conceptid = 9203</li> <li>Long Term Care Visit = 42898160</li> <li>Other ambulatory Visit = 44814711</li> <li>Non-Acute Institutional Stay: conceptid = 44814710 )</li> <li>Unknown: conceptid = 44814653</li> <li>Other: conceptid = 44814649</li> <li>No information: conceptid = 44814650</li> </ul>
visittypeconcept_id	Yes	Integer	A foreign key to the predefined concept identifier in the standard vocabulary reflecting the type of source data from which the visit record is derived.	<p>select * from chopomop5.concept where domainid='Visit Type' yields 3 valid conceptids.</p> <p>If none are correct, user conceptid=0. The majority of visits should be type 'Visit derived from EHR record' which is concept_id=44818518</p>
visitsourcevalue	No	Varchar	The source code used to reflect the type or source of the visit in the source data. Valid entries include office visits, hospital admissions, etc. These source codes can also be type-of service codes and activity type codes.	
visitsourceconcept_id	No*	Integer	A foreign key to a concept that refers to the code used in the source.	If a site is using HCPS or CPT for their visit source value, the standard concept id that maps to the particular vocabulary can be used here.

\* This field is important for responding to PCORNet queries. If sites have any information on this filed in the source EHR then these fields should be populated in the PEDSnet CDM instance

#### 1.6.1 Additional Notes

- The 1/1/2009 date limitation that is used to define a PEDSnet active patient is **NOT** applied to visit\_occurrence. All visits, of all types (physical and virtual) are included for an active patient.
- A Visit Occurrence is recorded for each visit to a healthcare facility.
- If a visit includes moving between different visitconcepts (ED -> inpatient) this should be split into separate visitoccurrence records to meet PCORnet's definitions.

To show the relationship of the split (ED -> inpatient) encounter, use the FACT\_RELATIONSHIP table.

An example of this is below:

#### VISIT\_OCCURRENCE

visitoccurrenceid	person_id	visitstartdate	visitenddate	provider_id	caresiteid	placeofserviceconceptid	placeofservicesourcevalue
35022489	209846	2011-11-14 17:36:00-05	2011-11-14 22:25:00-05	2238	322	9203	Emergency
35022490	209846	2011-11-14 22:25:00-05	2011-11-15 16:33:00-05	2238	43	9201	Emergency

#### FACT\_RELATIONSHIP

Domainconceptid_1	factid1	Domainconceptid_2	factid2	relationshipconceptid
Visit	35022489	Visit	35022490	Occurs before
Visit	35022490	Visit	35022489	Occurs after

Because the domainconceptid and relationshipconceptid are actually numeric values the following is an example of how the table is stored:

Domainconceptid_1	factid1	Domainconceptid_2	factid2	relationshipconceptid
8	35022489	8	35022490	44818881
8	35022490	8	35022489	44818783

- Operating and Anesthesia encounters that occur as apart of the Inpatient stay should be rolled up into one Inpatient encounter.
- Each Visit is standardized by assigning a corresponding Concept Identifier based on the type of facility visited and the type of services rendered.
- At any one day, there could be more than one visit.
- One visit may involve multiple attending or billing providers (e.g. billing, attending, etc), in which case the ETL must specify how a single provider id is selected or leave the provider\_id field null.
- One visit may involve multiple care sites, in which case the ETL must specify how a single caresite id is selected or leave the caresite\_id field null.

## 1.7 CONDITION\_OCCURRENCE

The condition occurrence domain captures records of a disease or a medical condition based on diagnoses, signs and/or symptoms observed by a provider or reported by a patient.

Conditions are recorded in different sources and levels of standardization. For example:

- Medical claims data include ICD-9-CM diagnosis codes that are submitted as part of a claim for health services and procedures.
- EHRs may capture a person's conditions in the form of diagnosis codes and symptoms as ICD-9-CM codes, but may not have a way to capture out-of-system conditions.

Field	Required	Data Type	Description	PEDSnet Conventions
conditionoccurrenceid	Yes*	Integer	A unique identifier for each condition occurrence event.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field
person_id	Yes*	Integer	A foreign key identifier to the person who is experiencing the condition. The demographic details of that person are stored in the person table.	
conditionconceptid	Yes	Integer	A foreign key that refers to a standard condition concept identifier in the Vocabulary.	Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid conceptids found in CONCEPT table where vocabularyid ='SNOMED')  select * from concept where vocabularyid ='SNOMED' yields ~440,000 valid conceptids. If none are correct, use concept_id = 0
conditionstartdate	Yes	Date	The date when the instance of the condition is recorded.	No date shifting.
conditionenddate	No	Date	The date when the instance of the condition is considered to have ended	No date shifting. If this information is not available, set to NULL.
conditionstarttime	Yes	Datetime	The date and time when the instance of the condition is recorded.	No date shifting. Full date and time. If there is no time associated with the date assert midnight.

conditionendtime	No	Datetime	The date and time when the instance of the condition is considered to have ended	No date shifting. If this information is not available, set to NULL. Full date and time. If there is no time associated with the date assert midnight.
conditiontypeconcept_id	Yes	Integer	A foreign key to the predefined concept identifier in the Vocabulary reflecting the source data from which the condition was recorded, the level of standardization, and the type of occurrence. For example, conditions may be defined as primary or secondary diagnoses, problem lists and person statuses.	Please include valid concept ids (consistent with OMOP CDMv4). Predefined value set (valid conceptids found in <i>CONCEPT</i> table where domainid ='Condition Type')  select * from concept where domainid ='Condition Type' yields 98 valid conceptids.  If none are correct, use conceptid = 0  If data source only identifies conditions as primary or secondary with no sequence number, use the following conceptids:  <ul style="list-style-type: none"> <li>Inpatient primary: conceptid = 38000199</li> <li>Inpatient secondary: conceptid = 38000201</li> <li>Outpatient primary: conceptid = 38000230</li> <li>Outpatient secondary: conceptid = 38000231</li> </ul>
stop_reason	No	Varchar	The reason, if available, that the condition was no longer recorded, as indicated in the source data.	Valid values include discharged, resolved, etc. Note that a stop_reason does not necessarily imply that the condition is no longer occurring, and therefore does not mandate that the end date be assigned.
provider_id	No	Integer	A foreign key to the provider in the provider table who was responsible for determining (diagnosing) the condition.	<b>In PEDSnet CDM v1, this field was previously called associatedproviderid</b>  Any valid provider_id allowed (see definition of providers in PROVIDER table) Make a best-guess and document method used. Or leave blank
visitoccurrenceid	No*	Integer	A foreign key to the visit in the visit table during which the condition was determined (diagnosed).	
conditionsourcevalue	No*	Varchar	The source code for the condition as it appears in the source data. This code is mapped to a standard condition concept in the Vocabulary and the original code is, stored here for reference.	Condition source codes are typically ICD-9-CM diagnosis codes from medical claims or discharge status/visit diagnosis codes from EHRs. Use source <sub>to</sub> concept maps to translation from source codes to OMOP concept_ids.
conditionsourceconcept_id	No*	Integer	A foreign key to a condition concept that refers to the code used in the source	For example, if the condition is "Acute myeloid leukemia, without mention of having achieved remission" which has an icd9 code of 205.00 the condition source concept id is 44826430 which is the icd9 code concept that corresponds to the diagnosis 205.00.

\* This field is important for responding to PCORNet queries. If sites have any information on this filed in the source EHR then these fields should be populated in the PEDSnet CDM instance

### 1.7.1 Additional Notes

- The 1/1/2009 date limitation that is used to define a PEDSnet active patient is **\*\*NOT\*\*** applied to conditionoccurrence. All conditions are included for an active patient. For PEDSnet CDM V2, we limit conditionoccurrences to final diagnoses only (not reason-for-visit and provisional surgical diagnoses such as those recored in EPIC OPTIME). In EPIC, final diagnoses includes both encounter diagnoses and billing diagnoses, problem lists (all problems, not filtered on "chronic" versus "provisional" unless local practices use this flag as intended). Medical History diagnosis are optional.
- Condition records are inferred from diagnostic codes recorded in the source data by a clinician or abstractionist for a specific visit. In the current version of the CDM, diagnoses extracted from unstructured data (such as notes) are not included.
- Source code systems, like ICD-9-CM, ICD-10-CM, etc., provide coverage of conditions. However, if the code does not define a condition, but rather is an observation or a procedure, then such information is not stored in the *CONDITIONOCCURRENCE* table, but in the respective tables instead. An example are ICD-9-CM procedure codes. For example, OMOP source-to-concept table uses the *MAPPINGTYPE* column to distinguish ICD9 codes that represent procedures rather than conditions.

- Condition source values are mapped to standard concepts for cflowonditions in the Vocabulary. Since the icd9-cm diagnosis codes are notB in the concept table, use the *source*toconceptmap table where the *icd9code* = *sourcecode* and the *sourcevocabularyid* =ICD9CM (*icd9*) and *targetvocabularyid*=SNOMED (snomed-ct) to locate the correct *conditionconceptid* value.
- When the source code cannot be translated into a Standard Concept, a *CONDITIONOCCURRENCE* entry is stored with only the corresponding *sourcevalue* and a *conditionconceptid* of 0.
- Codes written in the process of establishing the diagnosis, such as "question of" of and "rule out", are not represented here.

## 1.8 PROCEDURE\_OCCURRENCE

---

The procedure occurrence domain contains records of significant activities or processes ordered by and/or carried out by a healthcare provider on the patient to have a diagnostic and/or therapeutic purpose that are not fully captured in another table (e.g. drug\_exposure).

Procedures records are extracted from structured data in Electronic Health Records that capture source procedure codes using CPT-4, ICD-9-CM (Procedures), HCPCS or OPCS-4 procedures as orders.

**Only instantiated procedures are included in this table. Please exclude cancelled procedures**

Field	Required	Data Type	Description	PEDSnet Conventions
<code>procedureoccurrenceid</code>	Yes*	Integer	A system-generated unique identifier for each procedure occurrence	This is not a value found in the EHR. Sites may choose to use a sequential value for this field
<code>person_id</code>	Yes*	Integer	A foreign key identifier to the person who is subjected to the procedure. The demographic details of that person are stored in the person table.	
<code>procedureconceptid</code>	Yes	Integer	A foreign key that refers to a standard procedure concept identifier in the Vocabulary.	<p>Valid Procedure Concepts belong to the "Procedure" domain. Procedure Concepts are based on a variety of vocabularies: SNOMED-CT (<i>vocabularyid</i> = 'SNOMED'), ICD-9-Procedures (<i>vocabularyid</i> = 'ICD9Proc'), CPT-4 (<i>vocabularyid</i> = 'CPT4'), and HCPCS (<i>vocabularyid</i> = 'HCPCS')</p> <p>Procedures are expected to be carried out within one day. If they stretch over a number of days, such as artificial respiration, usually only the initiation is reported as a procedure (CPT-4 "Intubation, endotracheal, emergency procedure").</p> <p>Procedures could involve the administration of a drug, in which case the procedure is recorded in the procedure table and simultaneously the administered drug in the drug table.</p>
<code>modifierconceptid</code>	No	Integer	A foreign key to a standard concept identifier for a modifier to the procedure (e.g. bilateral)	Valid Modifier Concepts belong to the "Modifier" domain.
<code>quantity</code>	No	Float	The quantity of procedures ordered or administered.	
<code>procedure_date</code>	Yes	Date	The date on which the procedure was performed.	
<code>procedure_time</code>	Yes	Date	The date and time on which the procedure was performed. If there is no time associated with the date assert midnight.	<b>This field is a custom PEDSnet field</b>
<code>proceduretypeconcept_id</code>	Yes	Integer	A foreign key to the predefined concept identifier in the Vocabulary reflecting the type of source data from which the procedure record is derived. (OMOP <i>vocabulary_id</i> = 'Procedure Type')	<p>Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid <i>conceptids</i> found in <i>CONCEPT</i> table where <i>vocabularyid</i> = 'Procedure Type')</p> <p><i>select * from concept where vocabularyid = 'Procedure Type' yields 93 valid conceptids.</i></p> <p>If none are correct, use <i>concept_id</i> = 0</p>
<code>provider_id</code>	No	Integer	A foreign key to the provider in the provider table who was responsible for carrying out the procedure.	Any valid <i>provider_id</i> allowed (see definition of providers in PROVIDER table) Document how selection was made.
<code>visitoccurrenceid</code>	No	Integer	A foreign key to the visit in the visit table during which the procedure was carried out.	See VISIT. <i>visitoccurrenceid</i> (primary key)
<code>proceduresourcevalue</code>	No*	Varchar	The source code for the procedure as it appears in the source data. This code is mapped to a standard procedure concept in the Vocabulary and the original code is stored here for reference.	<i>Proceduresourcevalue</i> codes are typically ICD-9, ICD-10 Proc, CPT-4, HCPCS, or OPCS-4 codes. All of these codes are acceptable source values.
<code>proceduresourceconcept_id</code>	No*	Integer	A foreign key to a procedure concept that refers to the code used in the source. For example, if the procedure is "Anesthesia for procedures on eye; lens surgery" in the source which has a concept code in the vocabulary that is 2100658. The procedure source concept id will be 2100658.	
<code>modifiersourcevalue</code>	No	Varchar	The source code for the modifier as it appears in the source data.	

\* This field is important for responding to PCORNet queries. If sites have any information on this filed in the source EHR then these fields should be populated in the PEDSnet CDM instance

1.8.1 Additional notes

- The 1/1/2009 date limitation that is used to define a PEDSnet active patient is **\*\*NOT\*\*** applied to *procedureoccurrence*. *All procedures are included for an active patient. For PEDSnet CDM V2, we limit proceduresoccurrences to billing procedures only (not surgical diagnoses).*
- Procedure Concepts are based on a variety of vocabularies: SNOMED-CT, ICD-9-Proc, CPT-4, HCPCS and OPCS-4.
- Procedures could reflect the administration of a drug, in which case the procedure is recorded in the procedure table and simultaneously the administered drug in the drug table.
- The Visit during which the procedure was performed is recorded through a reference to the VISIT\_OCCURRENCE table. This information is not always available.
- The Provider carrying out the procedure is recorded through a reference to the PROVIDER table. This information is not always available.

1.9 OBSERVATION

The observation domain captures clinical facts about a patient obtained in the context of examination, questioning or a procedure. The observation domain supports capture of data not represented by other domains, including unstructured measurements, medical history and family history. For the PEDSnet CDM version 2, the observations listed below are extracted from source data. Please assign the specific *conceptids* listed in the table below to these observations as *observationconceptids*. *Non-standard PCORnet concepts require concepts that have been entered into an OMOP-generated vocabulary (OMOP provided vocabularyid = 'PCORNet').*

NOTE: DRG and DRG Type require special logic/processing described below.

- Biobank availability
- Admitting source
- Discharge disposition
- Discharge status
- Chart availability
- DRG (requires special logic - see Note 1 below)
- Tobacco Status (see Note 4)

Use the following table to populate *observationconceptids* for the observations listed above. The vocabulary column is used to highlight non-standard codes from *vocabularyid='Observation Type'* and *vocabularyid='PCORNet'* and one newly added standard concept from *vocabulary\_id='SNOMED'*.

Table 1: Observation concept IDs for PCORnet concepts. The vocabulary id 'PCORNet' contains concept specific to PCORNet requirements and standards.

Concept Name	Observation concept ID	Vocab ID	Value as concept ID	Concept description	Vocab ID
Biobank flag (see Note 2)	4001345		4188539	Yes	
Biobank flag	4001345		4188540	No	
Biobank flag	4001345		44814650	No information	PCORNet
Biobank flag	4001345		44814653	Unknown	PCORNet
Biobank flag	4001345		44814649	Other	PCORNet
Admitting source	4145666		44814670	Adult Foster Home	
Admitting source	4145666		44814671	Assisted Living Facility	
Admitting source	4145666		44814672	Ambulatory Visit	
Admitting source	4145666		8870	Emergency Department	
Admitting source	4145666		44814674	Home Health	
Admitting source	4145666		44814675	Home / Self Care	
Admitting source	4145666		8546	Hospice	
Admitting source	4145666		38004279	Other Acute Inpatient Hospital	
Admitting source	4145666		44814678	Nursing Home (Includes ICF)	
Admitting source	4145666		44814679	Rehabilitation Facility	
Admitting source	4145666		44814680	Residential Facility	PCORNet
Admitting source	4145666		8863	Skilled Nursing Facility	
Admitting source	4145666		44814650	No information	PCORNet

Admitting source	4145666		44814653	Unknown	PCORNet
Admitting source	4145666		44814649	Other	PCORNet
Discharge disposition (See Note 3)	44813951	SNOMED	4161979	Discharged alive	
Discharge disposition	44813951	SNOMED	4216643	Expired	
Discharge disposition	44813951	SNOMED	44814650	No information	PCORNet
Discharge disposition	44813951	SNOMED	44814653	Unknown	PCORNet
Discharge disposition	44813951	SNOMED	44814649	Other	PCORNet
Discharge status (see Note 3)	4137274		38004205	Adult Foster Home	
Discharge status	4137274		38004301	Assisted Living Facility	
Discharge status	4137274		4021968	Against Medical Advice	
Discharge status	4137274		44814693	Absent without leave	PCORNet
Discharge status	4137274		4216643	Expired	
Discharge status	4137274		38004195	Home Health	
Discharge status	4137274		8536	Home / Self Care	
Discharge status	4137274		8546	Hospice	
Discharge status	4137274		38004279	Other Acute Inpatient Hospital	
Discharge status	4137274		8676	Nursing Home (Includes ICF)	
Discharge status	4137274		8920	Rehabilitation Facility	
Discharge status	4137274		44814701	Residential Facility	PCORNet
Discharge status	4137274		8717	Still In Hospital	
Discharge status	4137274		8863	Skilled Nursing Facility	
Discharge status	4137274		44814653	Unknown	PCORNet
Discharge status	4137274		44814649	Other	PCORNet
Discharge status	4137274		44814650	No information	PCORNet
Chart availability (See Note 2)	4030450		4188539	Yes	
Chart availability	4030450		4188540	No	
Chart availability	4030450		44814650	No information	PCORNet
Chart availability	4030450		44814653	Unknown	PCORNet
Chart availability	4030450		44814649	Other	PCORNet
Tobacco Use	<i>concept id pending</i>		<i>concept id pending</i>	Current every day smoker	
Tobacco Use	<i>concept id pending</i>		<i>concept id pending</i>	Current some day smoker	
Tobacco Use	<i>concept id pending</i>		<i>concept id pending</i>	Former smoker	
Tobacco Use	<i>concept id pending</i>		<i>concept id pending</i>	Never Smoker	
Tobacco Use	<i>concept id pending</i>		<i>concept id pending</i>	Smoker, current status unknown	
Tobacco Use	<i>concept id pending</i>		<i>concept id pending</i>	Unknown if ever smoked	
Tobacco Use	<i>concept id pending</i>		<i>concept id pending</i>	Heavy tobacco smoker	
Tobacco Use	<i>concept id pending</i>		<i>concept id pending</i>	Light tobacco smoker	
Tobacco Use	<i>concept id pending</i>		44814650	No information	PCORNet
Tobacco Use	<i>concept id pending</i>		44814653	Unknown	PCORNet



Tobacco Use	<i>concept id pending</i>		44814649	Other	PCORNet
Tobacco Type	<i>concept id pending</i>		<i>concept id pending</i>	Cigarettes only	
Tobacco Type	<i>concept id pending</i>		<i>concept id pending</i>	Other tobacco only	
Tobacco Type	<i>concept id pending</i>		<i>concept id pending</i>	Cigarettes and other tobacco	
Tobacco Type	<i>concept id pending</i>		<i>concept id pending</i>	None	
Tobacco Type	<i>concept id pending</i>		44814650	No information	PCORNet
Tobacco Type	<i>concept id pending</i>		44814653	Unknown	PCORNet
Tobacco Type	<i>concept id pending</i>		44814649	Other	PCORNet

**Note 1:** For DRG, use the following logic (must use vocabulary version 5):

- The DRG value must be three digits as text. Put into valueasstring in observation
- For all DRGs, set observationconceptid = 3040464 (hospital discharge DRG)
- To obtain correct valueasconcept\_id for the DRG:
  - If the date for the DRG < 10/1/2007, use conceptclassid = "DRG", invaliddate = "9/30/2007", invalidreason = 'D' and the DRG value=CONCEPT.conceptcode to query the CONCEPT table for correct conceptid to use as valueasconcept\_id.
  - If the date for the DRG >=10/1/2007, use conceptclassid = "MS-DRG", invalidreason = NULL and the DRG value = CONCEPT.conceptcode to query the CONCEPT table for the correct conceptid to use as valueasconceptid.

**Note 2:** In the Observation table, the biobank flag and chart availability concept\_ids can appear multiple times capturing changes in patient consent over time. The temporally most recent observation will be used to determine the current consent status.

**Note 3:** Discharge disposition and discharge status appear only once per visitoccurrence. These values can change across different visitoccurrences. Use the visitoccurrenceid to tie these observations to the corresponding visit.

**Note 4:** If tobacco information is available at the visit level, please provide this information. If it is not sites are welcomed to make a high level assertion about tobacco use and tobacco type information for individuals in the cohort.

Field	Required	Data Type	Description	PEDSnet Conventions
observation_id	Yes*	Integer	A unique identifier for each observation.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field
person_id	Yes*	Integer	A foreign key identifier to the person about whom the observation was recorded. The demographic details of that person are stored in the person table.	
observationconceptid	Yes	Integer	A foreign key to the standard observation concept identifier in the Vocabulary.	Lab results and vitals are not stored in this table in V5 but are stored in the Measurement table.
observation_date	Yes*	Date	The date of the observation.	No date shifting. Full date and time. If there is no time associated with the date assert midnight.
observation_time	No	Datetime	The time of the observation.	No date shifting. Full date and time. If there is no time associated with the date assert midnight.
observationtypeconcept_id	Yes	Integer	A foreign key to the predefined concept identifier in the Vocabulary reflecting the type of the observation.	<p>Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid conceptids found in CONCEPT table where vocabularyid = 'Observation Type')</p> <p>select * from concept where vocabularyid = 'Observation Type' yields 11 valid conceptids.</p> <p>FOR PEDSnet CDM V2, all of our observations are coming from electronic health records so set this field to concept_id = 38000280 (observation recorded from EMR). When we get data from patients, we will include the concept_id = 44814721</p>
				Value must be represented as at least one of

valueasnumber	No* (see convention)	Float	The observation result stored as a number. This is applicable to observations where the result is expressed as a numeric value.	{valueasnumber, valueasstring or valuesasconceptid}. <i>There are a few exceptions in vocabulary id 99 where all three valueas_* fields are NULL.</i>
valueasstring	No* (see convention)	Varchar	The observation result stored as a string. This is applicable to observations where the result is expressed as verbatim text.	Value must be represented as at least one of {valueasnumber, valueasstring or valuesasconceptid}. <i>There are a few exceptions in vocabulary id PCORNet where all three valueas_* fields are NULL.</i>
valuesasconcept_id	No* (see convention)	Integer	A foreign key to an observation result stored as a concept identifier. This is applicable to observations where the result can be expressed as a standard concept from the Vocabulary (e.g., positive/negative, present/absent, low/high, etc.).	Value must be represented as at least one of {valueasnumber, valueasstring or valuesasconceptid}. <i>There are a few exceptions where all three valueas_* fields are NULL.</i>
qualifierconceptid	No	Integer	A foreign key to standard concept identifier for a qualifier (e.g severity of drug-drug interaction alert)	Predefined value set (valid conceptids found in CONCEPT table where domainid='Observation' and conceptclassid='Qualifier Value')  select * from concept where domainid='Observation' and conceptclassid='Qualifier Value' yields 10912 valid conceptids.  If none are correct, use concept_id = 0.
unitconceptid	No	Integer	A foreign key to a standard concept identifier of measurement units in the Vocabulary.	Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid conceptids found in CONCEPT table where domainid='Unit' and vocabularyid='UCUM')  select * from concept where domainid='Unit' and vocabularyid='UCUM' yields 920 valid conceptids.  If none are correct, use concept_id = 0.
provider_id	No	Integer	A foreign key to the provider in the provider table who was responsible for making the observation.	
visitoccurrenceid	No*	Integer	A foreign key to the visit in the visit table during which the observation was recorded.	
observationsourcevalue	No	Varchar	The observation code as it appears in the source data. This code is mapped to a standard concept in the Vocabulary and the original code is, stored here for reference.	
observationsourceconcept_id	No	Integer	A foreign key to a concept that refers to the code used in the source.	
unitsourcevalue	No	Integer	The source code for the unit as it appears in the source data. This code is mapped to a standard unit concept in the Vocabulary and the original code is, stored here for reference.	
qualifiersourcevalue	No	Varchar	The source value associated with a qualifier to characterize the observation	

**\* This field is important for responding to PCORNet queries. If sites have any information on this filed in the source EHR then these fields should be populated in the PEDSnet CDM instance**

### 1.9.1 Additional Notes

- The 1/1/2009 date limitation that is used to define a PEDSnet active patient is **\*\*NOT\*\*** applied to observations. All observations are included for an active patient. For PEDSnet CDM V2, we limit observations to only those that appear in Table 1.
- Observations have a value represented by one of a concept ID, a string, **\*\*OR\*\*** a numeric value.
- The Visit during which the observation was made is recorded through a reference to the VISIT\_OCCURRENCE table. This information is not always available.
- The Provider making the observation is recorded through a reference to the PROVIDER table. This information is not always available.

- Observations obtained using standardized methods (e.g. laboratory assays) that produce discrete results are recorded by preference in the MEASUREMENT table.

## 1.10 OBSERVATION PERIOD

The observation period domain is designed to capture the time intervals in which data are being recorded for the person. An observation period is the span of time when a person is expected to have a clinical fact represented in the PEDSNet version 2 data modelo. This table is used to generate the PCORnet CDM enrollment table.

While analytic methods can be used to calculate gaps in observation periods that will generate multiple records (observation periods) per person, for PEDSnet, the logic has been simplified to generate a single observation period row for each patient.

Field	Required	Data Type	Description	PEDSnet Conventions
Observation <i>periodid</i>	Yes	Integer	A system-generate unique identifier for each observation period	This is not a value found in the EHR. Sites may choose to use a sequential value for this field.
person_id	Yes*	Integer	A foreign key identifier to the person who is experiencing the condition. The demographic details of that person are stored in the person table.	
Observation <i>periodstart_date</i>	Yes	Date	The start date of the observation period for which data are available from the data source	Use the earliest clinical fact date available for this patient. No date shifting.
Observation <i>periodend_date</i>	No*	Date	The end date of the observation period for which data are available from the source.	Use the latest clinical fact date available for this patient. If there exists one or more records in the DEATH table for this patient, use the latest date recorded in that table. For patients who are still in the hospital or ED or other facility at the time of data extraction, leave this field NULL.
Observation <i>periodstart_time</i>	Yes*	Datetime	The start date of the observation period for which data are available from the data source	Use the earliest clinical fact time available for this patient. No date shifting. Full date and time. If there is no time associated with the date assert midnight.
Observation <i>periodend_time</i>	No	Datetime	The end date of the observation period for which data are available from the source.	Use the latest clinical fact time available for this patient. If there exists one or more records in the DEATH table for this patient, use the latest date recorded in that table. For patients who are still in the hospital or ED or other facility at the time of data extraction, leave this field NULL. Full date and time. If there is no time associated with the date assert midnight.

**\* This field is important for responding to PCORNet queries. If sites have any information on this filed in the source EHR then these fields should be populated in the PEDSnet CDM instance**

### 1.10.1 Additional Notes

- Because the 1/1/2009 date limitation for "active patients" is not used to limit *visitoccurrence*, *the startdate* of an observation period for an active PEDSnet patient may be prior to 1/1/ 2009.

## 1.11 DRUG EXPOSURE (\*\*DRAFT\*\*)

The drug exposure domain captures any biochemical substance that is introduced in any way to a patient. This can be evidence of prescribed, over the counter, administered (IV, intramuscular, etc), immunizations or dispensed medications. These events could be linked to procedures or encounters where they are administered or associated as a result of the encounter.

EHRs may store medications in different vocabularies (GPI,NDC etc).

Exclusions:

1. Cancelled Medication Orders
2. Missed Medication administrations

**Note 1:** The effective*dosedrug* is the dose basis.(Eg. 45 mg/kg/dose). This is the discrete dose value from the source data if available. If the discrete dose value is **not** available from the source data, then compute the dose basis by looking for a weight observation **+/- 60 days of the date of the medication**. (Eg. Total Amount/(**divided by**)Weight) (Dose per kg)

**Note 2:** The quantity is the actual dose given. (Eg. 450 mg for 10 kg patient)

**Note 3:** The doseunitconcept\_id is the unit of the effective dose.

**Note 4:** For dispensing records, compute the dose basis by looking for a weight observation +/- 60 days of the dispensed date.

**Note 5:** For the sig, encode the value using XML.

- Element 1: Actual SIG from source data
- Element 2: Raw "Supply/Quantity" (Examples: "1 bottle" "10 ml Bottle" "1 pack"
- Element 3: Refills

```
<XML>
<SIG>1/2 capful in 4 oz clear liquid</SIG>
<QUANTITY>1 jar</QUANTITY>
<REFILLS>2</REFILLS>
</XML>
```

**Note 6:** If there are multiple RxNorm mappings associate with a mapping, choose the mapping in the following order and stop when you find your first match.

1. SBD
2. SCD
3. MIN
4. PIN
5. IN

Field	Required	Data Type	Description	PEDSnet Conventions
drugexposureid	Yes	Integer	A system-generated unique identifier for each drug exposure	This is not a value found in the EHR. Sites may choose to use a sequential value for this field.
person_id	Yes*	Integer	A foreign key identifier to the person who is experiencing the condition. The demographic details of that person are stored in the person table.	
drugconceptid	Yes*	Integer	A foreign key that refers to a standard drug concept identifier in the Vocabulary.	Valid drug concept IDs are mapped to RxNorm using the source to concept map table to transform source codes (GPI, NDC etc to the RxNorm target). In the event of multiple RxNorm mappings please see Note 6.
drugexposurestart_date	Yes*	Date	The start date of the utilization of the drug. The start date of the prescription, the date the prescription was filled, the date a drug was dispensed or the date on which a drug administration procedure was recorded are acceptable.	No date shifting.
drugexposureend_date	No*	Date	The end date of the utilization of the drug	No date shifting.
drugexposurestart_time	Yes	Datetime	The start date and time of the utilization of the drug. The start date of the prescription, the date the prescription was filled, the date a drug was dispensed or the date on which a drug administration procedure was recorded are acceptable.	No date shifting. Full date and time. If there is no time associated with the date assert midnight.
drugexposureend_time	No	Datetime	The end date and time of the utilization of the drug	No date shifting. Full date and time. If there is no time associated with the date assert midnight.
drugtypeconcept_id	Yes	Integer	A foreign key to a standard concept identifier of the type of drug exposure in the Vocabulary as represeneted in the source data	<p>Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid conceptids found in CONCEPT table where domainid ='Drug Type')</p> <p>select * from concept where domainid ='Drug Type' yields 12 valid conceptids.</p> <p>If none are correct, use conceptid = 0.</p> <p>For the PEDSnet observation listed above, use the following conceptids:</p> <ul style="list-style-type: none"><li>• Prescription dispensed in pharmacy (dispensed meds pharma information): conceptid = 38000175</li></ul>

				<ul style="list-style-type: none"> <li><i>Inpatient administration (MAR entries): conceptid = 38000180</i></li> <li><i>Prescription written: concept_id = 38000177</i></li> </ul>
stop_reason	No	Varchar	The reason, if available, where the medication was stopped, as indicated in the source data.	Valid values include therapy completed, changed, removed, side effects, etc. Note that a stop_reason does not necessarily imply that the medication is no longer being used at all, and therefore does not mandate that the end date be assigned.
refills	No	Integer	The number of refills after the initial prescription	
quantity	No	Integer	The quantity of the drugs as recorded in the original prescription or dispensing record	See Note 2
days_supply	No	Integer	The number of days of supply the medication as recorded in the original prescription or dispensing record	
sig	No	CLOB (XML Structure)	The directions on the drug prescription as recorded in the original prescription (and printed on the container) or the dispensing record	See Note 5
routeconceptid	No	Integer	A foreign key that refers to a standard administration route concept identifier in the Vocabulary.	<p>Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid conceptids found in <i>CONCEPT</i> table where <i>conceptclassid='Dose Form'</i>)</p> <p><i>select * from omop5.concept where conceptclassid='Dose Form' yields 357 valid conceptids.</i></p> <p>If none are correct, use concept_id = 0.</p>
effectivedrugdose	No	Float	Numerical value of drug dose for this drug_exposure record	See note 1
doseunitconcept_id	No	Integer	A foreign key to a predefined concept in the Standard Vocabularies reflecting the unit the effective drug_dose value is expressed	See note 3
lot_number	No	Varchar	An identifier to determine where the product originated	
provider_id	No	Integer	A foreign key to the provider in the provider table who initiated (prescribed) the drug exposure	Any valid provider_id allowed (see definition of providers in PROVIDER table) Document how selection was made.
visitoccurrenceid	No	Integer	A foreign key to the visit in the visit table during which the drug exposure initiated.	See VISIT.visitoccurrenceid (primary key)
drugsourcevalue	No*	Varchar	The source drug value as it appears in the source data. The source is mapped to a standard RxNorm concept and the original code is stored here for reference.	Please be sure to include your source code and the drug name in this field. This will be useful in the event that there is no RxNorm mapping for your local medication code.
drugsourceconcept_id	No	Integer	A foreign key to a drug concept that refers to the code used in the source	In this case, if you are transforming drugs from GPI or NDC to RxNorm. The concept id that corresponds to the GPI or NDC value for the drug belongs here.
routesourcevalue	No	Varchar	The information about the route of administration as detailed in the source	
doseunitsource_value	No	Varchar	The information about the dose unit as detailed in the source	

\* This field is important for responding to PCORNet queries. If sites have any information on this filed in the source EHR then these fields should be populated in the PEDSnet CDM instance

#### 1.11.1 Additional Notes

- The 1/1/2009 date limitation that is used to define a PEDSnet active patient is **\*\*NOT\*\*** applied to drug exposures. All drug exposures are included for an active patient.
- The Visit during which the drug exposure was initiated by is recorded through a reference to the VISIT\_OCCURRENCE table. This information is not always available.
- The Provider initiating the drug exposure is recorded through a reference to the PROVIDER table. This information is not always available.

## 1.12 MEASUREMENT (\*\*DRAFT\*\*)

The measurement domain captures measurement orders and measurement results. The measurement domain can contain laboratory results and vital signs.

Specifically this table includes: - Height/length in cm (use numeric precision as recorded in EHR) - Height/length type - Weight in kg (use numeric precision as recorded in EHR) - Body mass index in kg/m<sup>2</sup> (extracted only if height and weight are not present) - Systolic blood pressure in mmHg - Where multiple readings are present on the same encounter, create observation records for **\*\*ALL\*\*** readings - Diastolic blood pressure in mmHg - Where multiple readings are present on the same encounter, create observation records for **\*\*ALL\*\*** readings - Blood pressure position is described by the selection of a conceptid that contains the BP position as describe below. For example, in Table 1, conceptid 3018586 is Systolic Blood Pressure, Sitting. This concept\_id identifies both the measurement (Systolic BP) and the BP position (sitting). - Vital source - Component Level Labs (**Network list pending**)

Table 3: Measurement concept IDs for PCORnet concepts. Conceptids from vocabularyid 99 are non-standard codes.

Concept Name	Observation concept ID	Vocab ID	Value as concept ID	Concept description	Vocab ID
Vital	3013762		See Note 1	Weight	
Vital	3023540		See Note 1	Height	
Vital	3034703		See Note 2	Diastolic Blood Pressure - Sitting	
Vital	3019962		See Note 2	Diastolic Blood Pressure - Standing	
Vital	3013940		See Note 2	Diastolic Blood Pressure - Supine	
Vital	3012888		See Note 2	Diastolic BP Unknown/Other	
Vital	3018586		See Note 2	Systolic Blood Pressure - Sitting	
Vital	3035856		See Note 2	Systolic Blood Pressure - Standing	
Vital	3009395		See Note 2	Systolic Blood Pressure - Supine	
Vital	3004249		See Note 2	Systolic BP Unknown/Other	
Vital	3038553		See Note 1	BMI	
Measurement Type	44818704	Measurement Type	See Note 3	Patient reported	
Measurement Type	44818701	Measurement Type	See Note 3	Vital sign	

**Note 1:** For height, weight and BMI observations, insert the recorded measurement into the valueasnumber field. **Note 2:** Systolic and diastolic pressure measurements will generate two observation records one for storing the systolic blood pressure measurement and a second for storing the diastolic blood pressure measurement. Select the right SBP or DBP concept code that also represents the CORRECT recording position (supine, sitting, standing, other/unknown). To tie the two measurements together (the systolic BP measurement and the diastolic BP measurement records), use the FACT\_RELATIONSHIP table.

Example: Personid = 12345 on visitoccurrence\_id = 678910 had orthostatic blood pressure measurements performed as follows:

- Supine: Systolic BP 120; Diastolic BP 60
- Standing: Systolic BP 144; Diastolic BP 72

Four rows will be inserted into the observation table. Showing only the relevant columns:

Observation_id	Person_id	Visitoccurrenceid	measurementconceptid	measurementtypeconcept_id	ValueasNumber	ValueasString	ValueasConcept_ID
66661	12345	678910	3009395	44818701	120		
66662	12345	678910	3013940	44818701	60		
66663	12345	678910	3035856	44818701	144		
66664	12345	678910	3019962	44818701	72		

- Measurementconceptid = 3009395 = systolic BP - supine; measurementconceptid = 3013940 = diastolic BP supine
- Measurementconceptid = 3035856 = systolic BP standing; measurementconceptid = 3019962 = diastolic BP standing
- measurementtypeconcept\_id = 44818701 (observation recorded from EMR).

To link these two values, use the fact relationship table:

Domainconceptid_1	factid1	Domainconceptid_2	factid2	relationshipconceptid
Measurement	66661	Measurement	66662	Asso with finding
Measurement	66662	Measurement	66661	Asso with finding
Measurement	66663	Measurement	66664	Asso with finding
Measurement	666624	Measurement	66663	Asso with finding

Because the domain concept id and relationship concept id are integers the following is an example of how this data will be represented:

Domainconceptid_1	factid1	Domainconceptid_2	factid2	relationshipconceptid
21	66661	21	66662	44818792
21	66662	21	66661	44818792
21	66663	21	66664	44818792
21	666624	21	66663	44818792

- Two rows in the FACT\_RELATIONSHIP table link the *supine* diastolic BP to the supine systolic BP.
- Two rows in the FACT\_RELATIONSHIP table link the *standing* diastolic BP to the standing systolic BP.

**Note 3:** Measurement type *conceptids* are used as values for the *measurementtypeconceptid* field. In addition, the following observations are derived via the DCC (*conceptids to be assigned in future version of this document*). However, *conceptids* are not needed for ETL since these observations will be derived/calculated using scripts developed by DCC):

- Body mass index in kg/m<sup>2</sup> if not directly extracted
- Height/length z score for age/sex using NHANES 2000 norms for measurements at which the person was <240 months of age. In the absence of a height/length type for the measurement, recumbent length is assumed for ages <24 months, and standing height thereafter.
- Weight z score for age/sex using NHANES 2000 norms for measurements at which the person was <240 months of age.
- BMI z score for age/sex using NHANES 2000 norms for visits at which the person was between 20 and 240 months of age.
- Systolic BP z score for age/sex/height using NHBPEP task force fourth report norms.
- Diastolic BP z score for age/sex/height using NHBPEP task force fourth report norms.

**Note 4:** Please use the following table as a guide to determine how to populate the `measurement_source_value`, `measurement_source_concept_id` and `measurement_concept_id` for LAB Values

You have in your source system	Measurementsourcevalue	Measurementsourceconcept_id	measurementconceptid
Lab code is institutional-specific code (not CPT/not LOINC)	<ul style="list-style-type: none"> <li>• Local code or</li> <li>• Local name or</li> <li>• Local code +Local name</li> </ul> (any above are OK)	0 (zero)	PEDSnet LOINC code's concept_id (provided by DCC)
Lab code is CPT code	<ul style="list-style-type: none"> <li>• CPT Code</li> <li>• Local name or</li> <li>• CPT code +Local name</li> </ul> (any above are OK)	OMOP's concept_id for CPT code	PEDSnet's LOINC code's concept_id (provided by DCC)
Lab code is LOINC code that is same as PEDSnet's LOINC code	<ul style="list-style-type: none"> <li>• LOINC Code</li> <li>• Local name or</li> <li>• LOINC code +Local name</li> </ul> (any above are OK)	PEDSnet's LOINC code's concept_id (provided by DCC)	PEDSnet's LOINC code's concept_id (provided by DCC)
Lab code is LOINC code that is different than PEDSnet LOINC	Same as above	OMOP's concept_id for your LOINC code	PEDSnet's LOINC code's concept_id (provided by DCC)

Exclusions:

1. Cancelled Lab orders
2. Lab orders that are 'NOT DONE' or 'INCOMPLETE'

Field	Required	Data	Description	PEDSnet Conventions
-------	----------	------	-------------	---------------------

		Type		
measurement_id	Yes*	Integer	A system-generated unique identifier for each measurement	This is not a value found in the EHR. Sites may choose to use a sequential value for this field.
person_id	Yes*	Integer	A foreign key identifier to the person who the measurement is being documented for. The demographic details of that person are stored in the person table.	
measurementconceptid	Yes*	Integer	A foreign key to the standard measurement concept identifier in the Vocabulary.	<p>Valid Measurement Concepts belong to the "Measurement" domain. Measurement Concepts are based mostly on the LOINC vocabulary, with some additions from SNOMED-CT.</p> <p>Measurement must have an object represented as a concept, and a finding. A finding (see below) is represented as a concept, a numerical value or a verbatim string or more than one of these.</p> <p>There are three Standard Vocabularies defined for measurements:</p> <p>Laboratory tests and values: Logical Observation Identifiers Names and Codes (<b>LOINC</b>) (Vocabularyid=<b>LOINC</b>).</p> <p>(FYI: Regenstrief also maintains the "<b>LOINC Multidimensional Classification</b>" Vocabularyid=<b>LOINC</b> Hierarchy)</p> <p>Qualitative lab results: A set of SNOMED-CT Qualifier Value concepts (vocabularyid=<b>SNOMED</b>)</p> <p>Laboratory units: Unified Code for Units of Measure (<b>UCUM</b>) (Vocabularyid=<b>UCUM</b>)</p> <p>All other findings and observables: SNOMED-CT (Vocabulary_id=<b>SNOMED</b>).</p> <p>For vital signs, pull information from flow sheet rows (EPIC sites only). For lab values, please see Note 4.</p>
measurement_date	Yes*	Date	The date of the measurement.	No date shifting.
measurement_time	No	Datetime	The time of the measurement.	No date shifting. Full date and time. If there is no time associated with the date assert midnight.
measurementtypeconcept_id	Yes	Integer	A foreign key to the predefined concept identifier in the Vocabulary reflecting the type of the measurement.	<p>Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid conceptids found in <i>CONCEPT</i> table where vocabularyid =Meas Type)</p> <p>select * from concept where vocabularyid =Meas Type yields 5 valid conceptids.</p> <p>For Pedsnet CDM v2, please use the following:</p> <ul style="list-style-type: none"> <li>Vital Sign= 44818701</li> <li>Lab result = 44818702</li> <li>Pathology finding = 44818703</li> <li>Patient reported value = 44818704</li> <li>Derived Value = 45754907</li> </ul>
				<p>Valid operator concept id are found in the concept table</p> <p>select * from concept where domain_id='Meas Value Operator' yields 5 valid concept ids.</p>



operatorconceptid	No	Integer	A foreign key identifier to the mathematical operator that is applied to the valueasnumber. Operators are <, ≤, =, ≥, >	<ul style="list-style-type: none"> <li>Operator ≤ : 4171754</li> <li>Operator ≥ : 4171755</li> <li>Operator &lt; : 4171756</li> <li>Operator = 4172703</li> <li>Operator &gt; : 4172704</li> </ul>
valueasnumber	No* (see convention)	Float	The measurement result stored as a number. This is applicable to measurements where the result is expressed as a numeric value.	Value must be represented as at least one of {valueasnumber, valueasstring or valuesasconcept_id}.
valuesasconcept_id	No* (see convention)	Integer	A foreign key to an observation result stored as a concept identifier. This is applicable to observations where the result can be expressed as a standard concept from the Vocabulary (e.g., positive/negative, present/absent, low/high, etc.).	<p>Value must be represented as at least one of {valueasnumber, valueasstring or valuesasconceptid}. <i>Valid concepts are found in the concept table</i></p> <p><i>select * from concept where domainid='Meas Value' yields 86 valid concept ids.</i></p>
unitconceptid	No	Integer	A foreign key to a standard concept identifier of measurement units in the Vocabulary.	<p>Please include valid concept ids (consistent with OMOP CDMv5). Predefined value set (valid conceptids found in <i>CONCEPT</i> table where vocabularyid = UCUM)</p> <p><i>select * from concept where vocabularyid = UCUM yields 912 valid conceptids.</i></p> <p>If none are correct, use conceptid = 0.</p> <p><i>For the PEDSnet observation listed above, use the following conceptids:</i></p> <ul style="list-style-type: none"> <li>Centimeters (cm): conceptid = 8582</li> <li>Kilograms (kg): conceptid = 9529</li> <li>Kilograms per square meter (kg/m<sup>2</sup>): conceptid = 9531</li> <li>Millimeters mercury (mmHG): conceptid = 8876</li> </ul>
range_low	No	Float	Optional - Do not transmit to DCC The lower limit of the normal range of the measurement. It is not applicable if the observation results are non-numeric or categorical, and must be in the same units of measure as the measurement value.	
range_high	No	Float	Optional - Do not transmit to DCC. The upper limit of the normal range of the measurement. It is not applicable if the observation results are non-numeric or categorical, and must be in the same units of measure as the measurement value.	
provider_id	No	Integer	A foreign key to the provider in the provider table who was responsible for making the measurement.	
visitoccurrenceid	No*	Integer	A foreign key to the visit in the visit table during which the observation was recorded.	
measurementsourcevalue	Yes	Varchar	The measurement name as it appears in the source data. This code is mapped to a standard concept in the Standardized Vocabularies and the original code is, stored here for reference.	This is the name of the value as it appears in the source system. For lab values, please see Note 4.
measurementsourceconcept_id	No	Integer	A foreign key to a concept that refers to the code used in the source.	This is the concept id that maps to the source value in the standard vocabulary.
unitsourcevalue	No	Varchar	The source code for the unit as it appears in the source data. This code is mapped to a standard unit concept in the Standardized Vocabularies and the original code is, stored	Raw unit value (Ounces, Inches etc) For lab values, please see Note 4.

			here for reference.	
valuesourcevalue	Yes*	Varchar	The source value associated with the structured value stored as numeric or concept. This field can be used in instances where the source data are transformed	<ul style="list-style-type: none"> <li>For BP values include the raw 'systolic/diastolic' value Eg. 120/60</li> <li>If there are transformed values (Eg. Weight and Height) please insert the raw data before transformation.</li> </ul>

\* This field is important for responding to PCORNet queries. If sites have any information on this filed in the source EHR then these fields should be populated in the PEDSnet CDM instance

### 1.12.1 Additional Notes

- The 1/1/2009 date limitation that is used to define a PEDSnet active patient is **\*\*NOT\*\*** applied to measurements. All measurements are included for an active patient. For PEDSnet CDM V1, we limit measurements to only those that appear in Table 3 (for vital signs).
- Measurements have a value represented by one of a concept ID, a string, **\*\*OR\*\*** a numeric value.
- The Visit during which the measurement was made is recorded through a reference to the VISIT\_OCCURRENCE table. This information is not always available.
- The Provider making the measurement is recorded through a reference to the PROVIDER table. This information is not always available.

## 1.13 FACT RELATIONSHIP

The fact relationship domain contains details of the relationships between facts within one domain or across two domains, and the nature of the relationship. Examples of types of possible fact relationships include: person relationships (mother-child linkage), care site relationships (representing the hierarchical organization structure of facilities within health systems), drug exposures provided due to associated indicated condition, devices used during the course of an associated procedure, and measurements derived from an associated specimen. All relationships are directional, and each relationship is represented twice symmetrically within the fact relationship table.

Field	Required	Data Type	Description	PEDSnet Conventions
Domainconceptid_1	Yes	Integer	The concept representing the domain of fact one, from which the corresponding table can be inferred	
Factid1	Yes	Integer	The unique identifier in the table corresponding to the domain of fact one.	
Domainconceptid_2	Yes	Integer	The concept representing the domain of fact two, from which the corresponding table can be inferred.	
Factid2	Yes	Integer	The unique identifier in the table corresponding to the domain of fact two.	
Relationshipconceptid	Yes	Integer	A foreign key to a standard concept identifier of relationship in the Standardized Vocabularies.	

### 1.13.1 Additional Notes

- Blood Pressure Systolic and Diastolic Blood Pressure Values will be mapped using the fact relationship table.

## 1.14 VISIT\_PAYER

The visit payer table documents insurance information as it relates to a visit in visitoccurrence. *For this reason the key of this table will be visitoccurrenceid and visitpayer\_id. This table is CUSTOM to Pedsnet.*

Field	Required	Data Type	Description	PEDSnet Conventions
visitpayerid	Yes	Integer	A system-generated unique identifier for each visit payer relationship.	
visitoccurrenceid	Yes	Integer	A foreign key to the visit in the visit table where the payer was billed for the visit.	
plan_name	Yes	Varchar	The untransformed payer/plan name from the source data	
plan_type	No	Varchar	A standardized interpretation of the plan structure; proposed value set would be HMO, PPO, POS, Fee for service, Other/unknown	
plan_class	Yes	Varchar	A list of the "payment sources" most often used in demographic analyses; proposed value would be Private/commercial, Medicaid/SCHIP, Medicare, Other public, Self-pay, Other/unknown	

PEDSnet-specific is supported by OMOP-supported Vocabulary id=PCORNet, which contains all of the additional concept\_id codes needed in PEDSnet for PCORnet CDM V1.0 and 2.0

## A1. ABMS Specialty Category to OMOP V5 Specialty Mapping

<http://www.abms.org/member-boards/specialty-subspecialty-certificates/>

ABMS Specialty Category	OMOP Supported Concept for Provider ID	OMOP Concept_name	Domain_id	Vocabulary id
Addiction Psychiatry	38004498	Addiction Medicine	Provider Specialty	Specialty
Adolescent Medicine	45756747	Adolescent Medicine	Provider Specialty	ABMS
Adult Congenital Heart Disease	45756748	Adult Congenital Heart Disease	Provider Specialty	ABMS
Advanced Heart Failure and Transplant Cardiology	45756749	Advanced Heart Failure and Transplant Cardiology	Provider Specialty	ABMS
Aerospace Medicine	45756750	Aerospace Medicine	Provider Specialty	ABMS
Allergy and Immunology	38004448	Allergy/Immunology	Provider Specialty	Specialty
Anesthesiology	38004450	Anesthesiology	Provider Specialty	Specialty
Anesthesiology Critical Care Medicine	45756751	Anesthesiology Critical Care Medicine	Provider Specialty	Specialty
Blood Banking/Transfusion Medicine	45756752	Blood Banking/Transfusion Medicine	Provider Specialty	ABMS
Brain Injury Medicine	45756753	Brain Injury Medicine	Provider Specialty	ABMS
Cardiology	38004451	Cardiology	Provider Specialty	Specialty
Cardiovascular Disease	45756754	Cardiovascular Disease	Provider Specialty	ABMS
Child Abuse Pediatrics	45756755	Child Abuse Pediatrics	Provider Specialty	ABMS
Child and Adolescent Psychiatry	45756756	Child and Adolescent Psychiatry	Provider Specialty	ABMS
Clinical Biochemical Genetics	45756757	Clinical Biochemical Genetics	Provider Specialty	ABMS
Clinical Cardiac Electrophysiology	45756758	Clinical Cardiac Electrophysiology	Provider Specialty	ABMS
Clinical Cytogenetics	45756759	Clinical Cytogenetics	Provider Specialty	ABMS
Clinical Genetics (MD)	45756760	Clinical Genetics (MD)	Provider Specialty	ABMS
Clinical Informatics	45756761	Clinical Informatics	Provider Specialty	ABMS
Clinical Molecular Genetics	45756762	Clinical Molecular Genetics	Provider Specialty	ABMS
			Provider	

Clinical Neurophysiology	45756763	Clinical Neurophysiology	Provider Specialty	ABMS
Colon and Rectal Surgery	38004471	Colorectal Surgery	Provider Specialty	Specialty
Complex General Surgical Oncology	45756764	Complex General Surgical Oncology	Provider Specialty	ABMS
Congenital Cardiac Surgery	45756765	Congenital Cardiac Surgery	Provider Specialty	ABMS
Critical Care Medicine	38004500	Critical care (intensivist)	Provider Specialty	Specialty
Cytopathology	45756766	Cytopathology	Provider Specialty	ABMS
Dermatology	38004452	Dermatology	Provider Specialty	Specialty
Dermatopathology	45756767	Dermatopathology	Provider Specialty	ABMS
Developmental-Behavioral Pediatrics	45756768	Developmental-Behavioral Pediatrics	Provider Specialty	ABMS
Diagnostic Radiology	45756769	Diagnostic Radiology	Provider Specialty	ABMS
Emergency Medical Services	45756770	Emergency Medical Services	Provider Specialty	ABMS
Emergency Medicine	38004510	Emergency Medicine	Provider Specialty	Specialty
Endocrinology, Diabetes and Metabolism	45756771	Endocrinology, Diabetes and Metabolism	Provider Specialty	ABMS
Epilepsy	45756772	Epilepsy	Provider Specialty	ABMS
General Family Medicine	38004453	Family Practice	Provider Specialty	Specialty
Female Pelvic Medicine and Reconstructive Surgery	45756773	Female Pelvic Medicine and Reconstructive Surgery	Provider Specialty	ABMS
Forensic Psychiatry	45756775	Forensic Psychiatry	Provider Specialty	ABMS
Gastroenterology	38004455	Gastroenterology	Provider Specialty	Specialty
General Pediatrics	38004477	Pediatric Medicine	Provider Specialty	Specialty
Geriatric Medicine	38004478	Geriatric Medicine	Provider Specialty	Specialty
Geriatric Psychiatry	45756776	Geriatric Psychiatry	Provider Specialty	ABMS
Gynecologic Oncology	38004513	Gynecology/Oncology	Provider Specialty	Specialty
Hematology	38004501	Hematology	Provider Specialty	Specialty
Hospice and Pallative Medicine	45756777	Hospice and Pallative Medicine	Provider Specialty	ABMS

Infectious Disease	38004484	Infectious Disease	Provider Specialty	Specialty
General Internal Medicine	38004456	Internal Medicine	Provider Specialty	Specialty
Internal Medicine - Critical Care Medicine	45756778	Internal Medicine - Critical Care Medicine	Provider Specialty	ABMS
Interventional Cardiology	45756779	Interventional Cardiology	Provider Specialty	ABMS
Interventional Radiology and Diagnostic Radiology	38004511	Interventional Radiology	Provider Specialty	Specialty
Maternal and Fetal Medicine	45756780	Maternal and Fetal Medicine	Provider Specialty	ABMS
Medical Biochemical Genetics	45756781	Medical Biochemical Genetics	Provider Specialty	ABMS
Medical Genetics and Genomics	45756782	Medical Genetics and Genomics	Provider Specialty	ABMS
Medical Oncology	38004507	Medical Oncology	Provider Specialty	Specialty
Medical Physics	45756783	Medical Physics	Provider Specialty	ABMS
Medical Toxicology	45756784	Medical Toxicology	Provider Specialty	ABMS
Molecular Genetic Pathology	45756785	Molecular Genetic Pathology	Provider Specialty	ABMS
Neonatal-Perinatal Medicine	45756786	Neonatal-Perinatal Medicine	Provider Specialty	ABMS
Nephrology	38004479	Nephrology	Provider Specialty	Specialty
Neurodevelopmental Disabilities	45756787	Neurodevelopmental Disabilities	Provider Specialty	ABMS
Neurological Surgery	38004459	Neurosurgery	Provider Specialty	Specialty
General Neurology	38004458	Neurology	Provider Specialty	Specialty
Neurology with Special Qualification in Child Neurology	45756788	Neurology with Special Qualification in Child Neurology	Provider Specialty	ABMS
Neuromuscular Medicine	45756789	Neuromuscular Medicine	Provider Specialty	ABMS
Neuropathology	45756790	Neuropathology	Provider Specialty	ABMS
Neuroradiology	45756791	Neuroradiology	Provider Specialty	ABMS
Neurotology	45756792	Neurotology	Provider Specialty	ABMS
Nuclear Medicine	38004476	Nuclear Medicine	Provider Specialty	Specialty
Nuclear Radiology	45756793	Nuclear Radiology	Provider Specialty	ABMS

Obstetrics and Gynecology	38004461	Obstetrics/Gynecology	Provider Specialty	Specialty
Occupational Medicine	38004492	Occupational Therapy	Provider Specialty	Specialty
Ophthalmology	38004463	Ophthalmology	Provider Specialty	Specialty
Orthopaedic Sports Medicine	45756794	Orthopaedic Sports Medicine	Provider Specialty	ABMS
Orthopaedic Surgery	38004465	Orthopedic Surgery	Provider Specialty	Specialty
Otolaryngology	38004449	Otolaryngology	Provider Specialty	Specialty
Pain Medicine	38004494	Pain Management	Provider Specialty	Specialty
Pathology	38004466	Pathology	Provider Specialty	Specialty
Pathology - Anatomic	45756795	Pathology - Anatomic	Provider Specialty	ABMS
Pathology - Chemical	45756796	Pathology - Chemical	Provider Specialty	ABMS
Pathology - Clinical	45756797	Pathology - Clinical	Provider Specialty	ABMS
Pathology - Forensic	45756798	Pathology - Forensic	Provider Specialty	ABMS
Pathology - Hematology	45756799	Pathology - Hematology	Provider Specialty	ABMS
Pathology - Medical Microbiology	45756800	Pathology - Medical Microbiology	Provider Specialty	ABMS
Pathology - Molecular Genetic	45756801	Pathology - Molecular Genetic	Provider Specialty	ABMS
Pathology - Pediatric	45756802	Pathology - Pediatric	Provider Specialty	ABMS
Pathology-Anatomic/Pathology-Clinical	45756803	Pathology-Anatomic/Pathology-Clinical	Provider Specialty	ABMS
General Pediatrics	38004477	Pediatric Medicine	Provider Specialty	Specialty
Pediatric Anesthesiology	45756804	Pediatric Anesthesiology	Provider Specialty	ABMS
Pediatric Cardiology	45756805	Pediatric Cardiology	Provider Specialty	ABMS
Pediatric Critical Care Medicine	45756806	Pediatric Critical Care Medicine	Provider Specialty	ABMS
Pediatric Dermatology	45756807	Pediatric Dermatology	Provider Specialty	ABMS
Pediatric Emergency Medicine	45756808	Pediatric Emergency Medicine	Provider Specialty	ABMS
Pediatric Endocrinology	45756809	Pediatric Endocrinology	Provider Specialty	ABMS

Pediatric Gastroenterology	45756810	Pediatric Gastroenterology	Provider Specialty	ABMS
Pediatric Hematology-Oncology	45756811	Pediatric Hematology-Oncology	Provider Specialty	ABMS
Pediatric Infectious Diseases	45756812	Pediatric Infectious Diseases	Provider Specialty	ABMS
Pediatric Nephrology	45756813	Pediatric Nephrology	Provider Specialty	ABMS
Pediatric Otolaryngology	45756814	Pediatric Otolaryngology	Provider Specialty	ABMS
Pediatric Pulmonology	45756815	Pediatric Pulmonology	Provider Specialty	ABMS
Pediatric Radiology	45756816	Pediatric Radiology	Provider Specialty	ABMS
Pediatric Rehabilitation Medicine	45756817	Pediatric Rehabilitation Medicine	Provider Specialty	ABMS
Pediatric Rheumatology	45756818	Pediatric Rheumatology	Provider Specialty	ABMS
Pediatric Surgery	45756819	Pediatric Surgery	Provider Specialty	ABMS
Pediatric Transplant Hepatology	45756820	Pediatric Transplant Hepatology	Provider Specialty	ABMS
Pediatric Urology	45756821	Pediatric Urology	Provider Specialty	ABMS
Physical Medicine and Rehabilitation	38004468	Physical Medicine And Rehabilitation	Provider Specialty	Specialty
Plastic Surgery	38004467	Plastic And Reconstructive Surgery	Provider Specialty	Specialty
Plastic Surgery Within the Head and Neck	45756822	Plastic Surgery Within the Head and Neck	Provider Specialty	ABMS
Preventative Medicine	38004503	Preventive Medicine	Provider Specialty	Specialty
Psychiatry	38004469	Psychiatry	Provider Specialty	Specialty
Psychosomatic Medicine	45756823	Psychosomatic Medicine	Provider Specialty	ABMS
Public Health and General Preventive Medicine	45756824	Public Health and General Preventive Medicine	Provider Specialty	ABMS
Pulmonary Disease	38004472	Pulmonary Disease	Provider Specialty	Specialty
Radiation Oncology	38004509	Radiation Oncology	Provider Specialty	Specialty
Radiology	45756825	Radiology	Provider Specialty	ABMS
Reproductive Endocrinology/Infertility	45756826	Reproductive Endocrinology/Infertility	Provider Specialty	ABMS
Rheumatology	38004491	Rheumatology	Provider Specialty	Specialty

Sleep Medicine	45756827	Sleep Medicine	Provider Specialty	ABMS
Spinal Cord Injury Medicine	concept id requested	Spinal Cord Injury Medicine	Provider Specialty	ABMS
Sports Medicine	45756828	Sports Medicine	Provider Specialty	ABMS
General Surgery	38004447	General Surgery	Provider Specialty	Specialty
Surgery of the Hand	38004480	Hand Surgery	Provider Specialty	Specialty
Surgical Critical Care	45756829	Surgical Critical Care	Provider Specialty	ABMS
Thoracic Surgery	38004473	Thoracic Surgery	Provider Specialty	Specialty
Thoracic and Cardiac Surgery	45756830	Thoracic and Cardiac Surgery	Provider Specialty	ABMS
Transplant Hepatology	45756831	Transplant Hepatology	Provider Specialty	ABMS
Undersea and Hyperbaric Medicine	45756832	Undersea and Hyperbaric Medicine	Provider Specialty	ABMS
Urology	38004474	Urology	Provider Specialty	Specialty
Vascular and Interventional Radiology	45756833	Vascular and Interventional Radiology	Provider Specialty	ABMS
Vascular Neurology	45756834	Vascular Neurology	Provider Specialty	ABMS
Vascular Surgery	38004496	Vascular Surgery	Provider Specialty	Specialty