ETL Conventions for use with PEDSnet CDM v6.3 OMOP V5.4

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 v6.3 of the PEDSnet CDM reflects the ETL processes developed after several iterations of network development. As such, it proposes to align with version 7.0 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.

PEDSnet Data Standards and Interoperability Policies:

1. The PEDSnet data network will store data using structures compatible with the PEDSnet Common Data Model (CDM).
2. The PEDSnet CDM v6.3 is based on the Observational Medical Outcomes Partnership (OMOP) data model, version 5.4.
3. A subset of data elements in the PEDSnet CDM 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 PEDSnet CDM will be approved by the PEDSnet Executive Committee (comprised of each PEDSnet institution's site principal investigator).
6. Concept IDs are taken from OMOP vocabularies for the PEDSnet CDM, using the complete (restricted) version that includes licensed terminologies such as CPT and others.
7. PCORnet CDM v7.0 requires data elements that are not currently considered "standard concepts". Vocabulary version 5 has a new vocabulary (vocabulary_id=PCORNet) that was added by OMOP to capture all of the PCORnet concepts that are not in the standard terminologies. We use concept_ids from vocabulary_id=PCORNet where there are no existing standard concepts. We highlight where we are pulling concept_ids from vocabulary_id=PCORNet in the tables. While terms from vocabulary_id=PCORNet violates the OMOP rule to use only concept_ids from standard vocabularies, 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 patient_source_value, provider_source_value, care_site_source_value. Many of these fields are used to generate an ID field, such as PERSON.patient_source_value & PERSON.person_id, that is used as a primary key in PERSON and a foreign key in many other tables. Sites are free to obfuscate 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. The PCORnet CDM has specific definitions for null values (as seen below). For the PEDSnet CDM, please use the following logic on which concept value to use for `source_concept_id` fields where there are null values in the source `*_source_value`.

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

Guidelines for populating `'*_concept_id'`,`'*_source_concept_id'` and `'*_source_value'` for flavors of null:

Null Name	'*_concept_id'	'*_source_concept_id'	'*_source_value'
'NI'	44814650	0	value as in source (leave as null)
'UN'	44814653	0	value as in source (denoting an unknown value)
'OT'	44814649	0	value as in source

10. **For populating `'*_source_concept_id'` (where there exists non-null values in the source) use the following Logic :**

Populate `'*_source_concept_id'` (i.e. non-zero) if the source_value is drawn from a standard vocabulary in OMOP.

Please use your local system knowledge to determine this or use the following criteria: All the values in the source_value field should be drawn from the concept_code in the concept table (for a given/relevant domain_id and a given vocabulary_id).

ELSE Use 0

(usually the case when the sites need to "manually" map the foo_source_value to foo_concept_id)

11. **For populating `*_source_value` please make a best effort to provide "human readable" values rather than a coded value where possible from the source.**

Example for `gender_source_value`, the source value at your site may be `1` for Female and `2` for Male. Please provide the label value of `Female` and `Male`.

12. All date/datetime fields should be reported using the site's local time without attributing a timezone.

ETL Recommendation: Due to PK/FK constraints, the most efficient order for ETL table is location, care_site, provider, person, visit_occurrence, condition_occurrence, observation, procedure_occurrence, measurement, measurement_organism, drug_exposure

---

Table of Contents

1.1 Person

1.2 Death

1.3 Location

1.4 Care Site

1.5 Provider

1.6 Visit Occurrence

1.7 Condition Occurrence

1.8 Procedure Occurrence

1.9 Observation

1.10 Observation Period

1.11 Drug Exposure

1.12 Measurement

1.13 Fact Relationship

1.14 Visit Payer

1.15 Measurement Organism

1.16 ADT Occurrence

1.17 Immunization

1.18 Device Exposure

1.19 Location History

1.20 Hash Token

1.21 Specialty

1.22 Location FIPS

1.23 Cohort

1.24 Cohort Definition

Appendix

Data Extraction Guide

Please use the table headings as a guide in extracting and submitting data. These specifications are indicative of DCC and Network Requirements. All fields must be submitted to the DCC even if you are not submitting data in a field. Here are examples of how the specification should be interpreted:

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
Field Name	Yes	Yes	Data Type	Description	PEDSnet Conventions

- **The above example indicates the data in this field is required by both the DCC and Network. It absolutely must be provided in the data submission.**

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
Field Name	No	Provide When Available	Data Type	Description	PEDSnet Conventions

- **The above example indicates the data in this field is required by Network if it is populated or available at your site. If it is available it must provided in the data submission.**

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
Field Name	No	Site Preference	Data Type	Description	PEDSnet Conventions

- **The above example indicates the data in this field is not required by the DCC or Network. A site may choose to send this information if they desire to do so.**

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
Field Name	No	Optional	Data Type	Description	PEDSnet Conventions

- **The above example indicates the data in this field is truly optional for submission. A site may choose to send this information if they desire to do so.**

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.

Note 1:

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 telephone encounter or a lab blood draw does not meet this definition.

For reference, `visit_concept_ids` that correspond to an "in person" clinical encounter are:

Visit Type	Visit_concept_id
Inpatient Hospital Stay	9201
Inpatient Hospital Stay - Ongoing	2000001532
Ambulatory/Outpatient Visit (With a Physician)	9202
Outpatient Non Physician	2000000469
Emergency Department	9203
Long Term Care Visit	42898160
Non-Acute Institutional Stay	44814710
Emergency Department Admit to Inpatient Hospital Stay (If sites are unable to split the encounter)	2000000048
Observation Stay	2000000088
Interactive Telemedicine Service	581399

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.

Note 2:

For cases where a patient in the person table has more than one race:

- Set `race_concept_id` = `44814659` (Multiple Races):
- Insert 1 record into the Observation table for each race category where `observation_concept_id` = `3050381` ("Race or Ethnicity") and `value_as_concept_id` equals the concept_id representing the race category.
- See Note 11 of Observation for more details.

Note 3:

If maternal and delivery information exists in your source EHR system, and both the mother and child are within the PEDSnet inclusion criteria, then a mother-child relationship can be defined using the Fact Relationship table as follows:

Field	Value
`domain_concept_id_1`	56 (person)
`fact_id_1`	person_id for the Child
`domain_concept_id_2`	56 (person)
`fact_id_2`	person_id for the Mother
`relationship_concept_id`	581437 (Child to Parent Measurement)

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
`person_id`	Yes	Yes	BigInteger	A unique identifier for each person; this is created by each contributing site.	This is not a value found in the EHR. PERSON_ID must be unique for all patients within a single data set. **SITE RESPONSIBILITY: This field must remain a stable identifier across submissions to the DCC.** A mapping from the person_id 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.
`gender_concept_id`	Yes	Yes	Integer	A foreign key that refers to a standard concept identifier in the Vocabulary for the gender of the person.	Please include valid concept ids (consistent with OMOP CDM v5.4). Predefined value set (valid concept_ids found in CONCEPT table `select * from concept where ((domain_id='Gender' and concept_class_id='Gender')or (domain_id='Observation' and vocabulary_id='PCORNet' and concept_class_id in ('Gender','Undefined'))) and concept_code not in ('Sex-F','Sex-M') and invalid_reason is null`: • Ambiguous: concept_id = 44814664 • Female: concept_id = 8532 • Male: concept_id = 8507 • No Information: concept_id = 44814650 (Vocabulary_id='PCORNet') • Unknown: concept_id = 44814653 • Other: concept_id = 44814649
`gender_source_concept_id`	Yes	Yes	Integer	A foreign key to the gender concept that refers to the code used in the source.	**If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
`year_of_birth`	Yes	Yes	Integer	The year of birth of the person.	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.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					Please keep all accurate/real dates (No date shifting)
month_of_birth	No	Provide When Available	Integer	The month of birth of the person.	For data sources that provide the precise date of birth, the month is extracted and stored in this field. Please keep all accurate/real dates (No date shifting)
day_of_birth	No	Provide When Available	Integer	The day of the month of birth of the person.	For data sources that provide the precise date of birth, the day is extracted and stored in this field. Please keep all accurate/real dates (No date shifting)
birth_date	No	Provide When Available	Date	The birth date	Full date. Please keep all accurate/real dates (No date shifting).
birth_datetime	No	Provide When Available	Datetime	The birth date and time	Do not include timezone. Please keep all accurate/real dates (No date shifting). If there is no time associated with the date assert midnight.
race_concept_id	Yes	Yes	Integer	A foreign key that refers to a standard concept identifier in the Vocabulary for the race of the person.	Details of categorical definitions: • **American Indian or Alaska Native**: 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. • **Asian**: 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. • **Black or African American**: A person having origins in any of the black racial groups of Africa. • **Middle Eastern or North African**: A person having origins from any of the original peoples of the Middle Eastern or North Africa. • **Native Hawaiian or Other Pacific Islander**: A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. • **White**: A person having origins in any of the original peoples of Europe, the Middle East, or North Africa. For patients with multiple race and ethnicity categories, use concept_id = 44814659 for 'Multiple Race' and then create 1 record for each selected race category into the Observation table where observation_concept_id = 3050381 ("Race or Ethnicity") and value_as_concept_id equals the concept_id representing the individual category. See Note 9 of the observation table for details. Valid concept_ids found in CONCEPT table `select * from concept where ((domain_id='Race' and vocabulary_id = 'Race') or (vocabulary_id='PCORNet' and concept_class_id='Undefined') or concept_id in (44814659,44814660)) and invalid_reason is null`: • American Indian/Alaska Native: concept_id = 8657 • Asian: concept_id = 8515 • Black or African American: concept_id = 8516

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					• Middle Eastern or North African: concept_id = 38003615 • Native Hawaiian or Other Pacific Islander: concept_id = 8557 • White: concept_id = 8527 • Multiple Race: concept_id = 44814659 (vocabulary_id='PCORNet') • Refuse to answer: concept_id = 44814660 (vocabulary_id='PCORNet') • No Information: concept_id = 44814650 vocabulary_id='PCORNet') • Unknown: concept_id = 44814653 • Other: concept_id = 44814649
`race_source_concept_id`	Yes	Yes	Integer	A foreign key to the race concept that refers to the code used in the source.	**If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
`ethnicity_concept_id`	Yes	Yes	Integer	A foreign key that refers to the standard concept identifier in the Vocabulary for the ethnicity of the person.	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." Valid concept_ids found in CONCEPT table `select * from concept where vocabulary_id ='Ethnicity' or (vocabulary_id='PCORNet' and concept_class_id='Undefined')`: • Hispanic: concept_id = 38003563 • Not Hispanic: concept_id = 38003564 • No Information: concept_id = 44814650 (vocabulary_id='PCORNet') • Unknown: concept_id = 44814653 (vocabulary_id='PCORNet') • Other: concept_id = 44814649 (vocabulary_id='PCORNet')
`ethnicity_source_concept_id`	Yes	Yes	Integer	A foreign key to the ethnicity concept that refers to the code used in the source.	**If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
`location_id`	No	Provide When Available	BigInteger	A foreign key to the place of residency (ZIP code) for the person in the location table, where the detailed address information is stored.	
`provider_id`	No	Provide When Available	BigInteger	Foreign key to the primary care provider the person is seeing in the provider table.	Sites will use site-specific logic to determine the best primary care provider and document how that decision was made (e.g., billing provider).
`care_site_id`	Yes	Yes	BigInteger	A foreign key to the site of primary care in the care_site	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

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				table, where the details of the care site are stored	cannot be identified, use a care_site_id representing the institution as a whole.
pn_gestational_age	No	Provide When Available	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.
person_source_value	Yes	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 PAT_ID from your site.** A mapping from the pseudo-identifier for person_source_value 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.
gender_source_value	Yes	Yes	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 gender_concept_id
race_source_value	Yes	Yes	Varchar	The source code for the race of the person as it appears in the source data.	The person race is mapped to a standard race concept in the Vocabulary and the original value is stored here for reference. 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 concept_id for Multiple Race.
ethnicity_source_value	Yes	Yes	Varchar	The source code for the ethnicity of the person as it appears in the source data.	The person ethnicity is mapped to a standard ethnicity concept in the Vocabulary and the original code is, stored here for reference. See ethnicity_concept_id
language_concept_id	Yes	Yes	Integer	A foreign key that refers to the standard concept identifier in the Vocabulary for the language of the person.	For the PEDSnet CDM, please map your source codes to acceptable language values in appendix 2. **If there is not a mapping for the source code in the network language mapping, use concept_id = 44814649 (Other PCORNet Vocabulary)**
language_source_concept_id	Yes	Yes	Integer	A foreign key to the language concept that refers to the code used in the source.	**If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
language_source_value	Yes	Yes	Varchar	The source code for the language of the person as it appears in the source data	The person language is mapped to a standard language concept in the Vocabulary and the original code is stored here for reference.

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

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	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
death_cause_id	Yes	Yes	BigInteger	A unique identifier for each death cause occurrence	This is not a value found in the EHR. Sites may choose to use a sequential value for this field
person_id	Yes	Yes	BigInteger	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	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_datetime	Yes	Yes	Datetime	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. If there is no time associated with the date assert '23:59:59'.
death_type_concept_id	Yes	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 CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where concept_class_id ='Death Type'` If none are correct, use concept_id = 0 Most current ETLs are extracting data from EHR. The common concept_id to insert here is • 38003569 ("EHR record patient status "Deceased") Where there is no information in the source, please assert • No information: concept_id = 44814650 **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.
cause_concept_id	No	Provide When Available	Integer	A foreign referring to a standard concept identifier in the Vocabulary for conditions.	
cause_source_value	No	Provide When Available	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	

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				stored here for reference.	
cause_source_concept_id	No	Provide When Available	Integer	A foreign key to the vocabulary concept that refers to the code used in the source.	This links to 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 ICD-9-CM code of 205.00 the cause_source_concept_id is 44826430 which is the concept_id that corresponds to the diagnosis 205.00. **If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
death_impute_concept_id	Yes	Yes	Varchar	A foreign key referring to a standard concept identifier in the vocabulary for death imputation.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where (concept_class_id ='Death Imput Type' or (vocabulary_id='PCORNet' and concept_class_id='Undefined')) and invalid_reason is null` If none are correct, use concept_id = 0 • Both month and day imputed: 2000000034 • Day imputed: 2000000035 • Month imputed: 2000000036 • Full Date imputed: 2000000038 • Not imputed:2000000037 • No Information: concept_id = 44814650 (Vocabulary_id='PCORNet') • Unknown: concept_id = 44814653 • Other: concept_id = 44814649

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

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.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
location_id	Yes	Yes	BigInteger	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
city	Yes	Provide When Available	Varchar	The city field as it appears in the source data.	
state	No	Provide When Available	Varchar	The state field as it appears in the source data.	
zip	No	Provide When Available	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_source_value	No	Provide When Available	Varchar	The verbatim information that is used to uniquely identify the location	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_source_values will keep the mapping

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				as it appears in the source data.	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. Sites may consider using the location_id field value in this table as the pseudo-identifier as long as a local mapping from location_id to the real site identifier is maintained.
country_concept_id	No	No	Integer	The Concept Id representing the country. Values should conform to the Geography domain.	
country_source_value	No	No	Varchar	The name of the country.	
latitude	No	No	Float	Must be between -90 and 90.	
longitude	No	No	Float	Must be between -180 and 180.	
address_1	No	NO	Varchar		Do not transmit to DCC
address_2	No	NO	Varchar		Do not transmit to DCC
county	No	Provide When Available	Varchar		

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

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	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
care_site_id	Yes	Yes	BigInteger	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.	This is not a value found in the EHR. **SITE RESPONSIBILITY: This field must remain a stable identifier across submissions to the DCC.** Sites may choose to use a sequential value for this field
care_site_name	No	Provide When Available	Varchar	The description of the care site	
place_of_service_concept_id	No	Provide When Available	Integer	A foreign key that refers to a place of service concept identifier in the Vocabulary	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where vocabulary_id = 'CMS Place of Service' and invalid_reason is null` Please use the following value set: • Urgent Care Facility = 8782 • Rural Health Clinic = 8761

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					• Outpatient (Examples: Hospital Dialysis, HOD, Day Hospital, Day Medicine) = 8756 • Office =8940 • Inpatient Psychiatric Facility =8971 • Inpatient Hospital =8717 • Independent Clinic =8716 • Emergency Room - Hospital = 8870 • Other Place of Service =8844 • Other Inpatient Care =8892 • Unknown: concept_id = 44814653 • Other: concept_id = 44814649 • No information: concept_id = 44814650
location_id	No	Provide When Available	BigInteger	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.	
care_site_source_value	Yes	Yes	Varchar	The identifier for the organization in the source data, stored here for reference.	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_site_source_value 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. For EPIC EHRs, map care_site_id to Clarity Department. Sites may consider using the care_site_id field value in this table as the pseudo-identifier as long as a local mapping from care_site_id to the real site identifier is maintained.
place_of_service_source_value	No	Provide When Available	Varchar	The source code for the place of service as it appears in the source data, stored here for reference.	
specialty_concept_id	No	Provide When Available	Integer	The specialty of the department linked to a standard specialty concept as it appears in the Vocabulary	Care sites could have one or more specialties or a Care site could have no specialty information. **Valid specialty concept ids for PEDSnet are found in the Appendix A1** **Please use the following rules:** • If care site specialty information is unavailable, please follow the convention on reporting values that are unknown, null or unavailable. • If a care site has a single specialty associated with it, sites should link the specialty to the **valid specialty concepts as assigned in the Appendix A1**. If the specialty does not correspond to a value in this listing, please use the NUCC

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					Listing (vocabulary_id='NUCC') provided in the vocabulary as a reference. • 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"). • 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 **valid specialty concepts as assigned in the Appendix A1** 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. • If the specialty does not correspond to a value in the NUCC Listing and no value in the ABMS Listing, please use the Specialty listing (vocabulary_id=' Medicare Specialty') as a reference
specialty_source_value	No	Provide When Available	Varchar	The source code for the specialty as it appears in the source data, stored here for reference.	

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

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	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
provider_id	Yes	Yes	BigInteger	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. **SITE RESPONSIBILITY: This field must remain a stable identifier across submissions to the DCC.** A mapping from the provider_id to a real provider 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. Sites should document who they have included as a provider.
provider_name	No	NO	Varchar	A description of the provider	DO NOT TRANSMIT TO DCC
gender_concept_id	No	Provide When Available	Integer	The gender of the provider	A foreign key to the concept that refers to the code used in the source.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where domain_id='Gender' and invalid_reason is null`: • Ambiguous: concept_id = 44814664 • Female: concept_id = 8532 • Male: concept_id = 8507 • No Information: concept_id = 44814650 (Vocabulary_id='PCORNet') • Unknown: concept_id = 44814653 • Other: concept_id = 44814649
specialty_concept_id	Yes	Yes	Integer	A foreign key to a standard provider's specialty concept identifier in the Vocabulary.	Please map the source data to the mapped provider specialty concept associated with the American Medical Board of Specialties as seen in **Appendix A1**. Valid concept_ids found in CONCEPT table `select * from concept where vocabulary_id in (' Medicare Specialty', 'ABMS','NUCC','PEDSnet') and invalid_reason is null` If none are correct, or no specialty information is present, use concept_id = 38004477 (i.e. "Pediatric Medicine"). For providers with more than one specialty, use site-specific logic to select one specialty (which will be considered their primary specialty) and document the logic used. For example, sites may decide to always assert the **first** specialty listed in their data source. As a first guide please use the ABMS and PEDSnet vocabulary specialty listing to map your specialty values. If the specialty does not correspond to a value in these listings, please use the NUCC Listing (vocabulary_id='NUCC') provided in the vocabulary as a reference and the Specialty (vocabulary_id='Medicare Specialty') if no correspond value exists in the NUCC Listing.
care_site_id	Yes	Yes	BigInteger	A foreign key to the main care site where the provider is practicing.	See CARE_SITE.care_site_id (primary key)
year_of_birth	No	Provide When Available	Integer	The year of birth of the provider	
npi	No	Site Preference	Varchar	The National Provider Identifier (NPI) of the provider.	
dea	No	Site Preference	Varchar	The Drug Enforcement Administration (DEA) number of the provider.	
provider_source_value	Yes	Yes	Varchar	The identifier used for the provider in the source data, stored here for reference.	Insert a pseudo-identifier (random number, encrypted identifier) into the field. Do not insert the actual PROVIDER_ID from your site. A mapping from the pseudo-identifier for provider_source_value in this field to a real provider ID from the source EHR must be kept at the local site. This mapping is not shared with the data coordinating center. It is used

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					only by the site for re-identification for study recruitment or for data quality review. Sites may consider using the provider_id 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.
specialty_source_value	No	Provide When Available	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.
specialty_source_concept_id	No	Provide When Available	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. **Valid specialty concept ids for PEDSnet are found in the Appendix A1**. 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. **If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
gender_source_value	No	Provide When Available	Varchar	The source value for the provider gender.	
gender_source_concept_id	No	Provide When Available	Integer	The gender of the provider as represented in the source that maps to a concept in the vocabulary	**If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

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.

Exclusions:

1. Future Visits
2. Cancelled Visits that do not have any clinical facts associated (See **Note 3**)

Note 1: Please use the following logic to assign visit concept ids:

Visit Concept Id	Concept Name	Visit Type Inclusion	In Person	Examples/Logic (includes but is not limited to)
9201	Inpatient Visit (IP)	Visits that resulted in a patient admission	Yes	Hospital Admissions
2000001532	Inpatient Visit - Ongoing	Visits that resulted in a patient admission, but that don't have a discharge date in the source system	Yes	Hospital Admissions
9202	Ambulatory Visit (AV)/Outpatient	In person Outpatient Visits visits where the patient was seen by a physician	Yes	Office Visits or Appointments

Visit Concept Id	Concept Name	Visit Type Inclusion	In Person	Examples/Logic (includes but is not limited to)
2000000469	Outpatient Non Physician (OP-Non Physician)	In person Outpatient Visits visits where the patient was **NOT** seen by a physician	Yes	Lab Visits, Radiology
9203	Emergency Department Visit (ED)	Emergency Department Visits and Urgent Care	Yes	Emergency Room Visits and Urgent Care
581399	Telehealth	Use of video and other electronic communications to connect clinicians, including pediatric specialists, to patients in their own communities.	Yes	
44814711	Other ambulatory Visit (OA)	Outpatient visits where the patient was not seen in person.	No	Telephone, Emails, Refills and Orders Only Encounters
42898160	Long Term Care Visit	Formal or Informal long term care for chronic illness management	Yes	Site discretion
44814710	Non-Acute Institutional	Non-Acute long term management of care	Yes	Site discretion
2000000048	Emergency Department Admit to Inpatient Hospital Stay	Combination of 9203 and 9201 visits	Yes	Use only if unable to split the ED and inpatient visit.
2000000088	Observation Visit	Please discern what defines an observation visit at your site	Yes	Only map to the observation visit type if the patient leaves the hospital or is discharged from what has been determined to be an observation visit. For sites splitting visits, ED -> Observation visits are only to be mapped as Observation Stay Visits. The split in this case is not required.
2000000104	Administrative Visit	Other visits that are in the source system for administrative purposes.	No	Professional Billing or Hospital Abstractions

Note 2: Please add any additional metadata to the `visit_source_value` field that can help differentiate "Inpatient Non-Admissions" from typical inpatient or outpatient visits. In particular, we are looking to differentiate the following visits:

- Dialysis
- Day Surgery
- Infusion
- Day Medicine / Day Hospital

Please use a pipe delimiter `|` to separate any new data found to identify inpatient non-admissions from data that is already mapped to `visit_source_value`.

For sites using the Clarity Data Model, the following data elements may be useful in probing for such information:

- `zc_disp_enc_type.name` (Encounter Type)
- `zc_pat_class.name` (ADT Class)
- `zc_hosp_admsn_type.name` (Hospital Admission Type)
- `clarity_prc.prc_name` (Visit Type)

Other information such as department name or department type may be useful in probing for the inpatient non-admissions visit categories listed above.

This additional data is only needed for visits that are suspicious of being inpatient non-admissions. If easier for sites, this additional data can be added for ALL visits, but is not necessary.

Note 3: Internal analyses concluded that generally, if a cancelled visit still has clinical facts associated, then most likely a patient interaction with a provider occurred. The visit may have been incorrectly categorized as cancelled due to administrative error or post-visit quirks in billing. Therefore, the PEDSnet data model allows visits marked as cancelled in source EHR systems if the following conditions are met:

1. The visit has a source value in the EHR containing terms such as "cancel", "no show", "not seen", etc.
2. The visit's `visit_occurrence_id` is a foreign key in at least 1 clinical fact record in at least one of the following PEDSnet CDM tables:

- condition_occurrence
- procedure_occurrence
- drug_exposure
- measurement
- immunization
- device_exposure
- observation
- adt_occurrence

- measurement_organism

To represent a visit as cancelled, set `visit_source_concept_id = 2000001590` ("Visit flagged as cancelled in source EHR system").

For all other visits, please set `visit_source_concept_id = 0`.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
`visit_occurrence_id`	Yes	Yes	BigInteger	A unique identifier for each person's visits or encounter at a healthcare provider.	This is not a value found in the EHR. VISIT_OCCURRENCE_ID must be unique for all patients within a single data set. **SITE RESPONSIBILITY: This field must remain a stable identifier across submissions to the DCC.** A mapping from the visit occurrence id to a real patient encounter 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. Do not use institutional encounter ID.
`person_id`	Yes	Yes	BigInteger	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.	
`visit_start_date`	Yes	Yes	Date	The start date of the visit.	No date shifting. Full date.
`visit_end_date`	Yes	Yes	Date	The end date of the visit.	No date shifting. Full date. If this is a one-day visit the end date should match the start date. **NOTE:** If the encounter is on-going at the time of ETL, this should be set to equal the `visit_start_date`.
`visit_start_datetime`	Yes	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 for the start time**
`visit_end_datetime`	Yes	Yes	Datetime	The end date of the visit.	No date shifting. If this is a one-day visit the end date should match the start date. **NOTE:** If the encounter is on-going at the time of ETL, this should be set to equal the `visit_start_datetime`. Full date and time. **If there is no time associated with the date assert 23:59:59 for the end time**
`provider_id`	No	Provide When Available	BigInteger	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.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					See PROVIDER.provider_id (primary key)
care_site_id	No	Provide When Available	BigInteger	A foreign key to the care site in the care site table that was visited.	See CARE_SITE.care_site_id (primary key)
visit_concept_id	Yes	Yes	Integer	A foreign key that refers to a concept identifier in the vocabulary representing the kind of visit that took place.	Please use the list of concept_id's listed below: • **Inpatient Hospital Stay - Completed**: concept_id = 9201 • **Inpatient Hospital Stay - Ongoing**: concept_id = 2000001532 • **In person Ambulatory Visit with Physician**: concept_id = 9202 • **In person Ambulatory Visit with Non-Physician**: concept_id = 2000000469 • **Emergency Department**: concept_id = 9203 • **Long Term Care Visit** : concept_id = 42898160 • **Other ambulatory Visit (Non in-person)** : concept_id = 44814711 • **Non-Acute Institutional Stay**: concept_id = 44814710 • **Emergency Department Admit to Inpatient Hospital Stay** (If sites are unable to split the encounter) : concept_id = 2000000048 • **Observation Stay** : concept_id 2000000088 • **Administrative Visit** : concept_id = 2000000104 • **Unknown**: concept_id = 44814653 • **Other**: concept_id = 44814649 • **No information**: concept_id = 44814650 See Note 1 for visit definitions. If none are correct, use concept_id = 0
visit_type_concept_id	Yes	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.	Valid concept_ids found in CONCEPT table `select * from concept where concept_class_id='Visit Type'` If none are correct, use concept_id=0. The majority of visits should be type 'Visit derived from EHR record' which is concept_id=44818518
visit_source_value	Yes	Yes	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.	Please add any additional metadata to the visit_source_value field that can help differentiate "Inpatient Non-Admissions" from typical inpatient or outpatient visits. **See Note 2 for details.**
visit_source_concept_id	No	Provide When Available	Integer	A foreign key to a concept that refers to the source of	For any visit labeled as cancelled in source EHR system that has a clinical

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				the visit.	fact associated, use `concept_id = 2000001590` "Visit flagged as cancelled in source EHR system". **For any non-cancelled visit, use concept_id = 0**
`preceding_visit_occurrence_id`	No	NO	BigInteger	A foreign key to the VISIT_OCCURRENCE table record of the visit immediately preceding this visit.	Do not transmit to DCC
`admitted_from_concept_id`	No	Provide When Available	Integer	A foreign key to the predefined concept in the Place of Service Vocabulary reflecting the admitting source for a visit.	Please use the following valid concept id set for Admitting source: • Adult Foster Home=44814670 • Assisted Living Facility=44814671 • Ambulatory Visit=44814672 • Emergency Department=8870= • Home Health=44814674 • Home / Self Care=44814675 • Hospice=8546 • Other Acute Inpatient Hospital=38004279 • Nursing Home (Includes ICF)=44814678 • Rehabilitation Facility=44814679 • Residential Facility=44814680 • Skilled Nursing Facility=8863 • No information=44814650 • Unknown=44814653 • Other=44814649 This should be populated for inpatient encounters in the source but may vary for emergency department (ED) visits and outpatient encounters (AV,OA).
`discharged_to_concept_id`	No	Provide When Available	Integer	A foreign key to the predefined concept in the Place of Service Vocabulary reflecting the discharge disposition (destination) for a visit.	Please use the following valid concept id set for Discharge Destination: • Adult Foster Home=38004205 • Assisted Living Facility=38004301 • Against Medical Advice=4021968 • Absent without leave=44814693 • Expired=4216643 • Home Health=38004195 • Home / Self Care=8536 • Hospice=8546 • Other Acute Inpatient Hospital=38004279 • Nursing Home (Includes ICF)=8676 • Rehabilitation Facility=8920 • Residential Facility=44814701 • Still In Hospital=8717 • Skilled Nursing Facility=8863 • No information=44814650 • Unknown=44814653 • Other=44814649 This should be populated for inpatient encounters in the source but may vary for emergency department (ED) visits and outpatient encounters (AV,OA).

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
admitted_from_source_value	No	Provide When Available	Varchar	The source code for the admitting source as it appears in the source data.	This should be populated for inpatient encounters in the source but may vary for emergency department (ED) visits and outpatient encounters (AV,OA).
discharged_to_source_value	No	Provide When Available	Varchar	The source code for the discharge disposition as it appears in the source data.	This should be populated for inpatient encounters in the source but may vary for emergency department (ED) visits and outpatient encounters (AV,OA).

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

1.6.1 Additional Notes

- A Visit Occurrence is recorded for each visit to a healthcare facility.
- 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.
- Each Visit is standardized by assigning a corresponding Concept Identifier based on the type of facility visited and the type of services rendered.
- On 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 determine/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 determine/specify how a single care_site id is selected or leave the care_site_id field null.
- "Roll-up Encounters" - Operating and Anesthesia encounters that occur as apart of the Inpatient stay should be rolled up into one Inpatient encounter.
- "Split Encounters" - **If a visit includes moving between different visit_concepts (ED -> inpatient) sites may opt to split the record into separate visit_occurrence records**.
    - **To show the relationship of the split (ED -> inpatient) encounter, use the FACT_RELATIONSHIP table**. An example of this is below:

> **VISIT_OCCURRENCE**
>
> | visit_occurrence_id | person_id | visit_start_date | visit_end_date | provider_id | care_site_id | visit_concept_id | visit_source_value |
> |---|---|---|---|---|---|---|---|
> | 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 | Inpatient |
>
> **FACT_RELATIONSHIP**
>
> | Domain_concept_id_1 | fact_id_1 | Domain_concept_id_2 | fact_id_2 | relationship_concept_id |
> |---|---|---|---|---|
> | Visit | 35022489 | Visit | 35022490 | Occurs before |
> | Visit | 35022490 | Visit | 35022489 | Occurs after |
>
> Because the domain_concept_id and relationship_concept_id are actually numeric values, the following is an example of how the table is stored:
>
> | Domain_concept_id_1 | fact_id_1 | Domain_concept_id_2 | fact_id_2 | relationship_concept_id |
> |---|---|---|---|---|
> | 8 | 35022489 | 8 | 35022490 | 44818881 |
> | 8 | 35022490 | 8 | 35022489 | 44818783 |

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 or ICD-10-CM codes, but may not have a way to capture out-of-system conditions.
- EHRs may also capture External Injury codes in a different place in the source system. These types of codes are also to be included.

For the PEDSnet network, please prioritize providing **clinical provider based diagnosis** data and provide billing or claim based diagnosis data if available.

Note 1: For the PEDSnet network, we are coding all diagnosis codes to the SNOMED-CT Vocabulary. Research has showed that the IMO to SNOMED native mapping and IMO to ICD to SNOMED OMOP mapping produces highly variable results. For a particular IMO Code, when comparing the two mapping options, the same SNOMED concept id is only produced 25% of the time. See below examples of the mapping differences (IMO-SNOMED, ICD-10-CM, and ICD-9-CM):

IMO Description	Direct SNOMED	Via ICD
Numbness of Toes	Numbness of toe	Altered Sensation of Skin
Cerebellar ataxia/dyskinesia	Cerebellar Disorder	Cerebellar Ataxia
Choking episode	Choking sensation	Finding of head and neck region
Intestional malrotation	Congenital malrotation of intestine	Congenital anomaly of fixation of intestine
Genetic disease carrier status testing	Genetic finding	Genetic disorder carrier
Duchenne muscular dystrophy	Duchenne muscular dystrophy	Hereditary progressive muscular dystrophy

For diagnosis codes, please provide the IMO to SNOMED mapping where it exists in the source system.

If the IMO to SNOMED mapping is not available in the system, utilize the IMO to ICD to SNOMED OMOP mapping in the vocabulary.

Please use the following logic to populate the `condition_concept_id`, `condition_source_concept_id` and `condition_source_value` based on what is available in your source system:

You have in your source system	condition_concept_id	condition_source_concept_id	condition_source_value
Any diagnosis that was captured as a term or name (e.g. IMO to SNOMED)	Corresponding SNOMED concept id	Corresponding concept for site diagnosis captured (must correspond to ICD-9-CM/ICD-10-CM concept mapping)	Diagnosis Name "|" IMO Code "|" Diagnosis Code
Any diagnosis that was captured directly as a code (e.g. ICD-9-CM/ICD-10-CM) by a coder	Corresponding SNOMED concept id	Corresponding concept for site diagnosis code (must correspond to ICD-9-CM/ICD-10-CM concept mapping)	Diagnosis Name "|" IMO Code "|" Diagnosis Code

> **IMO term ICD code mapping**: When populating `condition_source_concept_id` for diagnoses captured via IMO terminology, sites should map the IMO term to the ICD-9-CM or ICD-10-CM code(s) that were **current and in use at the `visit_start_date`** for that encounter. The original IMO term (or code) should be retained in `condition_source_value`. Mapping IMO terms to historical ICD codes is not a site responsibility — study teams requiring historical code mappings may perform that mapping independently on demand.

Note 2: For the PEDSnet network, please prioritize providing clinical provider based diagnosis data and provide billing or claim based diagnosis data if available. The clinical provider based diagnosis corresponds to the "Order" concept ids for `condition_type_concept_id`. If you are providing billing or claim diagnosis data, please use the "Billing" or "Claim" concept_ids for `condition_type_concept_id`.

For sites using the Clarity Data Model as the source of your CONDITION_OCCURRENCE data, please use the guidance listed in the table below to determine which set of "condition_type_concept_id's" can be applied to data from a given clarity source table:

Clarity Table(s)	Source INI	Billing or Claim or Ordering	condition_type_concept_id
`problem_list`	LPL - Problem List	Ordering	32840
`pat_enc_dx`, `hsp_disch_diag`	EPT - Generic Patient Database	Ordering	32833
`hsp_acct_dx_list`, `hsp_acct_extinj_cd`	HAR - Hospital Account	Billing	32852

Note 3: We have been made aware that there are a significant amount of conditions that route to a domain of Procedure, Measurement etc. Please **DO NOT** route these conditions to those domains or tables (i.e. Procedure_Occurrence, Measurement). Instead, include all records coming out of our source tables for diagnosis data in the Condition_Occurrence table.

Note 4: Sites that are using logic in their ETL to "`Roll-up Encounters`" will need to make sure that none of the `condition_status_concept_id` values for condition occurrence records on "Rolled-up Encounters" are primary diagnosis concept codes. Only diagnoses associated with the "main encounter" (i.e. the encounter you are rolling other encounters up into) should be eligible to receive a "primary diagnosis" concept designation.

> This special handling is needed in order to avoid it appearing like visits associated with "`Roll-up Encounters`" have a larger number of primary diagnoses than would be expected.
>
> i.e. we only want to count primary diagnoses associated with the "first/main" encounter as valid primary diagnoses, and diagnoses from all the other sub/child encounters should be counted as secondary diagnoses (*even if they are marked as primary in the source data*).

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
`condition_occurrence_id`	Yes	Yes	BigInteger	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

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
person_id	Yes	Yes	BigInteger	A foreign key identifier to the person who is experiencing the condition. The demographic details of that person are stored in the person table.	
condition_concept_id	Yes	Yes	Integer	A foreign key that refers to a standard condition concept identifier in the Vocabulary.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT `select * from concept where vocabulary_id ='SNOMED'` If none are correct, use concept_id = 0
condition_start_date	Yes	Yes	Date	The date when the instance of the condition is recorded.	No date shifting.
condition_end_date	No	Provide When Available	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.
condition_start_datetime	Yes	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 for the start time**
condition_end_datetime	No	Provide When Available	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 23:59:59 for the end time**
condition_type_concept_id	Yes	Yes	Integer	A foreign key to the predefined concept identifier in the Vocabulary reflecting the source data from which the condition was recorded. For example, conditions may be clinician based, billing/claim based, or problem list entries.	Please include valid concept ids (consistent with OMOP CDM v5.4). The full list of potential condition_type_concept_ids can be found in `select * from concept where domain_id = 'Type Concept' and vocabulary_id = 'Type Concept' and standard_concept = 'S'` Prioritize differentiating between provider and hospital billing and clinician ordered diagnoses: • Provider billing = 32874 • Hospital billing = 32852 • Clinican ordered = 32833 For diagnosis from the problem list, please use the following concept id: • EHR Problem List Entry = 32840 **SEE NOTE 2 for further guidance on determining the origin**
stop_reason	No	Provide When Available	Varchar	The reason, if available, that the condition was no longer recorded, as	Valid values include discharged, resolved, etc. Note that a stop_reason does not necessarily imply that the condition is no longer

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				indicated in the source data.	occurring, and therefore does not mandate that the end date be assigned.
provider_id	No	Provide When Available	BigInteger	A foreign key to the provider in the provider table who was responsible for determining (diagnosing) the condition.	**In PEDSnet CDM v1, this field was previously called associated_provider_id** Any valid provider_id allowed (see definition of providers in PROVIDER table) Make a best-guess and document method used. Or leave blank
visit_occurrence_id	No	Provide When Available	BigInteger	A foreign key to the visit in the visit table during which the condition was determined (diagnosed).	
condition_source_value	Yes	Yes	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 or ICD-10-CM diagnosis codes from medical claims or discharge status/visit diagnosis codes from EHRs. Use source_to_concept maps to translation from source codes to OMOP concept_ids. **Please include the diagnosis name and source code when populating this field, by using the pipe delimiter "|" when concatenating values.** Example: Diagnosis Name "|" IMO Code "|" Diagnosis Code
condition_source_concept_id	No	Provide When Available	Integer	A foreign key to a condition concept that refers to the code used in the source	As a standard convention this code must correspond to the ICD-9-CM/ICD-10-CM concept mapping of the source value only. For example, if the condition is "Acute myeloid leukemia, without mention of having achieved remission" which has an ICD-9-CM code of 205.00 the condition source concept id is 44826430 which is the ICD-9-CM code concept that corresponds to the diagnosis 205.00. **If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
condition_status_concept_id	No	Provide when Available	Integer	A foreign key to the predefined concept in the standard vocabulary reflecting the point during the visit the diagnosis was given (admission, discharge) and the priority of the diagnosis (primary, secondary).	The full list of potential values for condition_status_concept_id can be found in `select * from concept where vocabulary_id = 'Condition Status'` Prioritize mapping to a concept differentiating between both primary/secondary for final diagnoses, inclusion of admission diagnoses is optional: • 32890 = Admission diagnosis • 32902 = Primary Diagnosis (may be identified as Dx#1 in a source system, outpatient or discharge) • 32908 = Secondary Diagnosis (outpatient or discharge)
condition_status_source_value	No	Provide when Available	Varchar	The source code for the condition status as it appears in the source data.	
poa_concept_id	No	Optional	Integer	A foreign key to value in the source for that	Please use the following:

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				determines if the diagnosis is present on admission	• Yes=4188539 • No=4188540 • No Information: concept_id = 44814650 • Unknown: concept_id = 44814653 • Other: concept_id = 44814649 If none are correct, use concept_id = 0.

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

1.7.1 Additional Notes

- The 1/1/2009 date limitation that is used to define a PEDSnet active patient is **NOT** applied to condition_occurrence. All conditions are included for an active patient. For the PEDSnet CDM, we limit condition_occurrences 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 CONDITION_OCCURRENCE table, but in the respective tables instead. An example are ICD-9-CM procedure codes. For example, OMOP source-to-concept table uses the MAPPING_TYPE column to distinguish ICD9 codes that represent procedures rather than conditions.
- Condition source values are mapped to standard concepts for conditions in the Vocabulary. For mapping ICD-9-CM Codes to SNOMED, use the concept_relationship table where the icd9_code = concept_id_1 and relationship_id='Maps to'. Concept_id_2 will be the SNOMED concept_id mapping you need to populate the condition_concept_id.
- When the source code cannot be translated into a Standard Concept, a CONDITION_OCCURRENCE entry is stored with only the corresponding source_value and a condition_concept_id 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).

Procedure records are extracted from structured data in Electronic Health Records that capture source procedure codes from orders or billing. Code vocabulary examples include (but are not limited to) CPT-4, ICD-9 (Procedures), ICD-10-PCS (Procedures), HCPCS and OPCS-4.

More specifically, the procedure occurrence domain is intended to store information about activity or processes involving a patient that has a billable code. This includes but is not limited to the following:

- LOS Codes ((Eg. 99123) This code may not necessarily be a CPT and could require local mapping)
- Lab Procedures (including a Lab Panel Order and Culture Orders)
- Surgery Procedures
- Imaging Procedures
- Ancilliary Therapies (Speech, Physical, Occupational etc)

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

Note 1: Please use the following logic to populate the `procedure_concept_id`, `procedure_source_concept_id` and `procedure_source_value` based on what is available in your source system:

Site Information	procedure_concept_id	procedure_source_concept_id	procedure_source_value
Codes sourced from Ordered or Billed procedures using the CPT-4, ICD-9 (Procedures), ICD-10-PCS (Procedures), HCPCS or OPCS-4 vocabularies.	Utilize the concept_relationship table's "Maps to" relationship_id to map the CPT-4, ICD-9, ICD-10-PCS, HCPCS or OPCS-4 code's corresponding concept_id to a standard concept_id. NOTE that Standard concepts will always have a "Maps to" relationship_id with itself in the concept_relationship table and thus the ETL logic should remain the same regardless of whether the initial code's concept_id is Standard or not.	Corresponding CPT-4, ICD-9 (Procedures), ICD-10-PCS (Procedures), HCPCS or OPCS-4 concept_id regardless of whether the concept_id is both Standard and Valid.	Procedure Name | Procedure Source Code

Site Information	procedure_concept_id	procedure_source_concept_id	procedure_source_value
Codes sourced from Ordered or Billed procedures using Custom Procedure Coding or Coding in a vocabulary outside of CPT-4, ICD-9, ICD-10-PCS, HCPCS or OPCS-4.	(1) If the code has a corresponding concept_id in the vocabulary that is both Standard and Valid, please use that concept_id. (2) If the code has a corresponding concept_id but that concept is not standard and valid, utilize the concept_relationship table's "Maps to" relationship_id to map to a valid and standard concept_id. (3) If the code does not have a corresponding concept_id, utilize local mappings used at your instituion for billing to get to a code with a concept in the Vocabulary and repeat the first two steps with this concept. (4) If none of the above are options for your code then utilize manual mapping logic to map the code to the most closely representative standard and valid concept.	Corresponding or most closely representave CPT-4, ICD-9 (Procedures),ICD-10-PCS (Procedures), HCPCS or OPCS-4 concept_id regardless of whether the concept_id is both Standard and Valid. If no representative code exists then set equal to 0.	Procedure Name | Custom Procedure Code

> - For procedure_concept_id, PEDSnet prioritizes concepts that are standard and valid (I.E. `standard_concept = 'S'` AND `current date < valid_end_date` AND `invalid_reason is NULL`) over concepts in the CPT-4, ICD-9, ICD-10-PCS, HCPCS or OPCS-4 vocabularies.
> - For procedure_source_concept_id, PEDSnet prioritizes Prioritize concepts that are in the CPT-4, ICD-9, ICD-10-PCS, HCPCS or OPCS-4 vocabularies over concepts that are standard and valid.

Note 2: For sites using the Clarity Data Model as the source of your PROCEDURE_OCCURRENCE data, please use the guidance listed in the table below to determine which set of "procedure_type_concept_id's" can be applied to data from a given clarity source table:

Clarity Table	Source INI	Billing or Ordering	procedure_type_concept_id
`order_proc`	ORD - Orders	Ordering	2000001494, 38000275
`or_log_all_proc`	ORL - Surgical Log	Ordering	2000001494,38000275
`pat_enc.los_prime_proc_id`	EPT - Generic Patient Database	Ordering	2000001494, 38000275
`hsp_acct_px_list`	HAR - Hospital Account	Ordering	2000001494, 38000275
`hsp_acct_cpt_codes`	HAR - Hospital Account	Ordering	2000001494, 38000275
`hsp_transactions`	HTR - Hospital Transactions	Billing	44786630, 44786631
`arbp_transactions`	HTR - Hospital Transactions	Billing	44786630, 44786631

> Our rationale for labeling `HAR` records *for Procedure data* as "Ordering" as opposed to "Billing" is that:
>
> HAR records are used to generate charges (i.e. they are things the Hospital would "LIKE" to bill for), whereas HTR is what the hospital ACTUALLY issued a BILL/CLAIM for.
>
> With all that in mind, thinking about how PCORnet might attempt to use this information in the future, we think that there is a risk that data from the `HAR` may not reconcile well with claims data; whereas data from the `HTR` sources should reconcile more or less perfectly with claims data.
>
> So, to avoid any future data validation issues on the PCORnet side, we are advising that HAR data for procedures be labeled as "Ordering".

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
`procedure_occurrence_id`	Yes	Yes	BigInteger	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
`person_id`	Yes	Yes	BigInteger	A foreign key identifier to the person who is	

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				subjected to the procedure. The demographic details of that person are stored in the person table.	
procedure_concept_id	Yes	Yes	Integer	A foreign key that refers to a standard procedure concept identifier in the Vocabulary.	All concepts are expected to be standard and valid (I.E. `standard_concept = 'S'` AND `current date < valid_end_date` AND `invalid_reason is NULL`). Concepts are primarily expected to belong to the "Procedure" domain, but may belong to other domains such as "Measurement" for lab orders. Procedure concepts are based on a variety of vocabularies including but not limited to ICD-9-Procedures (vocabulary_id ='ICD9Proc'), ICD-10-Procedures (vocabulary_id ='ICD10PCS'), CPT-4 (vocabulary_id ='CPT4'), HCPCS (vocabulary_id ='HCPCS'), and SNOMED (vocabulary_id ='SNOMED'). 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"). 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. **See Note 1 for additional details.**
modifier_concept_id	No	Provide When Available	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" concept class. `select * from concept where concept_class_id like '%Modifier%'`
quantity	No	Provide When Available	Float	The quantity of procedures ordered or administered.	
procedure_date	Yes	Yes	Date	The date on which the procedure was performed.	
procedure_datetime	Yes	Yes	Datetime	The date and time on which the procedure was performed. If there is no time associated with the date assert midnight.	
procedure_end_date	No	No	Date	The date on which the procedure ended.	
procedure_end_datetime	No	No	Datetime	The date and time on which the procedure ended.	If times are not available, datetimes should assert 23:59:59.
procedure_type_concept_id	Yes	Yes	Integer	A foreign key to the predefined concept	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				identifier in the Vocabulary reflecting the type of source data from which the procedure record is derived. (OMOP vocabulary_id = 'Procedure Type')	CONCEPT table `select * from concept where vocabulary_id ='Procedure Type'` For procedures coming from billing records please map to the following concepts: • Primary Procedure: 44786630 • Secondary Procedure: 44786631 If you are unable to distinguish between primary and secondary procedures for billing records, please map to the following: • Secondary Procedure: 44786631 For procedures coming from physician orders and all other types, please map to the following concepts: • EHR order list entry - primary: 2000001494 • EHR order list entry - secondary: 38000275 If you are unable to distinguish between primary and secondary procedures for procedures coming from physician orders or other types, please map to the following: • EHR order list entry - secondary: 38000275 For Epic/Clarity sites, see **Note 2** (listed above this table) for additional guidance.
`provider_id`	No	Provide When Available	BigInteger	A foreign key to the provider in the provider table who was responsible for carrying out the procedure.	Any valid provider_id allowed (see definition of providers in PROVIDER table) Document how selection was made.
`visit_occurrence_id`	No	Provide When Available	BigInteger	A foreign key to the visit in the visit table during which the procedure was carried out.	See VISIT_OCCURRENCE.visit_occurrence_id (primary key)
`procedure_source_value`	Yes	Yes	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.	Procedure_source_value codes are typically, but not exculsively, ICD-9, ICD-10 Proc, CPT-4, HCPCS, or OPCS-4 codes. Please also include the procedure name separeted by a pipe delimeter "|". **See Note 1 for additional details.**
`procedure_source_concept_id`	No	Provide When Available	Integer	A foreign key to a procedure concept representing a source code within the vocabularies of ICD-9, ICD-10 Proc, CPT-4, HCPCS, or OPCS-4.	All concepts are expected to be within the vocabularies of ICD-9, ICD-10-PCS, CPT-4, HCPCS, or OPCS-4 regardless of whether the concept is standard and valid (I.E. `standard_concept = 'S'` AND `current date < valid_end_date` AND `invalid_reason is NULL`). If no natural mapping exists for the source code in the vocabulary, either assert the mosst closely representative concept_id or set concept_id = 0 **See Note 1 for additional details.**

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
modifier_source_value	No	Provide When Available	Varchar	The source code for the modifier as it appears in the source data.	

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

1.8.1 Additional Notes

- The 1/1/2009 date limitation that is used to define a PEDSnet active patient is **NOT** applied to procedure_occurrence. All procedures are included for an active patient. For the PEDSnet CDM, we limit procedures_occurrences to billing procedures only (not surgical diagnoses).
- Procedure concepts are based on a variety of vocabularies: ICD-9-Proc, ICD-10-PCS, CPT-4, HCPCS, OPCS-4, SNOMED, etc.
- 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 such as unstructured measurements. For the PEDSnet CDM, the observations listed below are extracted from source data. Please assign the specific concept_ids listed in the table below to these observations as observation_concept_ids. Non-standard PCORnet concepts require concepts that have been entered into an OMOP-generated vocabulary (OMOP provided vocabulary_id ='PCORNet').

- Discharge status (Inpatient and outpatient visit types where available)
- DRG (requires special logic - see Note 1)
- Tobacco, Smoking, and E-cigarette Use (see Note 3)
- Improve Care Now (ICN) IBD Survey Data elements (See Note 7)
- SDOH and PRO Surveys (See Note 8)
- Gender and Sexual Orientation
- Race and Ethnicity (See Note 9)

Use the following table to populate observation_concept_ids for the observations listed above. The vocabulary id 'PCORNet' contains concept specific to PCORNet requirements and standards.

Table 1: Valid Observation concept IDs and Value as concept IDs for PEDSnet v6.3.

Concept Name	Observation concept ID	Vocab ID	Value as concept ID	Concept description	Vocab ID	PCORNet Mapping
Discharge status **(See Note 2)**	44813951	SNOMED	4161979	Discharged alive	SNOMED	
Discharge status	44813951	SNOMED	4216643	Patient died	SNOMED	
Discharge status	44813951	SNOMED	44814650	No information	PCORNet	
Discharge status	44813951	SNOMED	44814653	Unknown	PCORNet	
Discharge status	44813951	SNOMED	44814649	Other	PCORNet	
Tobacco User	4005823	SNOMED	4005823	Tobacco User	SNOMED	01 = Current user
Tobacco User	4005823	SNOMED	45765920	Never used Tobacco	SNOMED	02 = Never
Tobacco User	4005823	SNOMED	45765917	Ex-tobacco user	SNOMED	03 = Quit/Former Smoker
Tobacco User	4005823	SNOMED	4030580	Non-smoker's second hand smoke syndrome	SNOMED	04 = Passive or environmental exposure
Tobacco User	4005823	SNOMED	2000000040	Not Asked		06 = Not asked
Tobacco User	4005823	SNOMED	44814650	No information	PCORNet	NI
Tobacco User	4005823	SNOMED	44814653	Unknown	PCORNet	OT
Tobacco User	4005823	SNOMED	44814649	Other	PCORNet	UN
Tobacco Type	4219336	SNOMED	4298794	Smoker	SNOMED	01 = Smoked tobacco only
Tobacco Type	4219336	SNOMED	4224317	Pipe smoking tobacco	SNOMED	01 = Smoked tobacco only

Concept Name	Observation concept ID	Vocab ID	Value as concept ID	Concept description	Vocab ID	PCORNet Mapping
Tobacco Type	4219336	SNOMED	4282779	Cigarette smoking tobacco	SNOMED	01 = Smoked tobacco only
Tobacco Type	4219336	SNOMED	4132133	Cigar smoking tobacco	SNOMED	01 = Smoked tobacco only
Tobacco Type	4219336	SNOMED	4218197	Snuff tobacco	SNOMED	02 = Non-smoked tobacco only
Tobacco Type	4219336	SNOMED	4219234	Chewing tobacco	SNOMED	02 = Non-smoked tobacco only
Tobacco Type	4219336	SNOMED	45765920	Never used tobacco	SNOMED	04 = None
Tobacco Type	4219336	SNOMED	45765917	Ex tobacco user	SNOMED	04 = None
Tobacco Type	4219336	SNOMED	4030580	Non-smoker's second hand smoke syndrome	SNOMED	04 = Passive or environmental exposure/None
Tobacco Type	4219336	SNOMED	44814650	No information	PCORNet	NI
Tobacco Type	4219336	SNOMED	44814653	Unknown	PCORNet	OT
Tobacco Type	4219336	SNOMED	44814649	Other	PCORNet	UN
Smoking	4275495	SNOMED	42709996	Smokes tobacco daily	SNOMED	01 = Current everyday smoker
Smoking	4275495	SNOMED	37395605	Occasional tobacco smoker	SNOMED	02 = current some day smoker
Smoking	4275495	SNOMED	4310250	Ex-smoker	SNOMED	03 = Former smoker
Smoking	4275495	SNOMED	4144272	Never smoked tobacco	SNOMED	04 = Never smoker
Smoking	4275495	SNOMED	4298794	Smoker	SNOMED	05 = Smoker, current status unknown
Smoking	4275495	SNOMED	4141786	Tobacco smoking consumption(status) unknown	SNOMED	06 = Unknown if ever smoked
Smoking	4275495	SNOMED	762499	Heavy tobacco smoker/ eavy smoker (over 20 per day) * **USE AS DEFAULT FOR CATEGORY**	SNOMED	07 = Heavy tobacco smoker
Smoking	4275495	SNOMED	4209585	Moderate smoker (20 or less per day) ***USE ONLY IF QUANTITY OF CIGARETTES IS KNOWN**	SNOMED	08 = Light tobacco smoker
Smoking	4275495	SNOMED	44814650	No information	PCORNet	NI
Smoking	4275495	SNOMED	44814653	Unknown	PCORNet	OT
Smoking	4275495	SNOMED	44814649	Other	PCORNet	UN
Delivery Mode **(see Note 4)**	40760190	SNOMED	4192676	Born by cesarean section	SNOMED	
Delivery Mode	40760190	SNOMED	4212794	Born by elective cesarean section	SNOMED	
Delivery Mode	40760190	SNOMED	4250010	Born by emergency cesarean section	SNOMED	
Delivery Mode	40760190	SNOMED	4216797	Born by normal vaginal delivery	SNOMED	
Delivery Mode	40760190	SNOMED	4217586	Born by forceps delivery	SNOMED	
Delivery Mode	40760190	SNOMED	4236293	Born by ventouse delivery	SNOMED	
Delivery Mode	40760190	SNOMED	4250009	Born by breech delivery	SNOMED	
Suspected exposure to severe acute respiratory syndrome coronavirus 2	756083	OMOP Extension	756046	Person Employed as a Healthcare Worker	OMOP Extension	

Concept Name	Observation concept ID	Vocab ID	Value as concept ID	Concept description	Vocab ID	PCORNet Mapping
Suspected exposure to severe acute respiratory syndrome coronavirus 2	756083	OMOP Extension	44802454	Information external to care setting	SNOMED	
EHR Chief Complaint	42894222	Condition Type				
Electronic cigarette user	36716478	SNOMED	42536422	Electronic cigarette liquid containing nicotine	SNOMED	
Electronic cigarette user	36716478	SNOMED	42536421	Electronic cigarette liquid without nicotine	SNOMED	
Electronic cigarette user	36716478	SNOMED	42536420	Electronic cigarette liquid (if nicotine type is not known)	SNOMED	
Social Determinants of Health (SDOH) Surveys	See **Note 8** for details	LOINC				
Patient Reported Outcome (PRO) Surveys	See **Note 8** for details	LOINC				
Improve Care Now (ICN) IBD Survey Elements	**See Note 7**					
Device Interface	2000001495	PEDSnet	See note for Taxonomy in CDM **Vent Pilot Guidance**			
Ventilation Mode	2000001496	PEDSnet	See note for Taxonomy in CDM **Vent Pilot Guidance**			
Ventilator Rate	4108138	SNOMED	See note for Taxonomy in CDM **Vent Pilot Guidance**			
Inspiratory Pressure	4215838	SNOMED	See note for Taxonomy in CDM **Vent Pilot Guidance**			
Tidal volume setting	4220163	SNOMED	See note for Taxonomy in CDM **Vent Pilot Guidance**			
PEEP setting	4216746	SNOMED	See note for Taxonomy in CDM **Vent Pilot Guidance**			
Inspiratory time	4353947	SNOMED	See note for Taxonomy in CDM **Vent Pilot Guidance**			
Time off vent per day	2000001497	PEDSnet	See note for Taxonomy in CDM **Vent Pilot Guidance**			
GMFCS Level	44810949	SNOMED	44810950	GMFCS for Cerebral Palsy level **I**	SNOMED	
GMFCS Level	44810949	SNOMED	44810951	GMFCS for Cerebral Palsy level **II**	SNOMED	
GMFCS Level	44810949	SNOMED	44811060	GMFCS for Cerebral Palsy level **III**	SNOMED	
GMFCS Level	44810949	SNOMED	44811061	GMFCS for Cerebral Palsy level **IV**	SNOMED	
GMFCS Level	44810949	SNOMED	44811062	GMFCS for Cerebral Palsy level **V**	SNOMED	

Concept Name	Observation concept ID	Vocab ID	Value as concept ID	Concept description	Vocab ID	PCORNet Mapping
Gender identity	46235215	LOINC	36307702	Identifies as female	LOINC	
Gender identity	46235215	LOINC	36308665	Identifies as male	LOINC	
Gender identity	46235215	LOINC	36309864	Identifies as non-conforming	LOINC	
Gender identity	46235215	LOINC	1585351	Closer Gender Description: Genderqueer	PPI	
Gender identity	46235215	LOINC	36309198	Female-to-male transsexual	LOINC	
Gender identity	46235215	LOINC	36309787	Male-to-female transsexual	LOINC	
Gender identity	46235215	LOINC	36308454	Asked but unknown	LOINC	
Gender identity	46235215	LOINC	45878142	Other	LOINC	
Personal pronouns	1175108	LOINC	1177233	he/him/his/his/himself	LOINC	
Personal pronouns	1175108	LOINC	1177256	she/her/her/hers/herself	LOINC	
Personal pronouns	1175108	LOINC	1177368	they/them/their/theirs/themselves	LOINC	
Personal pronouns	1175108	LOINC	1177374	co/co/cos/cos/coself	LOINC	
Personal pronouns	1175108	LOINC	1177317	en/en/ens/ens/enself	LOINC	
Personal pronouns	1175108	LOINC	1177363	ey/em/eir/eirs/emself	LOINC	
Personal pronouns	1175108	LOINC	1177342	ve/vis/ver/ver/verself	LOINC	
Personal pronouns	1175108	LOINC	1177238	xie/hir ("here")/hir/hirs/hirself	LOINC	
Personal pronouns	1175108	LOINC	1177202	yo/yo/yos/yos/yoself	LOINC	
Personal pronouns	1175108	LOINC	1177280	ze/zir/zir/zirs/zirself	LOINC	
Personal pronouns	1175108	LOINC	44814649	other (i.e. pronoun not listed above)	PCORNet	
Sexual Orientation	46235214	LOINC	36307527	Bisexual	LOINC	
Sexual Orientation	46235214	LOINC	36303203	Homosexual	LOINC	
Sexual Orientation	46235214	LOINC	36310681	Heterosexual	LOINC	
Sexual Orientation	46235214	LOINC	36308454	Asked but unknown	LOINC	
Sexual Orientation	46235214	LOINC	45877986	Unknown	LOINC	
Sexual Orientation	46235214	LOINC	45878142	Other	LOINC	
Race or Ethnicity	3050381	LOINC	See **Note 9** listed below for value mappings	Race or Ethnicity		

Note 1:

For DRG, use the following logic:

- The DRG value must be three digits as text put into `value_as_string` in observation
- For all DRGs, set `observation_concept_id = 3040464` (hospital discharge DRG)
- To obtain correct `value_as_concept_id` for the DRG:
  - If the date for the DRG < 10/1/2007, use `select * from concept where concept_class_id = 'DRG' and valid_end_date = '2007-09-30' and invalid_reason = 'D'` and the DRG value=CONCEPT.concept_code to query the CONCEPT table for correct concept_id to use as `value_as_concept_id`.
  - If the date for the DRG >=10/1/2007, use `select * from concept where concept_class_id = 'MS-DRG' and invalid_reason is null` and the DRG value = CONCEPT.concept_code to query the CONCEPT table for the correct concept_id to use as `value_as_concept_id`.
- If your site has **APR-DRGs** please include these in the observation table. We have requested the APR-DRG vocabulary to be incorporated as apart of the OMOP standard vocabulary.
- Please use the following in the `qualifier_concept_id`:
  - Primary/Principal: concept_id = 4269228
  - Secondary: concept_id = 4093903

  If you are unable to distinguish between primary and secondary DRG type. Please map to the following:

  - Secondary: concept_id = 4093903

  If none are correct, use concept_id = 0.

Note 2:

- For each inpatient encounter, or in some cases the outpatient encounter, there can be 1 discharge status and 1 or more DRG (May not be 1:1 if patients still admitted (therefore no discharge disposition, discharge details or DRG yet))
- There should **NOT** be discharges without admission.

Note 3:

Please provide tobacco information from the primary source of data capture at your site. 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.

Below are examples of how the observation table and the fact_relationship table would be populated for tobacco, smoking, and tobacco type scenarios. In the case where tobacco information is recorded at a visit but there is missing information for tobacco, smoking, or tobacco type please assert. The PEDSnet standard relationship concept id for linking tobacco items will be *0*. This concept id was chosen as there was not a specific concept id that exists in the standard vocabulary that adequately defined an appropriate relationship for linking the tobacco items.

Example 1: Patient 1 smokes 5 cigarettes per day and does not use non-smoked tobacco

Observation table:

Observation_id	Person_id	Observation_concept_id	Value_as_concept_id
0001	1	4005823	4005823
0002	1	4219336	4282779
0003	1	4275495	762498

Fact relationship:

Domain_concept_id_1	Fact_id_1	Domain_concept_id_2	Fact_id_2	relationship_concept_id
27	0001	27	0002	0
27	0001	27	0003	0

Example 2: Patient 2 smokes 25-40 cigarettes per day and also chews tobacco

Observation table:

Observation_id	Person_id	Observation_concept_id	Value_as_concept_id
0004	2	4005823	4005823
0005	2	4219336	4282779
0006	2	4219336	4219234
0007	2	4275495	762499

Fact relationship:

Domain_concept_id_1	Fact_id_1	Domain_concept_id_2	Fact_id_2	relationship_concept_id
27	0004	27	0005	0
27	0004	27	0006	0
27	0004	27	0007	0

For more examples, or if you have a specific scenario that you have a question about, please contact the DCC.

Note 4:

For delivery mode, if you are unable to discern between elective (concept_id = 4212794) and emergency (concept_id = 4250010) cesarean, please default to the born by cesarean section (concept_id = 4192676).

Note 5:

To capture health care workers (HCW), create a record in the observation table using the following concept_ids:

- `observation_concept_id = 756083` (Suspected exposure to severe acute respiratory syndrome coronavirus 2)
- `value_as_concept_id = 756046` (Person Employed as a Healthcare Worker)

Please see the example below for formatting guidelines (with required fields):

observation table field	value
person_id	`1234`
observation_concept_id	`756083`
osbervation_date	`Date of suspected exposure (if known) or best estimate`

observation table field	value
observation_type_concept_id	38000280
value_as_concept_id	756046

Patients may be identified as having COVID-19 using outside sources (e.g. a site registry, outside lab testing). Because of this diagnosis or testing data may not be available during the ETL.

To identify these patients, create a record in the observation table using the following concept_ids:

- observation_concept_id = 756083 (Suspected exposure to severe acute respiratory syndrome coronavirus 2)
- value_as_concept_id = 44802454 (Information external to care setting)

observation table field	value
person_id	1234
observation_concept_id	756083
osbervation_date	Date of suspected exposure (if known) or best estimate
observation_type_concept_id	38000280
value_as_concept_id	44802454

Note 6:

The chief complaint is often a free text or non-structured field in source systems without any standard terminology. To record this kind of chief complaint for the patient, please use the following observation_concept_id to insert a record into the **observation** table:

observation_concept_id	concept_name
42894222	EHR Chief Complaint

Please make an effort to redact any potential PHI.

We recognize that chief complaint as defined above may not be available.

Note 7:

To record Improve Care Now (IBD) Survey Elements, use guidance here to determine how survery questions and answers should be mapped.

The elements captured will correspond to the following IBD related outcomes:

- Pediatric Crohn's Disease Activity Index (PCDAI)
- Pediatric Ulcerative Colitis Activity Index (PUCAI)
- Physician Global Assessment (PGA)
- Chron's Disease Phenotype
- Extent of Macroscopic Lower GI Disease

Note 8:

In order to ease the burden of identifying and extracting a multitude of Social Determinants of Health (SDOH) and Patient Reported Outcome (PRO) survey information (survey names, questions, and answers), sites are encouraged to only extract and submit the raw, unmapped survey information via the observation_source_value and value_source_value fields. When received, the PEDSnet DCC will attempt to map the source values to standard pedsnet concepts.

Please see the linked csv files below for the full lists of Social Determinants of Health (SDOH) and Patient Reported Outcome (PRO) survey questions to identify and extract from source EHR systems. Sites are not expected to have representation for all surveys and questions in their source EHR system.

- SDOH Surveys
- PRO PROMIS Surveys

Sites are also **encouraged not to modify any code** for surveys that have already been mapped to standard concepts for previous PEDSnet versions (such as PHQ-2, PHQ-9, Hunger Vital Signs, and Food Insecurity).

The PEDSnet DCC will attempt to map any observation record that meets the following conditions:

1. observation_type_concept_id = 32862 (Patient filled survey)
2. observation_concept_id = 0 (Unmapped)

See below for how sites should populate raw values into the observation table:

Field	Site Responsibility	PEDSnet DCC Responsibility
observation_concept_id	Set observation_concept_id = 0	DCC will use observation_source_value to map the raw question name to a standard LOINC concept (if applicable).

Field	Site Responsibility	PEDSnet DCC Responsibility
observation_source_concept_id	Leave NULL	DCC will use observation_source_value to map the raw survey name to a standard LOINC concept (if available and applicable).
observation_source_value	Please include the question text and the name of the survey that the question belongs to (if available), separated by a pipe delimiter when concatenating. For Example: Question Text | Survey Name	
observation_type_concept_id	Set observation_type_concept_id = 32862 (Patient filled survey)	
value_source_value	Raw answer to the survey question. • If a numerical response is expected (such as number of days, raw score, t-score, etc.), then populate with the numerical value cast as a string. • If a text response is expected, then populate with the corresponding text value. • If a text response is expected, but only an integer answer exists, there may be a ZC category list table that can be joined to in order to obtain the integer's corresponding text value. In such cases, concatenate the text response with the integer response cast to a string and separate with a pipe delimeter. For Example: Text Answer | Integer Answer	
value_as_concept_id	Leave NULL	DCC will use the values from value_source_value to map the raw answer text to a standard LOINC concept (if applicable).
value_as_string	Leave NULL	DCC will extract text from value_source_value to populate.
value_as_number	Leave NULL	DCC will extract any numerical values from value_source_value to populate.

For additional help on where and how to extract these surveys, the SDOH Surveys and PRO PROMIS Surveys files include columns indicating where pilot sites found these surveys in their source system.

Note 9:

For cases where a patient in the person table has race_concept_id = 44814659 for "Multiple Races":

- Insert 1 record for each selected race category where observation_concept_id = 3050381 ("Race or Ethnicity") and value_as_concept_id equals the concept_id representing the individual category.
- Accepted concepts can be found via select * from concept where vocabulary_id in ("Race","Ethnicity")
- If date of encounter is available for the race and ethnicity information, use that date to populate observation_date. Otherwise, set observation_date = patient's birth date

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
observation_id	Yes	Yes	BigInteger	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	Yes	BigInteger	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.	
observation_concept_id	Yes	Yes	Integer	A foreign key to the standard observation concept identifier in the Vocabulary.	Lab results and vitals are not stored in this table but are stored in the Measurement table. For any records representing unmapped SDOH or PRO survey question results, set to 0
observation_date	Yes	Yes	Date	The date of the observation.	No date shifting.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
observation_datetime	No	Provide When Available	Datetime	The time of the observation.	No date shifting. Full date and time. If there is no time associated with the date assert midnight.
observation_type_concept_id	Yes	Yes	Integer	A foreign key to the predefined concept identifier in the Vocabulary reflecting the type of the observation.	For the PEDSnet CDM, for any records representing unmapped SDOH or PRO survey question results, set to concept_id = 32862 (Patient filled survey). For any other observation record, set to concept_id = 38000280 (observation recorded from EMR).
value_as_number	No (see convention)	Provide When Available	Float	The observation result stored as a number. This is applicable to observations where the result is expressed as a numeric value.	Value must be represented as at least one of {value_as_number, value_as_string or values_as_concept_id} unless record represents an unmapped SDOH or PRO survey question answer.
value_as_string	No (see convention)	Provide When Available	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 {value_as_number, value_as_string or values_as_concept_id} unless record represents an unmapped SDOH or PRO survey question answer.
value_as_concept_id	No (see convention)	Provide When Available	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 {value_as_number, value_as_string or values_as_concept_id} unless record represents an unmapped SDOH or PRO survey question answer.
qualifier_concept_id	No	Provide When Available	Integer	A foreign key to standard concept identifier for a qualifier (e.g severity of drug-drug interaction alert)	Valid concept_ids found in CONCEPT table `select * from concept where domain_id='Observation' and concept_class_id ='Qualifier Value'` For **DRG VALUES**, please use the following: • Primary/Principal: concept_id = 4269228 • Secondary: concept_id = 4093903 If you are unable to distinguish between primary and secondary DRG type. Please map to the following: • Secondary: concept_id = 4093903 If none are correct, use concept_id = 0.
unit_concept_id	No	Provide When Available	Integer	A foreign key to a standard concept identifier of observation units in the Vocabulary.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT `select * from concept where domain_id='Unit' and vocabulary_id ='UCUM'`

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					If none are correct, use concept_id = 0.
provider_id	No	Provide When Available	BigInteger	A foreign key to the provider in the provider table who was responsible for making the observation.	
visit_occurrence_id	No	Provide When Available	BigInteger	A foreign key to the visit in the visit table during which the observation was recorded.	
observation_source_value	Yes	Yes	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.	If record represents an unmapped SDOH or PRO survey question, please include the question text and the name of the survey that the question belongs to (if available), separated by a pipe delimiter when concatenating. For Example: `Question Text | Survey Name`
observation_source_concept_id	No	Provide When Available	Integer	A foreign key to a concept that refers to the code used in the source.	**If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
unit_source_value	No	Provide When Available	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.	
qualifier_source_value	No	Provide When Available	Varchar	The source value associated with a qualifier to characterize the observation	For DRG Values, please populate information pertaining to "Primary" or "Secondary" DRG Status as it corresponds to the concept id value at your site.
value_source_value	Yes	Provide When Available	Varchar	The source value associated with the actual observation in the source	Source value should be represented as at least one of {value_as_number, value_as_string or values_as_concept_id}.

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

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 the PEDSnet CDM, 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 data model. 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. This logic can be found here

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
observation_period_id	Yes	Yes	BigInteger	A system-generate unique identifier for each observation	This is not a value found in the EHR. Sites may choose to use a

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				period	sequential value for this field.
person_id	Yes	Yes	BigInteger	A foreign key identifier to the person for which the observation period is recorded. The demographic details of that person are stored in the person table.	
observation_period_start_date	Yes	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_period_end_date	Yes	Yes	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.
observation_period_start_time	Yes	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 for the start time**
observation_period_end_time	Yes	Yes	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, or if there is no time associated with the date assert 23:59:59 for the end time**.
period_type_concept_id	Yes	Yes	Integer	A foreign key for the period type for each observation period record.	

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

1.10.1 Additional Notes

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

1.11 DRUG_EXPOSURE

The drug exposure domain captures any biochemical substance that is introduced in any way to a patient. This can be evidence of a medication that was prescribed, over the counter, administered (IV, intramuscular, etc), dispensed, patient reported, or externally reported. 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_drug_dose is the dose basis (E.g. 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, provide the dose information available for the medication.

The dose_unit_concept_id is the unit of the effective dose.

Please use the following logic to populate the effective_drug_dose and dose unit based on what is available in your source system:

Site Information	Effective_drug_dose	Dose_unit_concept_id	Dose_unit_source_value
Dose Basis (calcualted effective dose) Available (E.g. 90 mg/kg)	90	Corresponding concept for unit (E.g. mg/kg = 9562)	mg/kg
Only Dose Avaiable (E.g. 450 mg))	450	Corresponding Concept for unit (E.g. mg = 8576)	mg
No discrete dosing information		0	

Note 2:

The quantity is the actual dose given (e.g. 450 mg for 10 kg patient). Extract numbers as much as possible , full value should be a part of the xml sig field.

Note 3:

For dispensing records, provide the dose basis if available. Otherwise provide the dose information.

Note 4:

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 5:

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. BPCK (Branded Pack)
2. GPCK (Clinical Pack)
3. SBD (Branded Drug, Quant Branded Drug)
4. SCD (Clinical Drug, Quant Clinical Drug)
5. SBDF (Branded Drug Form)
6. SCDF (Clinical Drug Form)
7. MIN (Ingredient)
8. SBDC
9. SCDC
10. PIN (Ingredient)
11. IN (Ingredient)

Note 6:

For medication administration events, model each event as a separate drug_exposure record.

If the medication administration event is an **intravenous fluid administration** (particularly continuous infusions and boluses), extract **ALL** MAR Actions for the event and model each action as a separate drug_exposure record.

- Include actions for stops and pauses
- Set effective_drug_dose and eff_drug_dose_source_value to the Infusion Rate on the action.
- Set the dose_unit_concept_id and dose_unit_source_value as the Rate Unit (Volume / Time)
- Include an identifier for the drug order that the action is within as well as the MAR Action Name in the drug_source_value (see Note 7 for more details)
- Use drug_type_concept_id = 2000001594

See Continuous IV Fluid Volume Guidance for further details and specifications.

Note 7:

Please use the following table as a guide to determine how to populate the drug_source_value, drug_source_concept_id and drug_concept_id for Drug Exposure Values

You have in your source system	Drug_source_value	Drug_source_concept_id	Drug_concept_id
Drug code is GPI/Multum/Other code	• GPI/Multum/Other Code • Local name | GPI/Multum/Other (any above are OK)	OMOP's concept_id for GPI/Multum/Other code	RxNorm code that corresponds to a mapping from `concept_relationship`
Drug code is RxNorm	• RxNorm Code • Local name or • Local name | RxNorm code (any above are OK)	Corresponding RxNorm concept_id mapping	Corresponding RxNorm concept_id mapping

In cases where the drug record represents a MAR Action of an inpatient intravenous fluid administration (`drug_type_concept_id` = `2000001594`):

- Please also concatenate the identifier (or generated id) for the drug order (ORDER_MED_ID) and the MAR Action Name to the `drug_source_value`, separated by pipe delimeters.
- That way, MAR actions for the same ordered bag can be linked.
- The `drug_source_value` should be formatted as follows in such cases:

  `Identifier for drug order | MAR action name | Local Drug Code | Local Drug Name`
- For Example: `med_id=200100074|New Bag|372000|FUROSEMIDE IV INFUSION-FUROSEMIDE 10 MG/ML (UNDILUTED) INJECTION`

Note 8:

Please make an effort to include the inpatient medication order in the drug_exposure table, and ***if*** able to, please link these orders using the fact relationship table. Below is an example of how to do so:

Example: Person_id = 12345 during their inpatient stay (visit_occurrence_id = 678910) had a medication order for Diazepam Oral Soln 1 MG/ML and it was administered 3 times (every 12 hours).

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

drug_exposure_id	Person_id	Visit_occurrence_id	drug_concept_id	drug_type_concept_id	effective_drug_dose
1111	12345	678910	19076372	581373 (Physician Administered-EHR Order)	0.12
1112	12345	678910	19076372	38000180 (Inpatient Administration)	0.12
1113	12345	678910	19076372	38000180 (Inpatient Administration)	0.12
1114	12345	678910	19076372	38000180 (Inpatient Administration)	0.12

- drug_type_concept_id for Inpatient Medication Order = 581373 (Physician administered drug (identified from EHR order))
- drug_type_concept_id for Inpatient Administration= 38000180 (Inpatient Administration)

To link these two values, use the fact relationship table (**OPTIONAL FOR PEDSnet CDM**):

Domain_concept_id_1	fact_id_1	Domain_concept_id_2	fact_id_2	relationship_concept_id
Drug	1111	Drug	1112	Occurrence of
Drug	1111	Drug	1113	Occurrence of
Drug	1111	Drug	1114	Occurrence of
Drug	1112	Drug	1111	Subsumes
Drug	1113	Drug	1111	Subsumes
Drug	1114	Drug	1111	Subsumes

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

Domain_concept_id_1	fact_id_1	Domain_concept_id_2	fact_id_2	relationship_concept_id
13	1111	13	1112	44818848
13	1111	13	1113	44818848
13	1111	13	1114	44818848
13	1112	13	1111	44818723
13	1113	13	1111	44818723

Domain_concept_id_1	fact_id_1	Domain_concept_id_2	fact_id_2	relationship_concept_id
13	1114	13	1111	44818723

Note 9:

For externally sourced drug information such as

- Self Reported Drug History: `drug_type_concept_id = 32865`
- Prescription Dispensed in Pharmacy: `drug_type_concept_id = 38000175`
- Drug Sourced from a Health Information Exchange: `drug_type_concept_id = 32849`
- Drug Sourced from Claims: `drug_type_concept_id = 32810`

In order to clarify when the patient received or used the drug versus when drug was recorded or linked to the EHR system:

- Set `drug_exposure_order_date/datetime` to the date in which the drug was recorded in the EHR system.
- Set `drug_exposure_start_date/datetime` and `drug_exposure_end_date/datetime` to the date range in which the drug was reported to be taken by the patient.
- Leave `drug_exposure_end_date/datetime` NULL if no end date is specified.
- If the drug record does not specify a date range or start date, then also set `drug_exposure_start_date/datetime` to the date in which the drug was recorded in the EHR system.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
`drug_exposure_id`	Yes	Yes	BigInteger	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	Yes	BigInteger	A foreign key identifier to the person for whom the drug data is recorded. The demographic details of that person are stored in the person table.	
`drug_concept_id`	Yes	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 5. See also Note 7 for additional information.
`drug_exposure_start_date`	Yes	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.	If the start date of the drug is null in the source system, use the ordering date or the date date that the drug was recorded in the source EHR system. No date shifting.
`drug_exposure_end_date`	No	Provide When Available	Date	The end date of the utilization of the drug	No date shifting.
`drug_exposure_order_date`	No	Provider When available	Date	The order date of the drug, or the date that the drug was recorded in the source EHR system.	No date shifting.
`drug_exposure_start_datetime`	Yes	Yes	Datetime	The start date and time of the utilization of the	**If there is no time associated with the date assert midnight for the start time**

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				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.	
drug_exposure_end_datetime	No	Provide When Available	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 23:59:59 for the end time**
drug_exposure_order_datetime	No	Provider When available	Datetime	The order date and time of the drug or the date that the drug was recorded in the source EHR system.	If the start datetime of the drug is null in the source system, use the ordering datetime as the start datetime. No date shifting.Full date and time. **If there is no time associated with the date assert midnight for the start time**
drug_type_concept_id	Yes	Yes	Integer	A foreign key to a standard concept identifier of the type of drug exposure in the Vocabulary as represented in the source data	Use the following concept_ids to distinguish the type of drug record: • Prescription written: 38000177 • Inpatient Medication Order: 581373 • Inpatient administration: 38000180 • MAR Action of inpatient intravenous fluid administration: 2000001594 • Prescription dispensed in pharmacy: 38000175 • Health Information Exchange: 32849 • Patient self-report: 32865 • Claims: 32810
stop_reason	No	Provide When Available	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	Provide When Available	Integer	The number of refills after the initial prescription	Extract numbers as much as possible , full value should be a part of the xml sig field.
quantity	No	Provide When Available	Integer	The quantity of the drugs as recorded in the original prescription or dispensing record	See Note 2. Extract numbers as much as possible , full value should be a part of the xml sig field.
days_supply	No	Provide When Available	Integer	The number of days of supply the medication as recorded in the original prescription or dispensing record	
sig	No	Provide When Available	CLOB (XML Structure)	The directions on the drug prescription as recorded in the original prescription (and printed on the	See Note 4

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				container) or the dispensing record	
route_concept_id	No	Provide When Available	Integer	A foreign key that refers to a standard administration route concept identifier in the Vocabulary.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT `select * from concept where domain_id='Route' and invalid_reason is null` • Within the set of valid concept ids, duplicates may exist. If this is the case, use the standard concept (standard_concept='S') first for mapping and then the non-standard concept for all other cases If none are correct, use concept_id = 0.
effective_drug_dose	No	Provide When Available	Float	Numerical value of drug dose for this drug_exposure record	See Note 1
eff_drug_dose_source_value	No	Provide When Available	Varchar	The drug dose for this drug_exposure record as it appears in the source	
dose_unit_concept_id	No	Provide When Available	Integer	A foreign key to a predefined concept in the Standard Vocabularies reflecting the unit the effective drug_dose value is expressed	**See Note 1** Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where vocabulary_id = 'UCUM'`
lot_number	No	Site preference	Varchar	An identifier to determine where the product originated	
provider_id	No	Provide When Available	BigInteger	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.
visit_occurrence_id	No	Provide When Available	BigInteger	A foreign key to the visit in the visit table during which the drug exposure initiated.	See VISIT_OCCURRENCE.visit_occurrence_id (primary key)
drug_source_value	Yes	Yes	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. Please use the pipe delimiter "|" when concatenating values. See Note 7.
drug_source_concept_id	No	Provide When Available	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. See Note 7. **If there is not a mapping for the source code in the standard vocabulary, use**

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					concept_id = 0
route_source_value	No	Provide When Available	Varchar	The information about the route of administration as detailed in the source	
dose_unit_source_value	No	Provide When Available	Varchar	The information about the dose unit as detailed in the source	
frequency	No	Optional	Varchar	The frequency information as available from the source	
dispense_as_written_concept_id	No	Optional	Integer	A foreign key to value in the source for that determines if the medication is to be dispensed as written	Please use the following: • Yes=4188539 • No=4188540 • No Information: concept_id = 44814650 vocabulary_id='PCORNet') • Unknown: concept_id = 44814653 • Other: concept_id = 44814649 If none are correct, use concept_id = 0.

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

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

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
- Temperature in degrees Celsius
- Head Circumference in cm (use numeric precision as recorded in EHR)
- BIRTH Height/length in cm (use numeric precision as recorded in EHR)
- BIRTH Height/length type
- BIRTH Weight in kg (use numeric precision as recorded in EHR)
- BIRTH Head Circumference in cm (use numeric precision as recorded in EHR)
- Forced Vital Capacity (FVC) in liters
- FVC pre (if recorded differently) in liters
- FVC post in liters
- FEV 1 in liters
- FEV 1 pre (if recorded differently) in liters
- FEV 1 post in liters
- FEF 25-75 in liters per minute
- FEF 25-75 pre (if recorded differently) in liters per minute
- FEF 25-75 post in liters per minute
- Peak Flow (PF) in milliteres per second
- Peak Flow post in milliteres per second
- Body mass index in kg/m^2 (extracted only if height and weight are not present)
- Systolic blood pressure in mmHg
    - Where multiple readings are present on the same encounter, create measurement records for **ALL** readings

- Diastolic blood pressure in mmHg
    - Where multiple readings are present on the same encounter, create measurement records for **ALL** readings
- Blood pressure position is described by the selection of a concept_id that contains the BP position as describe below. For example, in Table 1, concept_id 3018586 is Systolic Blood Pressure, Sitting. This concept_id identifies both the measurement (Systolic BP) and the BP position (sitting).
- Invasive Mean arterial pressure (MAP)
- Non - Invasive Mean arterial pressure (MAP)
- Heart Rate
- Oxygen Saturation (SpO2)
- Respiration Rate
- Vital source
- Inspired oxygen concentration (FiO2)
- Peripheral oxygen saturation/fraction of inspired oxygen(SpO2/FiO2)
- Body Surface Area (BSA)
- Pain scores
- All available component Level Labs. The Lab Listing and PEDSnet LOINC Mapping can be found here

Exclusions:

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

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

Domain id	Measurement concept ID	Vocab ID	Value as concept ID	Concept description
Vital	3013762	LOINC	See Note 1	Weight
Vital	3023540	LOINC	See Note 1	Height
Vital	21490852	LOINC	See Note 1	Invasive Mean arterial pressure (MAP)
Vital	21492241	LOINC	See Note 1	Non-Invasive Mean arterial pressure (MAP)
Vital	3027018	LOINC	See Note 1	Heart Rate
Vital	40762499	LOINC	See Note 1	Oxygen Saturation (SpO2)
Vital	3024171	LOINC	See Note 1	Respiration Rate
Vital	3038553	LOINC	See Note 3	BMI kg/m^2
Vital	3034703	LOINC	See Note 2	Diastolic Blood Pressure - Sitting
Vital	3019962	LOINC	See Note 2	Diastolic Blood Pressure - Standing
Vital	3013940	LOINC	See Note 2	Diastolic Blood Pressure - Supine
Vital	3012888	LOINC	See Note 2	Diastolic BP Unknown/Other
Vital	3018586	LOINC	See Note 2	Systolic Blood Pressure - Sitting
Vital	3035856	LOINC	See Note 2	Systolic Blood Pressure - Standing
Vital	3009395	LOINC	See Note 2	Systolic Blood Pressure - Supine
Vital	3004249	LOINC	See Note 2	Systolic BP Unknown/Other
Vital	2000000041	PEDSnet	See Note 3	Weight for age z score NHANES
Vital	2000000042	PEDSnet	See Note 3	Height for age z score NHANES
Vital	2000000043	PEDSnet	See Note 3	BMI for age z score NHANES
Vital	3020891	LOINC	See Note 1	Temperature
Vital	3001537	LOINC	See Note 1	Head Circumference
Lab	3020158	LOINC	See Note 1	FVC
Lab	3037879	LOINC	See Note 1	FVC pre (if recorded differently)
Lab	3001668	LOINC	See Note 1	FVC post
Lab	3024653	LOINC	See Note 1	FEV 1
Lab	3005025	LOINC	See Note 1	FEV 1 pre (if recorded differently)
Lab	3023550	LOINC	See Note 1	FEV 1 post
Lab	42868460	LOINC	See Note 1	FEF 25-75
Lab	42868461	LOINC	See Note 1	FEF 25-75 pre (if recorded differently)
Lab	42868462	LOINC	See Note 1	FEF 25-75 post

Domain id	Measurement concept ID	Vocab ID	Value as concept ID	Concept description
Lab	3023329	LOINC	See Note 1	Peak Flow (PF)
Lab	2000000064	PEDSnet	See Note 1	Peak Flow post
Vital	3013762	LOINC	See Note 7	BIRTH Weight
Vital	3023540	LOINC	See Note 7	BIRTH Height
Vital	3001537	LOINC	See Note 7	BIRTH Head Circumference
Vital	3020716	LOINC	See Note 1	Inspired oxygen concentration (FiO2)
Vital	2000001422	PEDSnet	See Note 1	Peripheral oxygen saturation/fraction of inspired oxygen(SpO2/FiO2)
Vital	3005424	LOINC	See Note 1	Body surface area (BSA)
Measurement Type	44818704	Measurement Type	See Note 3	Patient reported
Measurement Type	2000000032	PEDSnet	See Note 3	Vital sign from device direct feed
Measurement Type	2000000033	PEDSnet	See Note 3	Vital sign from healthcare delivery setting
Measurement Type	44818702	Measurement Type	See Note 4	Clinical and Laboratory Results
Vital	4101694	SNOMED	See Note 1	Peak inspiratory pressure
Vital	44782827	SNOMED	See Note 1	Expiratory tidal volume

Note 1: For height, weight, temperature, head circumference, BMI, Pulmary Function, heart rate, oxygen saturation, respiratory rate, FiO2, SpO2/FiO2 ratio, mean arterial pressure (MAP), Body Surface Area (BSA), Peak inspiratory pressure and Expiratory tidal volume measurements insert the recorded measurement into the `value_as_number` 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: Person_id = 12345 on visit_occurrence_id = 678910 had orthostatic blood pressure measurements performed in the healthcare delivery setting as follows:

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

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

Measurement_id	Person_id	Visit_occurrence_id	Measurement_concept_id	Measurement_type_concept_id	Value_as_number	Value_as_c
66661	12345	678910	3009395	2000000033	120	
66662	12345	678910	3013940	2000000033	60	
66663	12345	678910	3035856	2000000033	144	
66664	12345	678910	3019962	2000000033	72	

- Measurement_concept_id = 3009395 = systolic BP - supine; measurement_concept_id = 3013940 = diastolic BP supine
- Measurement_concept_id = 3035856 = systolic BP standing; measurement_concept_id = 3019962 = diastolic BP standing
- measurement_type_concept_id = 2000000033 (Vital Sign from healthcare delivery setting).

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

Domain_concept_id_1	fact_id_1	Domain_concept_id_2	fact_id_2	relationship_concept_id
Measurement	66661	Measurement	66662	Associated with finding
Measurement	66662	Measurement	66661	Associated with finding
Measurement	66663	Measurement	66664	Associated with finding
Measurement	66664	Measurement	66663	Associated 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:

Domain_concept_id_1	fact_id_1	Domain_concept_id_2	fact_id_2	relationship_concept_id
21	66661	21	66662	44818792
21	66662	21	66661	44818792
21	66663	21	66664	44818792
21	66664	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: The following measurements are derived via the DCC and do not need to be supplied by sites:

- Body mass index in kg/m^2 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.

Note 4: PCORI has requested that sites provide all labs available.

- Sites will determine what labs constitute "all labs" at their site. There is no obligation to go outside your main lab result system or source tables.
- Sites will not send text labs that potentially contain PHI in the source value.

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.

As a general rule, first map to the PEDSnet standard LOINC list for corresponding labs in the network listing. If the lab does not exist in the network listing, send local LOINC code where available. If there is no local LOINC code available, map to zero for the `measurement_concept_id`

Note 5: For lab results, please include the closest result to the **final** result available at the time of your extraction from the source.

You have in your source system	Network Listing Lab	Measurement_source_value	Measurement_source_concept_id	measurement_concept_id
Lab code is institutional-specific code (not CPT/not LOINC)	**Yes**	• Local code or • Local name or • Local name | Local code (any above are OK)	0 (zero)	PEDSnet LOINC code's concept_id (provided by DCC)
Lab code is CPT code	**Yes**	• CPT Code • Local name or • Local name |CPT code (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	**Yes**	• LOINC Code • Local name or • Local name | LOINC code (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	**No**	Same as above	OMOP's concept_id for your LOINC code	OMOP's concept_id for your LOINC code
Lab code is LOINC code (and not a part of Network Lab listing)	**No**	• LOINC Code • Local name or • Local name | LOINC code (any above are OK)	OMOP's concept_id for your LOINC code	OMOP's concept_id for your LOINC code
Lab code is institutional-specific code (not CPT/not LOINC)	**No**	• Local code or • Local name or • Local name | Local code (any above are OK)	0 (zero)	0 (zero)
Lab code is CPT code	**No**	• CPT Code • Local name or • Local name |CPT code	OMOP's concept_id for CPT code	0 (zero)

You have in your source system	Network Listing Lab	Measurement_source_value	Measurement_source_concept_id	measurement_concept_id
		(any above are OK)		

Note 6: Please use the following table as a guide to determine how to populate the `range_low`,`range_low_source_value`,`range_low_operator_concept_id`, `range_high`, `range_high_source_value` and `range_low_operator_concept_id` for lab values

You have in your source system	range high/ range low	range high source value / range low source value	range low/high operator concept id
Numerical value `Examples: 7,8.2,100`	Numerical Value `Examples: 7,8.2,100`	Numerical value `Examples: 7,8.2,100`	4172703
Limits `Examples: <2, >100, less than 5`	Numerical Value of the limit `Examples: 2, 100, 5`	Limits `Examples: <2, >100, less than 5`	Corresponding concept to the modifier `Examples:4171756,4172704,4171756`
Categorical/Qualitative Value `Examples: HIGH,LOW,POSITIVE,NEGATIVE`		Categorical/Qualitative Value `Examples: HIGH,LOW,POSITIVE,NEGATIVE`	0

Note 7: For BIRTH height, weight and head cirucmference records please use the `measurement_type_concept_id` = 44818704.

Note 8: Starting in v6.2, please include the following pain scores in the measurement table if available at your site:

- Numeric pain score
- FLACC (Face, Legs, Activity, Cry, Consolability) total score
- FLACC component scores, if available
- (Wong-Baker) FACES pain scale

Pain Score	measurement_concept_id	measurement_type_concept_id	value_as_number	measurement_source_value	value_source_value
Numeric Pain Score	37151627	44818701	[0-10]	The pain scale display name as it appears in flowsheets	The source value representing the result
Wong-Baker FACES**	3035486	44818701	[0-10]	The pain scale display name as it appears in flowsheets	The source value representing the result
FLACC total score	3036118	44818701	[0-10]	The pain scale display name as it appears in flowsheets	The source value representing the result
FLACC Face	3034302	44818701	[0-2]	The pain scale display name as it appears in flowsheets	The source value representing the result
FLACC Legs	3037050	44818701	[0-2]	The pain scale display name as it appears in flowsheets	The source value representing the result
FLACC Activity	3037008	44818701	[0-2]	The pain scale display name as it appears in flowsheets	The source value representing the result
FLACC Cry	3034255	44818701	[0-2]	The pain scale display name as it appears in flowsheets	The source value representing the result
FLACC Consolability	3036142	44818701	[0-2]	The pain scale display name as it appears in flowsheets	The source value representing the result
Other Pain Score	4022240	44818701		The pain scale display name as it appears in flowsheets	The source value representing the result

In addition to the fields specified in the table above, the following are expected to be non-NULL as per PEDSnet ETL conventions:

- measurement_id
- person_id
- measurement_date
- measurement_datetime (assert midnight if unavailable)

If additional versions or qualifiers exist for a single `measurement_concept_id` in the table above, please make your best guess at a single `measurement_concept_id` and include the full name for the score in the `measurement_source_value` so study teams can differentiate if needed.

** If your site implements a different (not Wong-Baker) FACES pain scale, please map it to the Wong-Baker FACES pain scale `measurement_concept_id` and include the full name for the score in `measurement_source_value`

If the result of a pain score is recorded as 0/indicating lack of pain, please include the score with a `value_as_number` of 0. It is known that some systems will not prompt for a score if no pain is present. Please leave `value_as_number` empty if you are able to discern whether a patient has declined assessment or similar.

All pain scores are expected to have something in `value_source_value`. If the result is a numeric value with an operator, include both the numeric value and operator. If the result is stored as text (e.g. "moderate"), just submit the text in the `value_source_value` field. You do not need to map the term to a `value_as_concept_id`, but please ensure the raw pain score result is included here.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
`measurement_id`	Yes	Yes	BigInteger	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	Yes	BigInteger	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.	
`measurement_concept_id`	Yes	Yes	Integer	A foreign key to the standard measurement concept identifier in the Vocabulary.	Valid Measurement concepts belong to the "Measurement" domain. Measurement concepts are based mostly on the LOINC vocabulary, with some additions from SNOMED-CT. 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. There are three Standard Vocabularies defined for measurements: Laboratory tests and values: Logical Observation Identifiers Names and Codes (**LOINC**) (Vocabulary_id=LOINC). (FYI: Regenstrief also maintains the **"LOINC Multidimensional Classification"** Vocabulary_id=LOINC Hierarchy) Qualitative lab results: A set of SNOMED-CT Qualifier Value concepts (vocabulary_id=SNOMED) Laboratory units: Unified Code for Units of Measure (**UCUM**( )Vocabulary_id=UCUM) All other findings and observables: SNOMED-CT (Vocabulary_id=SNOMED). For vital signs, pull information from flow sheet rows (EPIC sites only). For lab values, please see Note 4.
`measurement_date`	Yes	Yes	Date	The date of the measurement.	For lab orders, this should be the specimen collection time. No date shifting.
`measurement_datetime`	Yes	Yes	Datetime	The time of the measurement.	For lab orders, this should be the specimen collection time. No date shifting. Full date and time. If there is no time associated with the date assert midnight.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
measurement_order_date	No	Provide When Available	Date	This field applies to Lab Orders only. This is the date the lab was ordered in the source.	No date shifting.
measurement_order_datetime	No	Provide When Available	Datetime	This field applies to Lab Orders only. This is the time the lab was ordered in the source.	No date shifting. Full date and time. If there is no time associated with the date assert midnight.
measurement_result_date	No	Provide When Available	Date	This field applies to Lab Orders only. This is the date the lab resulted in the source.	No date shifting.
measurement_result_datetime	No	Provide When Available	Datetime	This field applies to Lab Orders only. This is the time the lab resulted in the source.	No date shifting. Full date and time. If there is no time associated with the date assert midnight.
measurement_type_concept_id	Yes	Yes	Integer	A foreign key to the predefined concept identifier in the Vocabulary reflecting the type of the measurement.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where vocabulary_id ='Meas Type' or concept_class_id='Meas Type'` Please use the following: • Vital Sign from healthcare delivery setting= 2000000033 • Vital Sign from healthcare device= 2000000032 • Clinical and Laboratory result = 44818702 • Pathology finding = 44818703 • Patient reported value = 44818704 • Derived Value = 45754907
operator_concept_id	No	Provide When Available	Integer	A foreign key identifier to the mathematical operator that is applied to the value_as_number. Operators are <, ≤, =, ≥, >	Valid operator concept id are found in the concept table `select \* from concept where domain_id='Meas Value Operator'` • Operator <= : 4171754 • Operator >= : 4171755 • Operator < : 4171756 • Operator = : 4172703 • Operator > : 4172704
value_as_number	No (see convention)	Provide When Available	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 {value_as_number or values_as_concept_id}.
value_as_concept_id	No (see convention)	Provide When Available	Integer	A foreign key to a measurement result stored as a concept identifier. This is applicable to measurements where the result can be expressed as a standard concept from the Vocabulary (e.g.,	Value must be represented as at least one of {value_as_number or values_as_concept_id}. Valid concepts are found in the concept table `select * from concept where domain_id='Meas Value' and concept_class_id='Qualifier Value' and standard_concept='S'`

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				positive/negative, present/absent, low/high, etc.).	
unit_concept_id	No	Provide When Available	Integer	A foreign key to a standard concept identifier of measurement units in the Vocabulary.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where vocabulary_id = 'UCUM'` If none are correct, use concept_id = 0. For the PEDSnet measurements listed above, use the following concept_ids: • Centimeters (cm): concept_id = 8582 • Kilograms (kg): concept_id = 9529 • Kilograms per square meter (kg/m^2): concept_id = 9531 • Millimeters mercury (mmHG): concept_id = 8876 • degree Celsius (C): 8653 • Liters (L): 8519 • Liters per minute (L/min): 8698 • Millliliters per second (mL/sec): 44777614 • Per Min (/min): 8541 • Pecent (%): 8554
unit_source_concept_id	No	Provide When Available	Integer	A foreign key to a concept that refers to the code used in the source for the unit.	This is the concept id that maps to the source value in the standard vocabulary. **If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
range_low	No	Provide When Available	Float	The lower limit of the normal range of the measurement. It is not applicable if the measurement results are non-numeric or categorical, and must be in the same units of measure as the measurement value.	
range_low_source_value	No	Provide When Available	Varchar	The lower limit of the normal range of the measurement as it appears in the source.	See Note 6
range_low_operator_concept_id	No	Optional	Integer	A foreign key to the modifier of lower limit of the normal range of the measurement as it appears in the source as a concept identifier.	See Note 6
range_high	No	Provide When Available	Float	The upper limit of the normal range of the measurement. It is not applicable if the measurement results are non-numeric or categorical, and must be in the same units of measure as the measurement value.	

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
range_high_source_value	No	Provide When Available	Varchar	The upper limit of the normal range of the measurement as it appears in the source.	See Note 6
range_high_operator_concept_id	No	Optional	Integer	A foreign key to the modifier of higher limit of the normal range of the measurement as it appears in the source as a concept identifier.	See Note 6
provider_id	No	Provide When Available	BigInteger	A foreign key to the provider in the provider table who was responsible for making the measurement.	
visit_occurrence_id	No	Provide When Available	BigInteger	A foreign key to the visit in the visit table during which the observation was recorded.	
measurement_source_value	Yes	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. Please use the pipe delimiter "|" when concatenating values. For lab values, please see Note 4.
measurement_source_concept_id	No	Provide When Available	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. **If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
unit_source_value	No	Provide When Available	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 here for reference.	Raw unit value (Ounces,Inches etc) For lab values, please see Note 4.
value_source_value	Yes	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	• For BP values include the raw 'systolic/diastolic' value E.g. 120/60 • If there are transformed values (E.g. Weight,Height, Head Circumference, Pulmonary Function Values and Temperature) please insert the raw data before transformation. For Categorical/Qualitative Lab result values, please use this field to store the raw result from the source.
specimen_concept_id	No	Optional	Integer	This field is applicable for lab values only. A foreign key to a concept that refers to the specimen source.	This is the concept id that maps to the specimen source value in the standard vocabulary. **If there is not a mapping for the source code in the standard vocabulary, use**

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					concept_id = 0 Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where domain_id='Specimen' and vocabulary_id='SNOMED' and concept_class_id='Specimen' and standard_concept='S' and invalid_reason is null` **The specimen_source_value column consists of the "SPECIMEN TYPE|SPECIMEN SOURCE". When mapping using the above mentioned valueset, please attempt to map using the "SPECIMEN TYPE" first. If the "SPECIMEN TYPE" is not available at your site, please map using the "SPECIMEN SOURCE"**
`specimen_source_value`	No	Provide When Available	Varchar	This field is applicable for lab values only. This source value for the specimen source as it appears in the source	Please populate this value as a pipe delimited field "SPECIMEN TYPE|SPECIMEN SOURCE" Eg. "URINE|CATHETER"
`priority_concept_id`	No	Provide When Available	Integer	This field applies to Lab Orders only. A foreign key to a concept that refers to the lab priority as described in the source	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where (domain_id='Procedure' and vocabulary_id='PEDSnet' and concept_class_id='Qualifier Value') or (vocabulary_id='PCORNet' and concept_class_id='Undefined')` Please use the following: • Expedited (includes Today)=2000000059 • STAT (includes ASAP)=2000000060 • Routine = 2000000061 • Timed = 2000000062 • No Information: concept_id = 44814650 vocabulary_id='PCORNet') • Unknown: concept_id = 44814653 • Other: concept_id = 44814649
`priority_source_value`	No	Provide When Available	Varchar	This field applies to Lab Orders only. The lab priority as described in the source	

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

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 the PEDSnet CDM, 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	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
domain_concept_id_1	Yes	Yes	Integer	The concept representing the domain of fact one, from which the corresponding table can be inferred.	Predefined value set: • Visit domain (ED to Inpatient linking) = 8 • Measurement domain (blood pressure linking) = 21 • Observation domain (tobacco linking) = 27 • Drug Domain (Inpatient Medication Orders) = 13 • Person Domain (mother-child linking) = 56
fact_id_1	Yes	Yes	BigInteger	The unique identifier in the table corresponding to the domain of fact one.	
domain_concept_id_2	Yes	Yes	Integer	The concept representing the domain of fact two, from which the corresponding table can be inferred.	Predefined value set: • Visit domain (ED to Inpatient linking) = 8 • Measurement domain (blood pressure linking) = 21 • Observation domain (tobacco linking) = 27 • Drug Domain (Inpatient Medication Orders) = 13 • Person Domain (mother-child linking) = 56
fact_id_2	Yes	Yes	BigInteger	The unique identifier in the table corresponding to the domain of fact two.	
relationship_concept_id	Yes	Yes	Integer	A foreign key to a standard concept identifier of relationship in the Standardized Vocabularies.	Predefined value set: • Occurs before (ED Visit) = 44818881 • Occurs after (Inpatient Visit) = 44818783 • Associated with finding (blood pressures) = 44818792 • Occurrence of (Inpatient Medication Orders = 44818848 • Subsumes (Inpatient Medication Order = 44818723 • No matching concept (tobacco) = 0 • Child to Parent Measurement = 581437

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

1.13.1 Additional Notes

- Blood Pressure Systolic and Diastolic Blood Pressure Values will be mapped using the fact relationship table. See Note 2 in the Measurement section for instructions.

- ER Visits that result in an Inpatient Encounter will be mapped using the fact relationship table. See Additional Notes in the Visit Occurrence section for instructions.
- Tobacco, smoking and tobacco type associations will be mapped using the fact relationship table. See Note 3 in the Observation section for instructions.
- The inpatient medication orders and administrations linking is ***optional***. See Note 8 in the Drug_Exposure section
- Ventilators, Ventilator Settings and Ventilator Measurements will be mapped using the fact relationship table. See the CDM Ventilator Guidance.
- Mother Child relationships will be mapped using the fact relationship table. See Note 3 in the Person section for instructions.

1.14 VISIT_PAYER

The visit payer table documents insurance information as it relates to a visit in visit_occurrence. For this reason the key of this table will be visit_occurrence_id and visit_payer_id. **This table is CUSTOM to PEDSnet.**

Note 1: There can be multiple payers (primary/secondary) for a single visit. If you are able to obtain multiple payer information at your site please populate the visit payer table with this information. If you are not able to obtain secondary or additional payers for your visit occurrences at your site, please populate the primary payer and inform the DCC.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
visit_payer_id	Yes	Yes	BigInteger	A system-generated unique identifier for each visit payer relationship.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field.
visit_occurrence_id	Yes	Yes	BigInteger	A foreign key to the visit in the visit table where the payer was billed for the visit.	
plan_name	Yes	Yes	Varchar	The untransformed payer/plan name from the source data	
plan_type	No	Provide When Available	Varchar	A standardized interpretation of the plan structure	Please only map your plan type to the following categories: • HMO • PPO • POS • Fee for service • Other/Unknown If the categories are unclear, please work with your billing department or local experts to determine how to map plans to these values.
plan_class	Yes	Yes	Varchar	A list of the "payment sources" most often used in demographic analyses	Please map your plan type to the following categories: • Private/Commercial • Medicaid/sCHIP • Medicare • Other public • Self-pay • Other/Unknown Please work with your billing department or local experts to determine how to map plans to these values.
visit_payer_type_concept_id	No	Optional	Integer	A foreign key to a concept that refers to the status of the payer in the source.	This is the concept id that maps to the source value in the standard vocabulary. **If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0** Please use the following concept_ids: • Payer is primary" concept_id = 31968 • Payer is secondary: concept_id = 31969 If you are unable to distinguish between primary and secondary payers. Please map to the following:

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					• Payer is secondary: concept_id = 31969

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

1.14.1 Additional Notes

- If you cannot map your plan to any of the above values for plan_type or plan_class, please map them to Other/unknown, and inform the DCC if the above list of values is not complete or sufficient.

1.15 MEASUREMENT_ORGANISM

The measurement organism table contains organism information related to laboratory culture results in the measurement table. **This table is CUSTOM to PEDSnet.**

Note 1: There can be multiple organisms for a single culture laboratory result.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
meas_organism_id	Yes	Yes	BigInteger	A system-generated unique identifier for each organism culture relationship.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field.
measurement_id	Yes	Yes	BigInteger	A foreign key to the lab result in the measurement table where the organism was observed.	
person_id	Yes	Yes	BigInteger	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.	
visit_occurrence_id	No	Provide When Available	BigInteger	A foreign key to the visit where the culture lab was ordered	
organism_concept_id	Yes	Yes	Integer	A foreign key to a standard concept identifier for the organism in the Vocabulary.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select \* from concept where vocabulary_id ='SNOMED' and concept_class_id='Organism' and standard_concept='S'`
organism_source_value	Yes	Yes	Varchar	The organism value as it appears in the source.	
positivity_datetime	No	Optional	Datetime	The estimated date and time of initial growth as reported in the source.	Please inform the DCC in the provenance files if this data is available at your site.

If a field marked as "Provide when available" for the network requirement is not available at your site, please relay this information to the DCC

1.16 ADT_OCCURRENCE

The adt_occurrence table contains information about distinct admission, discharge, or transfer events that occur as part of a clinical visit. The typical use case is to identify portions of an inpatient admission that represent different levels of care or locations within a facility, but it can be used for additional characteristics of visits (e.g. specialty consultation). The time of each event must fall between the start and end times of the associated visit_occurrence. **This table is CUSTOM to PEDSnet.**

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
adt_occurrence_id	Yes	Yes	BigInteger	A unique identifier for each ADT event.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field
person_id	Yes	Yes	BigInteger	A foreign key identifier to the person for whom the visit is recorded.	
visit_occurrence_id	Yes	Yes	BigInteger	A foreign key identifier to the visit containing this event.	
adt_date	Yes	Yes	Date	The date of the adt event	
adt_datetime	Yes	Yes	Datetime	The datetime of the adt event	No date shifting. Full date and time. If there is no time associated with the date assert midnight for the start time.
care_site_id	No	Provide when available	BigInteger	A foreign key to the care site in which this adt event occurred.	
service_concept_id	Yes	Yes	Integer	A foreign key that refers to a adt event service concept identifier in the vocabulary. This concept describes the type of service associated with this adt event.	`select * from concept where vocabulary_id ='PEDSnet' and concept_class_id='Service Type' and standard_concept='S'` **In the PEDSnet CDM, the NICU, CICU, and PICU services are REQUIRED while the other services listed below are OPTIONAL.** The value set available for PEDSnet includes: • CICU (cardiac care) = 2000000079 • NICU (neonatal care) = 2000000080 • PICU (all other ICU) = 2000000078 • Critical care = 2000000067 • Intermediate care = 2000000068 • Acute care = 2000000069 • Observation care = 2000000070 • Surgical site (includes OR, ASC) = 2000000071 • Procedural service = 2000000072 • Behavioral health = 2000000073 • Rehabilitative service (includes PT, OT, ST) = 2000000074 • Specialty service = 2000000075 • Radiology = 2000000076 • Hospital Outpatient = 2000000077 • Unknown: concept_id = 44814653 • Other: concept_id = 44814649 • No information: concept_id = 44814650
adt_type_concept_id	Yes	Yes	Integer	A foreign key that refers to an adt event type concept identifier in the vocabulary. This concept describes the type of the adt event.	`select * from concept where vocabulary_id ='PEDSnet' and concept_class_id='ADT Event Type'` The value set for PEDSnet includes: • Admission = 2000000083 • Discharge = 2000000084 Transfer in = 2000000085 • Transfer out = 2000000086 • Census = 2000000087
prior_adt_occurrence_id	No	Provide when available	BigInteger	Foreign key into the adt_occurrence table pointing to the ADT record immediately preceding this record in the event stream for the visit. Must	

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				be populated for all but the first ADT even within a visit.	
next_adt_occurrence_id	No	Provide when available	BigInteger	Foreign key into the adt_occurrence table pointing to the ADT record immediately following this record in the event stream for the visit. Must be populated for all but the last ADT even within a visit.	
service_source_value	No	Provide when available	Varchar	The source data used to derive the service type for this event. It will typically be a department code from the ADT event.	
adt_type_source_value	No	Provide when available	Varchar	The source data used to identify the adt event type	

1.16.1 Additional Notes

- If a site is splitting (ED -> Inpatient) encounters into two records in visit_occurrence, the ADT_OCCURRENCE.visit_occurrence_id should link to the Inpatient visit_occurrence_id.

1.17 IMMUNIZATION

The immunization domain captures immunization records. **This table is CUSTOM to PEDSnet.**

Note 1: Please use the following logic to populate the immunization_concept_id, immunization_source_concept_id and immunization_source_value based on what is available in your source system:

Site Information	immunization_concept_id	immunization_source_concept_id	immunization_source_value
Immunization Codes (NDC,RxNorm,CVX CPT-4, ICD-9-CM,ICD-10-CM, HCPCS or OPCS-4)	Corresponding CVX Concept Code (may require manual mapping)	Corresponding Immunization Codes (NDC,RxNorm,CVX CPT-4, ICD-9-CM,ICD-10-CM, HCPCS or OPCS-4) concept id	Immunization Name | Immunization Source Code
Custom Immunization Coding (that site can map to coding within standard vocabulary)	Corresponding CVX Concept Code (requires manual mapping)	Corresponding Immunization Codes (NDC,RxNorm,CVX CPT-4, ICD-9-CM,ICD-10-CM, HCPCS or OPCS-4) concept id	Immunization Name | Custom Immunization Code
Custom Immunization Coding (that cannot be mapped using the standard vocabulary)	Corresponding CVX Concept Code (requires manual mapping)	0	Immunization Name | Custom Immunization Code

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
immunization_id	Yes	Yes	BigInteger	A system-generated unique identifier for each immunization record	This is not a value found in the EHR. Sites may choose to use a sequential value for this field.
person_id	Yes	Yes	BigInteger	A foreign key identifier to the person who the immunization record is being documented for. The demographic details of that person are stored in the person table.	
immunization_concept_id	Yes	Yes	Integer	A foreign key to the standard immunization concept identifier in the Vocabulary.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where vocabulary_id='CVX' and invalid_reason is null` If none are correct, use concept_id = 0. Please see **Note 1** for guidance.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
immunization_source_concept_id	Yes	Yes	Integer	A foreign key to an immunization concept that refers to the code used in the source	**If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0** Please see **Note 1** for guidance.
immunization_date	Yes	Yes	Date	The date of the immunization.	This should be the date the immunization was administered. No date shifting.
immunization_datetime	Yes	Yes	Datetime	The time of the immunization.	This should be the date the immunization was administered. No date shifting. Full date and time. If there is no time associated with the date assert midnight.
immunization_source_value	Yes	Yes	Varchar	The immunization 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. Please use the pipe delimiter "|" when concatenating values. Please see **Note 1** for guidance.
provider_id	No	Provide When Available	BigInteger	A foreign key to the provider in the provider table who was responsible for the immunization.	
imm_route_concept_id	No	Provide When Available	Integer	A foreign key that refers to a standard immunization administration route concept identifier in the Vocabulary.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where domain_id='Route' and invalid_reason is null` • Within the set of valid concept ids, duplicates may exist. If this is the case, use the standard concept (standard_concept='S') first for mapping and then the non-standard concept for all other cases If none are correct, use concept_id = 0.
immunization_dose	No	Provide When Available	Float	Numerical value of immunization dose for this immunization record	
imm_dose_unit_concept_id	No	Provide When Available	Integer	A foreign key to a predefined concept in the Standard Vocabularies reflecting the unit the immunization_dose value is expressed	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where vocabulary_id = 'UCUM'`
imm_dose_unit_source_value	No	Provide When Available	Varchar	The information about the immunization dose unit as detailed in the source	
imm_route_source_value	No	Provide When Available	Varchar	The information about the route of immunization as detailed in the source	
visit_occurrence_id	No	Optional	BigInteger	A foreign key that refers to the visit	

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				associated with the immunization record.	
procedure_occurrence_id	No	Optional	BigInteger	A foreign key that refers to the procedure associated with the immunization record.	
imm_recorded_date	No	Provide when available	Date	The date the immunization was recorded.	This date is applicable for immunizations that have been reported by the patient and not administered at the visit. No date shifting.
imm_recorded_datetime	No	Provide when available	Datetime	The time the immunization was recorded.	This date and time is applicable for immunizations that have been reported by the patient and not administered at the visit. No date shifting.
imm_manufacturer	No	Provide when available	Varchar	The information about the immunization manufacturer	
imm_lot_num	No	Provide when available	Varchar	The information about the immunization lot number	
imm_exp_date	No	Provide when available	Date	The date of the immunization expiration.	No date shifting.
imm_exp_datetime	No	Provide when available	Datetime	The date and time of the immunization expiration.	No date shifting.
immunization_type_concept_id	Yes	Yes	Integer	A foreign key that refers to source of immunization record.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where vocabulary_id ='PEDSnet' and concept_class_id='Immunization Type'` The value set for PEDSnet includes: • Internal administration(OD) = 2000001288 • External feed (EF) =2000001289 • Immunization Information Systems (IS) = 2000001290 • Immunization Information System (IS), Unverified = 2000001531 • Patient Reported (PR) = 2000001291 • Internal Registry (not State Immunization Registry) = 32879 • No Information: concept_id = 44814650 • Unknown: concept_id = 44814653 • Other: concept_id = 44814649
imm_body_site_concept_id	Yes	Yes	Integer	A foreign key that refers to the body site where the immunization was administered in the vocabulary.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where domain_id ='Spec Anatomic Site'` Flavors of null are also applicable: • No Information: concept_id = 44814650 • Unknown: concept_id = 44814653 • Other: concept_id = 44814649

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					If none are correct, use concept_id = 0
imm_body_site_source_value	No	Provide when available	Varchar	The body site where the immunization was administered in the source system.	

1.18 DEVICE_EXPOSURE

The 'Device' domain captures information about a person's exposure to a foreign physical object or instrument which is used for diagnostic or therapeutic purposes through a mechanism beyond chemical action. Devices include implantable objects (e.g. pacemakers, stents, artificial joints), medical equipment and supplies (e.g. bandages, crutches, syringes), other instruments used in medical procedures (e.g. sutures, defibrillators), ventilators and material used in clinical care (e.g. adhesives, body material, dental material, surgical material).

Note 1:

To record the mechanical ventilation status for the patient, please use the following conventions to insert records into the **device_exposure** table:

device_concept_id	concept_code	concept_name	ventilation type
4044008	129121000	Tracheostomy tube	invasive
4097216	26412008	Endotracheal tube	invasive
4138614	425826004	BiPAP oxygen nasal cannula	non-invasive
45761494	467645007	CPAP nasal oxygen cannula	non-invasive
4224038	336623009	Oxygen nasal cannula	non-invasive
4139525	426854004	High flow oxygen nasal cannula	non-invasive
45768222	706226000	Continuous positive airway pressure/Bilevel positive airway pressure mask	non-invasive
4222966	336602003	Oxygen mask	non-invasive
40493026	449071006	Mechanical ventilator (if unable to distinguish the type)	N/A

Note 2:

To record cardiac stent information to support the **NEST Cardiac studies**, please use the guidance located here to insert records into the **device_exposure** table.

Note 3:

For sites particpating in the **CDM Ventilator Pilot**, please use the guidance located here to insert records into the **device_exposure** table.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
device_exposure_id	Yes	Yes	BigInteger	A system-generated unique identifier for each Device Exposure.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field.
person_id	Yes	Yes	BigInteger	A foreign key identifier to the Person who is subjected to the device. The demographic details of that Person are stored in the PERSON table.	
device_concept_id	Yes	Yes	Integer	A foreign key that refers to a Standard Concept identifier in the Standardized Vocabularies belonging to the 'Device' domain.	Please use one of the above guidance for mechnical ventilation and cardiac stents. For all other devices, use concept_id = 0.
device_exposure_start_date	Yes	Yes	Date	The date the Device or supply was applied or used.	No date shifting. Full date.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
device_exposure_start_datetime	Yes	Yes	Datetime	The date and time the Device or supply was applied or used.	No date shifting. Full date and time. If there is no time associated with the date assert midnight for the start time
device_exposure_end_date	No	No	Date	The date use of the Device or supply was ceased.	No date shifting. Full date.
device_exposure_end_datetime	No	No	Datetime	The date and time use of the Device or supply was ceased.	No date shifting. Full date. If there is no time associated with the date assert 23:59:59 for the end time
device_type_concept_id	Yes	Yes	Integer	A foreign key to the predefined Concept identifier in the Standardized Vocabularies reflecting the type of Device Exposure recorded.	`select * from concept where concept_class_id='Device Type'` For the PEDSnet CDM, all of our observations are coming from electronic health records so set this field to concept_id = 44818707 (observation recorded from EHR Detail).
unique_device_id	No	Provide when available	Integer	A UDI or equivalent identifying the instance of the Device used in the Person.	The UDI field should only contain the device identifier (DI) and not the production identitier (PI) or any other patient specific information that would be considered PHI or enable someone to re-identify the patient. For more information on the device identifier (DI) and production identifier (PI) that typically correspond to the UDI, please see the FDA UDI Guidance. For **NEST - cardiac stents** please supply the GTIN associated withe device.
production_id	NO	NO	Integer	The "PI" portion of the UDI (as described above).	DO NOT transmit to DCC
quantity	No	No	Integer	The number of individual devices used in the exposure.	
provider_id	No	Provide when Available	BigInteger	A foreign key to the provider in the PROVIDER table who initiated or administered the device.	
visit_occurrence_id	No	Provide when available	BigInteger	A foreign key to the visit in the visit table during which the device was used.	
device_source_value	Yes	Yes	Varchar	The source code for the device as it appears in the source data. This code is mapped to a Standard Device Concept in the Standardized Vocabularies and the original code is stored here for reference.	Please include the device name and model number when populating this field, by using the pipe delimiter "|" when concatenating values. **Example: Device Name "|" Model Number**
device_source_concept_id	Yes	Yes	Integer	A foreign key to a device concept that	If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				refers to the code used in the source.	
placement_concept_id	Yes	Yes	Integer	A foreign key that refers to the body site where the device was placed.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where domain_id ='Spec Anatomic Site' and standard_concept='S' and vocabulary_id='SNOMED'` **For NEST Cardiac Stents**, mapping guidance is available on the Cardiac Stent Guidance page above. Flavors of null are also applicable: • No Information: concept_id = 44814650 • Unknown: concept_id = 44814653 • Other: concept_id = 44814649 If none are correct, use concept_id = 0
placement_source_value	No	Provide when available	Varchar	The body site where the device was placed in the source system.	
unit_concept_id	No	Provide When Available	Integer	A foreign key to a standard concept identifier of device units in the Vocabulary.	Please include valid concept ids (consistent with OMOP CDM v5.4). Valid concept_ids found in CONCEPT table `select * from concept where vocabulary_id = 'UCUM'` If none are correct, use concept_id = 0.
unit_source_concept_id	No	Provide When Available	Integer	A foreign key to a concept that refers to the code used in the source for the unit.	This is the concept id that maps to the source value in the standard vocabulary. **If there is not a mapping for the source code in the standard vocabulary, use concept_id = 0**
unit_source_value	No	Provide When Available	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 here for reference.	

1.18.1 Additional Notes

- For records that only have an explant date, assert the explant date as the start date.
- For records that appear to be implants of the same device on the same date and time, sum the quantity amounts to avoid the appearance of duplicates in the data.

1.19 LOCATION_HISTORY

The 'Location_History' domain is intended to store historical location information for various domains persons, providers and care_sites.

At a minimum, the current address for each patient should be included in this table.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
location_history_id	Yes	Yes	BigInteger	A system-generated unique identifier for each Location History.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field.
location_id	Yes	Yes	BigInteger	A foreign key to the location table.	
relationship_type_concept_id	Yes	Yes	Integer	The type of relationship between location and entity.	At this time, OMOP/OHDSI has not released a valid value set for this field. **For the PEDSnet CDM, use concept_id = 0.**
domain_id	Yes	Yes	Varchar	The domain (as a string) of the entity that is related to the location. Either 'Person', 'Provider', or 'Care site'.	For the PEDSnet CDM, only patient address histories are present in this table. Due to this **use domain_id = 'Person'** for all records.
entity_id	Yes	Yes	BigInteger	The unique identifier for the entity. References either person_id, provider_id, or care_site_id, depending on domain_id.	For the PEDSnet CDM, only patient address histories are present in this table. Due to this, please populate this field with the corresponding person_id.
location_preferred_concept_id	Yes	Yes	Integer	A foreign key that indicates if the location is the preferred location.	For the PEDSnet CDM, please use the following: • Yes=4188539 • No=4188540 • No Information: concept_id = 44814650 • Unknown: concept_id = 44814653 • Other: concept_id = 44814649 If none are correct, use concept_id = 0.
start_date	Yes	Yes	Date	The date the relationship started.	No date shifting. **Note**: If your site does not have any historical location data about the effective start date for the current address on file for a given patient, you should use the most recent visit_occurrence.visit_start_date as the start_date for for that patients location_history record.
start_datetime	Yes	Yes	Datetime	The date the relationship started.	No date shifting. **Note**: If your site does not have any historical location data about the effective start date for the current address on file for a given patient, you should use the most recent visit_occurrence.visit_start_datetime as the start_datetime for for that patients location_history record.
end_date	No	No	Date	The date the relationship ended.	This field should be NULL for the current location of the entity. No date shifting.
end_datetime	No	No	Datetime	The date the relationship ended.	This field should be NULL for the current location of the entity. No date shifting.

1.20 HASH_TOKEN

The 'Hash_Token' domain is intended to store encrypted and keyed secure hash tokens that are used to match patient records across DataMarts using privacy-preserving record linkage methods. This table requirement comes from the PCORnet data model.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
person_id	Yes	Yes	BigInteger	A foreign key identifier to the Person for whom the tokens are valid for. The demographic details of that Person are stored in the PERSON table.	
token_01	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 01 in Datavant DeID.	
token_02	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 02 in Datavant DeID	
token_03	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 03 in Datavant DeID	
token_04	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 04 in Datavant DeID	
token_05	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 05 in Datavant DeID	
token_06	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 06 in Datavant DeID	
token_07	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 07 in Datavant DeID	
token_08	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 08 in Datavant DeID	
token_09	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 09 in Datavant DeID	
token_12	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 12 in Datavant DeID	
token_14	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 14 in Datavant DeID	
token_15	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 15 in Datavant DeID	
token_16	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 16 in Datavant DeID	

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
token_17	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 17 in Datavant DeID	
token_18	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 18 in Datavant DeID	
token_23	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 23 in Datavant DeID	
token_24	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 24 in Datavant DeID	
token_25	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 25 in Datavant DeID	
token_26	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 26 in Datavant DeID	
token_29	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 29 in Datavant DeID	
token_30	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 30 in Datavant DeID	
token_101	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 101 in Datavant DeID	
token_102	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 102 in Datavant DeID	
token_103	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 103 in Datavant DeID	
token_104	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 104 in Datavant DeID	
token_105	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 105 in Datavant DeID	
token_106	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 106 in Datavant DeID	
token_107	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 107 in Datavant DeID	

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
token_108	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 108 in Datavant DeID	
token_109	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 109 in Datavant DeID	
token_110	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 110 in Datavant DeID	
token_111	No	Provide When Available	Varchar	Encrypted keyed hash generated from PII using token strategy 111 in Datavant DeID	
token_encryption_key	Yes	Yes	Varchar	The token encryption key used.	For sites submitting hashes to PEDSnet, the token encryption key coming out of the datavant software will resemble the following format • sitename-pedsnet_TOKEN_ENCRYPTION_KEY Please follow this convention when submitting hashes to the PEDSnet network.

1.21 SPECIALTY

The 'Specialty' domain is intended to store specialty information for the domain of providers and care_sites. The table allows for ALL specialty data to be stored for a provider or care site, expanding from just primary specialty previously.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
specialty_id	Yes	Yes	BigInteger	A system-generated unique identifier for each Specialty record.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field.
domain_id	Yes	Yes	Varchar	The domain (as a string) of the entity that is related to the specialty. Either 'Provider' or 'Care site'.	
entity_id	Yes	Yes	BigInteger	The unique identifier for the entity. References either provider_id or care_site_id depending on domain_id.	Any valid provider_id or care_site_id allowed (see definition in PROVIDER or CARE_SITE table).
entity_type_concept_id	Yes	Yes	Integer	concept_id that represents the hierarchical order of the specialty record as it is associated with the domain_id + entity_id record (i.e. with the given PROVIDER or CARE_SITE).	Please use the following concept mappings when providing values for this field: **Primary Specialty:** • concept_id=4114681 **Secondary Specialty:** • concept_id=4093903 **All Other Specialties:** • concept_id=4225752 If information about this hierarchy is not available, please use your best judgement to assign this value.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
					NOTE: The specialty_concept_id for the Primary Specialty (i.e. the entity_type_concept_id = 4114681) record should match the value of the specialty_concept_id for the associated PROVIDER or CARE_SITE record.
specialty_concept_id	Yes	Yes	Integer	A foreign key that refers to the given PROVIDER or CARE_SITE specialty.	See the specifications for the specialty_concept_id fields in either the PROVIDER or CARE_SITE specs for detailed guidance on which concept_id's to use for this mapping (whichever one is relevant for the given domain_id you are inserting data for). **NOTE**: The specialty_concept_id for the Primary Specialty (i.e. the entity_type_concept_id = 4114681) record should match the value of the specialty_concept_id for the associated PROVIDER or CARE_SITE table record. If no specialty information is pressent, or not concept_id mapping seems appropriate, use concept_id = 38004477 ("Pediatric Medicine").
specialty_source_value	Yes	Yes	Varchar	The Specialty Name as it appears in the source data.	This is the name of the value as it appears in the source system. Please use the pipe delimiter when concatenating values.

1.22 LOCATION_FIPS

The PEDSnet 'Location_FIPS' domain is an auxillary table used to store FIPS codes such as census block groups for location_ids in a structured way.

Note 1:

> In order to participate in location based studies, the DCC recommends populating the location_fips table up to the geocode_group level of granularity where possible for locations. A full census_block_group code is typically a 12 digit value It would be comprised of the summation of the fields geocode_state + geocode_county + geocode_tract + geocode_group as shown in the diagram below.
>
> 
>
>
> The following table describes the standard hierarchy of geographic areas.
>
> Source: Census.gov
>
> - If solutions for geocoding addresses have not been implemented at your site the DeGAUSS tool may be used to ascertain census block groups for addresses. Please contact the DCC with any questions.

Note 2:

> - The geocode_block field (representing last three digits of a FIPS code) is available to populate but not required.
> - Both 2020 and 2010 census FIPS codes are required to be populated for site locations up to the geocode_group level of granularity if possible.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
geocode_id	Yes	Yes	BigInteger	A system-generated unique identifier for each location_fips record.	This is not a value found in the EHR. Sites may choose to use a sequential value for this field.
location_id	Yes	Yes	BigInteger	A foreign key to the location table, where the detailed address information is stored.	Note that 1 location_id may have two records in this table if both 2010 and 2020 census data are provided

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
geocode_state	Yes	Yes	Varchar(2)	First 2 characters of a FIPS code that represents a state	See Note 1 for more details on the Census Block Group.
geocode_county	Yes	Yes	Varchar(3)	Next 3 characters of a FIPS code that represents a county	See Note 1 for more details on the Census Block Group.
geocode_tract	Yes	Yes	Varchar(6)	Next 6 characters of a FIPS code that represents a census tract	See Note 1 for more details on the Census Block Group.
geocode_group	Yes	Yes	Varchar(1)	Next 1 character of a FIPS code that represents a block group	See Note 1 for more details on the Census Block Group.
geocode_block	No	Provide When Available	Varchar(3)	Final 3 characters of a FIPS code that represents a block	See Note 1 for more details on the Census Block Group.
geocode_year	Yes	Yes	Integer	The census year associated with the geocode (For example 2010 or 2020)	See Note 1 for more details on the Census Block Group.
geocode_shapefile	No	Provide When Available	Varchar	The name of the shapefile used in the geocoding process	See Note 1 for more details on the Census Block Group.

1.23 COHORT

The PEDSnet 'COHORT' table is an adapted version of the OMOP COHORT table. Per OMOP, the **COHORT** table contains records of subjects that satisfy a given set of criteria for a duration of time and the definition of the cohort is contained within the **COHORT_DEFINITION** table. For PEDSnet, the **COHORT** table is currently used to represent periods of clinical trial enrollment.

Note 1 (Primary Key):

> The primary key for the COHORT table is the unique composite of subject_id, cohort_definition_id and cohort_start_datetime.
>
> Therefore, a subject_id can only have one record in the COHORT table for a given cohort_definition_id and cohort_start_datetime at any moment of time, i.e., it is not possible for a person to contain multiple records indicating cohort membership for a given cohort that are overlapping in time. However, it may be possible for a given subject to be enrolled in more than one cohort or the same cohort at different times.

Note 2 (Guidance for Dates):

> Date and datetime fields can be populated according to cohort-specific guidelines. For example, if a clinical trial involves a specific length of follow up from cohort_start_date and cohort_start_datetime, this can be computed accordingly.
>
> If times are not available, datetimes should assert 23:59:59.
>
> The withdraw_date/datetime should remain entirely independent from the cohort_end_date/datetime and should remain NULL if the subject never withdrew from the trial.
>
> cohort_end_date definitions will vary across clinical trial designs. In some designs, it can be computed by applying a consistent time window to cohort start date. In other cases, it is trial outcome or milestone dependent. It will be important to prospectively assess data quality for cohort end date, as this information is not always represented in source databases. For example, for the PROMPT BOLUS study, the cohort_end_date and cohort_end_datetime fields should be equal to the cohort_start_date/datetime fields plus 730 days

Note 3 (CDM Integration and Submission):

> Please ensure that any submission of a populated cohort.csv file for any study is properly integrated into the rest of the PEDSnet data. This includes
>
> 1. subject_ids that are populated with corresponding person_ids in the person table
> 2. All column headers and constraints match the expected DDL specifications
> 3. The cohort.csv file exists within the same zip/tar as all other PEDSnet files
> 4. Previously submitted cohort records remain stable and populated in the cohort table for the duration of the study using them
> 5. The cohort_definition table does not need to be included in the submission with the cohort table

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
cohort_definition_id	Yes	Yes	BigInteger	A foreign key identifier to the COHORT_DEFINITION table where the clinical trial definition is stored.	cohort_definition_id is defined and described in the COHORT_DEFINITION table. It is the unique identifier for a given cohort (e.g., arm of a clinical trial).
subject_id	Yes	Yes	BigInteger	A foreign key identifier to the Person who is enrolled in the trial. The demographic details of that Person are stored in the PERSON table.	The person_id in the context of clinical trial enrollment

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
cohort_start_date	Yes	Yes	Date	The date that the subject was enrolled in the trial	
cohort_start_datetime	Yes	Yes	DateTime	The date and time that the subject was enrolled in the trial	If times are not available, datetimes should assert 23:59:59.
cohort_end_date	Yes	Yes	Date	The date that the trial enrollment ends	Definitions will vary across clinical trial designs. In some designs, it can be computed by applying a consistent time window to cohort start date. In other cases, it is trial outcome or milestone dependent.
cohort_end_datetime	Yes	Yes	DateTime	The date and time that the trial enrollment ends	If times are not available, datetimes should assert 23:59:59.
withdraw_date	No	Provide When Available	Date	The date that a subject withdraws from a study if they for some reason do not complete the trial.	
withdraw_datetime	No	Provide When Available	DateTime	The date and time that a subject withdraws from a study if they for some reason do not complete the trial.	If times are not available, datetimes should assert 23:59:59.
participant_id	No	Optional	Varchar	An optional field for the participant identifier internal to the clinical trial (can included arbitrary participant identifiers used for data linkage within a study)	participant_id is unique within a study, meaning the same identifier is not expected to be used for the same patient across studies.

1.24 COHORT_DEFINITION

For PEDSnet, the current purpose of the COHORT_DEFINITION table is to define and describe cohort_definition_ids included in the COHORT table. COHORT_DEFINITION includes a standardized structure for maintaining the inclusion of a subject in a clinical trial or clinical trial cohort.

Note 1 (List of Records):

> The ongoing list of cohort_definition_ids are maintained by the PEDSnet DCC and are listed in the table below. The current version of the table is also available as a csv (cohort_definition.csv) both linked directly here and within the PEDSnet Vocabulary

cohort_definition_id	cohort_definition_name	cohort_definition_description	definition_type_concept_id	cohort_definition_syntax	subject
2000001559	PRoMPT BOLUS Normal Saline Arm	Normal Saline arm of PRagMatic Pediatric Trial of Balanced vs. nOrmaL saline flUid in Sepsis (PRoMPT BOLUS) clinical trial	46271379 (Enrollment in Clinical Trial)	NULL	1147314
2000001560	PRoMPT BOLUS Balanced Fluids Arm	Balanced Fluids arm of PRagMatic Pediatric Trial of Balanced vs. nOrmaL saline flUid in Sepsis (PRoMPT BOLUS) clinical trial	46271379 (Enrollment in Clinical Trial)	NULL	1147314
2000001561	USDHub v1	Meets inclusion criteria for v1 USDHub cohort	44807982 (Cohort)	NULL	1147314

Note 2 (CDM Submission Exclusion):

> Please exclude your cohort_definition table (cohort_definition.csv) from your local running of the infomodels tool and the submission of your PEDSnet data.
>
> The cohort_definition table should be treated as an additional "vocabulary lookup table" (similar to the concept table for example) and only needs to be retianed locally. Despite being included in the PEDSnet DDL and ETL Conventions, cohort_definition should not be included in your final data submission.

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
cohort_definition_id	Yes	Yes	BigInteger	Unique Identifier for a given cohort	cohort_definition_ids will be added to the PEDSnet vocabulary release and housed in the

Field	NOT Null Constraint	Network Requirement	Data Type	Description	PEDSnet Conventions
				(e.g. arm of a clincal trial)	concept table. See Note 1 for the current list of cohort definitions.
cohort_definition_name	Yes	Yes	Varchar	Short description of the cohort	
cohort_definition_description	No	Provide When Available	Varchar	Long description of the cohort	
definition_type_concept_id	Yes	Yes	Integer	Defines the type of Cohort	For all PEDSnet use cases definition_type_concept_id will equal 46271379 - Enrollment in clinical trial
cohort_definition_syntax	No	Not Required	Varchar	Additional Syntax for the cohort	cohort_definition_syntax will be NULL for current PEDSnet use cases.
subject_concept_id	Yes	Yes	Integer	Defines the subject that the Cohort relates to	subject_concept_id will be 1147314 – Person for current PEDSnet use cases.
cohort_initiation_date	No	Provide When Available	Date	The date of most recent data extraction for cohort enrollment.	

APPENDIX

PEDSnet-specific is supported by OMOP-supported Vocabulary id=PCORNet, which contains all of the additional concept_id codes needed in PEDSnet for the PCORnet CDM

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	Concept_class_id	Vocabulary id	Domain_id
Addiction Psychiatry	38004498	Addiction Medicine	Physician Specialty	Medicare Specialty	Provider
Adolescent Medicine	45756747	Adolescent Medicine	Physician Specialty	ABMS	Provider
Adult Congenital Heart Disease	45756748	Adult Congenital Heart Disease	Physician Specialty	ABMS	Provider
Advanced Heart Failure and Transplant Cardiology	45756749	Advanced Heart Failure and Transplant Cardiology	Physician Specialty	ABMS	Provider
Aerospace Medicine	45756750	Aerospace Medicine	Physician Specialty	ABMS	Provider
Allergy and Immunology	38004448	Allergy/Immunology	Physician Specialty	Medicare Specialty	Provider
Anesthesiology	38004450	Anesthesiology	Physician Specialty	Medicare Specialty	Provider
Anesthesiology Critical Care Medicine	45756751	Anesthesiology Critical Care Medicine	Physician Specialty	Medicare Specialty	Provider
Blood Banking/Transfusion Medicine	45756752	Blood Banking/Transfusion Medicine	Physician Specialty	ABMS	Provider
Brain Injury Medicine	45756753	Brain Injury Medicine	Physician Specialty	ABMS	Provider
Cardiology	38004451	Cardiology	Physician Specialty	Medicare Specialty	Provider
Cardiovascular Disease	45756754	Cardiovascular Disease	Physician Specialty	ABMS	Provider

ABMS Specialty Category	OMOP Supported Concept for Provider ID	OMOP Concept_name	Concept_class_id	Vocabulary id	Domain_id
Child Abuse Pediatrics	45756755	Child Abuse Pediatrics	Physician Specialty	ABMS	Provider
Child and Adolescent Psychiatry	45756756	Child and Adolescent Psychiatry	Physician Specialty	ABMS	Provider
Clinical Biochemical Genetics	45756757	Clinical Biochemical Genetics	Physician Specialty	ABMS	Provider
Clinical Cardiac Electrophysiology	45756758	Clinical Cardiac Electrophysiology	Physician Specialty	ABMS	Provider
Clinical Cytogenetics	45756759	Clinical Cytogenetics	Physician Specialty	ABMS	Provider
Clinical Genetics (MD)	45756760	Clinical Genetics (MD)	Physician Specialty	ABMS	Provider
Clinical Informatics	45756761	Clinical Informatics	Physician Specialty	ABMS	Provider
Clinical Molecular Genetics	45756762	Clinical Molecular Genetics	Physician Specialty	ABMS	Provider
Clinical Neurophysiology	45756763	Clinical Neurophysiology	Physician Specialty	ABMS	Provider
Colon and Rectal Surgery	38004471	Colorectal Surgery	Physician Specialty	Medicare Specialty	Provider
Complex General Surgical Oncology	45756764	Complex General Surgical Oncology	Physician Specialty	ABMS	Provider
Congenital Cardiac Surgery	45756765	Congenital Cardiac Surgery	Physician Specialty	ABMS	Provider
Critical Care Medicine	38004500	Critical care (intensivist)	Physician Specialty	Medicare Specialty	Provider
Cytopathology	45756766	Cytopathology	Physician Specialty	ABMS	Provider
Dermatology	38004452	Dermatology	Physician Specialty	Medicare Specialty	Provider
Dermatopathology	45756767	Dermatopathology	Physician Specialty	ABMS	Provider
Developmental-Behavioral Pediatrics	45756768	Developmental-Behavioral Pediatrics	Physician Specialty	ABMS	Provider
Diagnostic Radiology	45756769	Diagnostic Radiology	Physician Specialty	ABMS	Provider
Emergency Medical Services	45756770	Emergency Medical Services	Physician Specialty	ABMS	Provider
Emergency Medicine	38004510	Emergency Medicine	Physician Specialty	Medicare Specialty	Provider
Endocrinology, Diabetes and Metabolism	45756771	Endocrinology, Diabetes and Metabolism	Physician Specialty	ABMS	Provider
Epilepsy	45756772	Epilepsy	Physician Specialty	ABMS	Provider
General Family Medicine	38004453	Family Practice	Physician Specialty	Medicare Specialty	Provider
Female Pelvic Medicine and Reconstructive Surgery	45756773	Female Pelvic Medicine and Reconstructive Surgery	Physician Specialty	ABMS	Provider
Forensic Psychiatry	45756775	Forensic Psychiatry	Physician Specialty	ABMS	Provider
Gastroenterology	38004455	Gastroenterology	Physician Specialty	Medicare Specialty	Provider
General Pediatrics (Primary Care)*	2000000063	General Pediatrics	Specialty	PEDSnet	Provider

ABMS Specialty Category	OMOP Supported Concept for Provider ID	OMOP Concept_name	Concept_class_id	Vocabulary id	Domain_id
Geriatric Medicine	38004478	Geriatric Medicine	Physician Specialty	Medicare Specialty	Provider
Geriatric Psychiatry	45756776	Geriatric Psychiatry	Physician Specialty	ABMS	Provider
Gynecologic Oncology	38004513	Gynecology/Oncology	Physician Specialty	Medicare Specialty	Provider
Hematology	38004501	Hematology	Physician Specialty	Medicare Specialty	Provider
Hospice and Palliative Medicine	45756777	Hospice and Palliative Medicine	Physician Specialty	ABMS	Provider
Infectious Disease	38004484	Infectious Disease	Physician Specialty	Medicare Specialty	Provider
General Internal Medicine	38004456	Internal Medicine	Physician Specialty	Medicare Specialty	Provider
Internal Medicine - Critical Care Medicine	45756778	Internal Medicine - Critical Care Medicine	Physician Specialty	ABMS	Provider
Interventional Cardiology	45756779	Interventional Cardiology	Physician Specialty	ABMS	Provider
Interventional Radiology and Diagnostic Radiology	38004511	Interventional Radiology	Physician Specialty	Medicare Specialty	Provider
Maternal and Fetal Medicine	45756780	Maternal and Fetal Medicine	Physician Specialty	ABMS	Provider
Medical Biochemical Genetics	45756781	Medical Biochemical Genetics	Physician Specialty	ABMS	Provider
Medical Genetics and Genomics	45756782	Medical Genetics and Genomics	Physician Specialty	ABMS	Provider
Medical Oncology	38004507	Medical Oncology	Physician Specialty	Medicare Specialty	Provider
Medical Physics	45756783	Medical Physics	Physician Specialty	ABMS	Provider
Medical Toxicology	45756784	Medical Toxicology	Physician Specialty	ABMS	Provider
Molecular Genetic Pathology	45756785	Molecular Genetic Pathology	Physician Specialty	ABMS	Provider
Neonatal-Perinatal Medicine	45756786	Neonatal-Perinatal Medicine	Physician Specialty	ABMS	Provider
Nephrology	38004479	Nephrology	Physician Specialty	Medicare Specialty	Provider
Neurodevelopmental Disabilities	45756787	Neurodevelopmental Disabilities	Physician Specialty	ABMS	Provider
Neurological Surgery	38004459	Neurosurgery	Physician Specialty	Medicare Specialty	Provider
General Neurology	38004458	Neurology	Physician Specialty	Medicare Specialty	Provider
Neurology with Special Qualification in Child Neurology	45756788	Neurology with Special Qualification in Child Neurology	Physician Specialty	ABMS	Provider
Neuromuscular Medicine	45756789	Neuromuscular Medicine	Physician Specialty	ABMS	Provider
Neuropathology	45756790	Neuropathology	Physician Specialty	ABMS	Provider
Neuroradiology	45756791	Neuroradiology	Physician Specialty	ABMS	Provider

ABMS Specialty Category	OMOP Supported Concept for Provider ID	OMOP Concept_name	Concept_class_id	Vocabulary id	Domain_id
Neurotology	45756792	Neurotology	Physician Specialty	ABMS	Provider
Nuclear Medicine	38004476	Nuclear Medicine	Physician Specialty	Medicare Specialty	Provider
Nuclear Radiology	45756793	Nuclear Radiology	Physician Specialty	ABMS	Provider
Obstetrics and Gynecology	38004461	Obstetrics/Gynecology	Physician Specialty	Medicare Specialty	Provider
Occupational Medicine	38004492	Occupational Therapy	Physician Specialty	Medicare Specialty	Provider
Ophthalmology	38004463	Ophthalmology	Physician Specialty	Medicare Specialty	Provider
Orthopaedic Sports Medicine	45756794	Orthopaedic Sports Medicine	Physician Specialty	ABMS	Provider
Orthopedics/Orthopaedic Surgery	38004465	Orthopedics/Orthopedic Surgery	Physician Specialty	Medcicare Specialty	Provider
Otolaryngology	38004449	Otolaryngology	Physician Specialty	Medicare Specialty	Provider
Pain Medicine	38004494	Pain Management	Physician Specialty	Medicare Specialty	Provider
Pathology	38004466	Pathology	Physician Specialty	Medicare Specialty	Provider
Pathology - Anatomic	45756795	Pathology - Anatomic	Physician Specialty	ABMS	Provider
Pathology - Chemical	45756796	Pathology - Chemical	Physician Specialty	ABMS	Provider
Pathology - Clinical	45756797	Pathology - Clinical	Physician Specialty	ABMS	Provider
Pathology - Forensic	45756798	Pathology - Forensic	Physician Specialty	ABMS	Provider
Pathology - Hematology	45756799	Pathology - Hematology	Physician Specialty	ABMS	Provider
Pathology - Medical Microbiology	45756800	Pathology - Medical Microbiology	Physician Specialty	ABMS	Provider
Pathology - Molecular Genetic	45756801	Pathology - Molecular Genetic	Physician Specialty	ABMS	Provider
Pathology - Pediatric	45756802	Pathology - Pediatric	Physician Specialty	ABMS	Provider
Pathology-Anatomic/Pathology-Clinical	45756803	Pathology-Anatomic/Pathology-Clinical	Physician Specialty	ABMS	Provider
Pediatric Medicine**	38004477	Pediatric Medicine	Physician Specialty	Medicare Specialty	Provider
Pediatric Anesthesiology	45756804	Pediatric Anesthesiology	Physician Specialty	ABMS	Provider
Pediatric Cardiology	45756805	Pediatric Cardiology	Physician Specialty	ABMS	Provider
Pediatric Critical Care Medicine	45756806	Pediatric Critical Care Medicine	Physician Specialty	ABMS	Provider
Pediatric Dermatology	45756807	Pediatric Dermatology	Physician Specialty	ABMS	Provider
Pediatric Emergency Medicine	45756808	Pediatric Emergency Medicine	Physician Specialty	ABMS	Provider

ABMS Specialty Category	OMOP Supported Concept for Provider ID	OMOP Concept_name	Concept_class_id	Vocabulary id	Domain_id
Pediatric Endocrinology	45756809	Pediatric Endocrinology	Physician Specialty	ABMS	Provider
Pediatric Gastroenterology	45756810	Pediatric Gastroenterology	Physician Specialty	ABMS	Provider
Pediatric Hematology-Oncology	45756811	Pediatric Hematology-Oncology	Physician Specialty	ABMS	Provider
Pediatric Infectious Diseases	45756812	Pediatric Infectious Diseases	Physician Specialty	ABMS	Provider
Pediatric Nephrology	45756813	Pediatric Nephrology	Physician Specialty	ABMS	Provider
Pediatric Otolaryngology	45756814	Pediatric Otolaryngology	Physician Specialty	ABMS	Provider
Pediatric Pulmonology	45756815	Pediatric Pulmonology	Physician Specialty	ABMS	Provider
Pediatric Radiology	45756816	Pediatric Radiology	Physician Specialty	ABMS	Provider
Pediatric Rehabilitation Medicine	45756817	Pediatric Rehabilitation Medicine	Physician Specialty	ABMS	Provider
Pediatric Rheumatology	45756818	Pediatric Rheumatology	Physician Specialty	ABMS	Provider
Pediatric Surgery	45756819	Pediatric Surgery	Physician Specialty	ABMS	Provider
Pediatric Transplant Hepatology	45756820	Pediatric Transplant Hepatology	Physician Specialty	ABMS	Provider
Pediatric Urology	45756821	Pediatric Urology	Physician Specialty	ABMS	Provider
Physical Medicine and Rehabilitation	38004468	Physical Medicine And Rehabilitation	Physician Specialty	Medicare Specialty	Provider
Plastic Surgery	38004467	Plastic And Reconstructive Surgery	Physician Specialty	Medicare Specialty	Provider
Plastic Surgery Within the Head and Neck	45756822	Plastic Surgery Within the Head and Neck	Physician Specialty	ABMS	Provider
Preventative Medicine	38004503	Preventive Medicine	Physician Specialty	Medicare Specialty	Provider
Psychiatry	38004469	Psychiatry	Physician Specialty	Medicare Specialty	Provider
Psychosomatic Medicine	45756823	Psychosomatic Medicine	Physician Specialty	ABMS	Provider
Public Health and General Preventive Medicine	45756824	Public Health and General Preventive Medicine	Physician Specialty	ABMS	Provider
Pulmonary Disease	38004472	Pulmonary Disease	Physician Specialty	Medicare Specialty	Provider
Radiation Oncology	38004509	Radiation Oncology	Physician Specialty	Medicare Specialty	Provider
Radiology	45756825	Radiology	Physician Specialty	ABMS	Provider
Reproductive Endocrinology/Infertility	45756826	Reproductive Endocrinology/Infertility	Physician Specialty	ABMS	Provider
Rheumatology	38004491	Rheumatology	Physician Specialty	Medicare Specialty	Provider
Sleep Medicine	45756827	Sleep Medicine	Physician Specialty	ABMS	Provider

ABMS Specialty Category	OMOP Supported Concept for Provider ID	OMOP Concept_name	Concept_class_id	Vocabulary id	Domain_id
Spinal Cord Injury Medicine	concept id requested	Spinal Cord Injury Medicine	Physician Specialty	ABMS	
Sports Medicine	45756828	Sports Medicine	Physician Specialty	ABMS	Provider
General Surgery	38004447	General Surgery	Physician Specialty	Medicare Specialty	Provider
Surgery of the Hand	38004480	Hand Surgery	Physician Specialty	Medicare Specialty	Provider
Surgical Critical Care	45756829	Surgical Critical Care	Physician Specialty	ABMS	Provider
Thoracic Surgery	38004473	Thoracic Surgery	Physician Specialty	Medicare Specialty	Provider
Thoracic and Cardiac Surgery	45756830	Thoracic and Cardiac Surgery	Physician Specialty	ABMS	Provider
Transplant Hepatology	45756831	Transplant Hepatology	Physician Specialty	ABMS	Provider
Undersea and Hyperbaric Medicine	45756832	Undersea and Hyperbaric Medicine	Physician Specialty	ABMS	Provider
Urology	38004474	Urology	Physician Specialty	Medicare Specialty	Provider
Vascular and Interventional Radiology	45756833	Vascular and Interventional Radiology	Physician Specialty	ABMS	Provider
Vascular Neurology	45756834	Vascular Neurology	Physician Specialty	ABMS	Provider
Vascular Surgery	38004496	Vascular Surgery	Physician Specialty	Medicare Specialty	Provider

NOTES:

- General Pediatrics refers to Primary Care
- Pediatric Medicine refers to the default assignment if a site is unable to distinguish which pediatric specialty the care site or provider has an assigned

A2. PEDSnet Person Language Concept Mapping Values

The below langauge listing is representative of the top 10 spoken languages of each of the 8 contributing sites. This list standard list will be used to map language values for consistency.

Language	concept_id	concept_name	domain_id	concept_class_id	standard_concept
Amharic	4182354	Amharic language	Observation	Qualifier Value	S
Arabic	4181374	Arabic language	Observation	Qualifier Value	S
Bengali	4052786	Bengali language	Observation	Qualifier Value	S
Burmese	4181727	Burmese language	Observation	Qualifier Value	S
Bosnian	40481563	Bosnian language	Observation	Qualifier Value	S
Cape Verde Creole	44814649	Other	Observation	Undefined	
Chinese	4182948	Chinese Language	Observation	Qualifier Value	S
Chinese(Cantonese)	4177463	Cantonese Chinese dialect	Observation	Qualifier Value	S
Chinese(Mandarin)	4181724	Mandarin dialect	Observation	Qualifier Value	S
English	4180186	English Language	Observation	Qualifier Value	S
French	4180190	French Language	Observation	Qualifier Value	S
Haitian/Creole	44802876	Haitian Creole Language	Observation	Qualifier Value	S
Japanese	4181524	Japanese Language	Observation	Qualifier Value	S
Korean	4175771	Korean Language	Observation	Qualifier Value	S
Mandarin	4181724	Mandarin dialect	Observation	Qualifier Value	S

Language	concept_id	concept_name	domain_id	concept_class_id	standard_concept
Nepali	4175908	Nepali language	Observation	Qualifier Value	S
No information	44814650	No information	Observation	Undefined	S
None	44814650	No information	Observation	Undefined	S
null	44814650	No information	Observation	Undefined	S
Other	44814649	Other	Observation	Undefined	
Other Language	44814649	Other	Observation	Undefined	
Other/Unknown	44814649	Other	Observation	Undefined	
Portuguese	4181536	Portuguese language	Observation	Qualifier Value	S
Russian	4181539	Russian language	Observation	Qualifier Value	S
Sign	40483152	Sign language	Observation	Qualifier Value	S
Sign Language	40483152	Sign language	Observation	Qualifier Value	S
Somali	4182350	Somali language	Observation	Qualifier Value	S
Spanish	4182511	Spanish language	Observation	Qualifier Value	S
Unable to Collect	44814650	No information	Observation	Undefined	S
Unknown	44814653	Unknown	Observation	Undefined	S
Vietnamese	4181526	Vietnamese language	Observation	Qualifier Value	S