**Sentinel Common Data Model**

Version 8.0.0

Prepared by the Sentinel Operations Center (SOC)

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January 15, 2021

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**History of Modifications**

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Date | Modification | Author |
| v1.1 | 12/08/10 | Minor text modifications. | SOC |
| v2.0 | 12/29/11 | Added new tables: Laboratory, Vitals, Summary Tables.  Revised definitions of Encounter table variables: Discharge Disposition, Discharge Status. | SOC |
| v2.1\_edits | 08/03/12 | Updated 6.1 Laboratory table with new lab structure; Added 6.1.1 Lab Details, 6.1.2 Examples & Stand. Units, 6.1.3 Additional Info, 6.1.4 LOINC Info, and 7. State Vaccine tables. | SOC |
| v2.2 | 08/21/12 | Updated Laboratory Information for Influenza, including test types, subtypes, LOINCs, and specimen sources. Minor text modifications. | SOC |
| v2.3 | 09/17/12 | Removed NTBAND as a value for MS\_Test\_Name on the 6.1 Laboratory table. Removed NTBAND as a test type on the 6.1.1 Lab Details table. | SOC |
| v2.4\_EDITS | 10/10/12 | Updated Lab tables, MS\_Test\_Sub\_Category values updated, edited LOINCs information. | SOC |
| v3.0 | 09/16/13 | Added updated Lab tables, added Age Groups summary table, updated Summary Tables based on Query Tool documentation (v1.4, Jan 2013), added Incident Summary Tables, changed DX length to support SNOMED codes and PX length to support LOINCs, added allowable value "IN" for the IIS variable in the State Vaccine table, added DX\_CodeType and PX\_CodeType allowable values, replaced all descriptions in the List of Tables and added a Source column, aligned page headers and footers with page margins, adjusted fonts to be consistent, left-aligned all table column headers, changed "Variable Format" column headers to "Variable Type and Length", changed all references of "file" to "table", changed all references of "field" to "variable", added version number to all footers, reformatted text and made other updates. | SOC |
| v4.0 | 12/03/13 | Added Chart variable to Enrollment table and updated table description and notes; Added ZIP and ZIP\_Date variables to Demographic table and updated table description; removed ALP LOINCs "16182-8" and "33063-9" from Laboratory LOINC Info; added ANC LOINCs "26499-4" and "30451-9", added D\_DIMER\_QN LOINC "55449-3", added HGBA1C LOINCs "62388-4" and "718875-9", and added PG\_QN LOINC "2217-0" to Laboratory LOINC Info; removed Specimen\_Source value "NS" from Laboratory Result table; added Specimen\_Source values "NPWASH", NWASH" and "OTHER" to Laboratory Result table for INF\_A, INF\_AB, INF\_B, and INF\_NS tests; changed Specimen\_Source value "NS" to "UNK" in the Laboratory Result table for INF\_A, INF\_AB, INF\_B, and INF\_NS tests; added Specimen\_Source value "UNK" in the Laboratory Result table for PG\_QN and PG\_QL tests. | SOC |
| v5.0 | 07/31/15 | Updated Laboratory Result Table as follows. Added a new variable Fast\_Ind, to indicate whether the test was performed under fasting conditions. Added a new variable Result\_Type to indicate whether lab result is expected to be numeric or character. Removed “QN” and “QL” from allowable MS\_Test\_Name values. New tests (and preliminary guidance) added: CHOL\_HDL = cholesterol high density lipoprotein, CHOL\_LDL = cholesterol low density lipoprotein, CHOL\_TOT = cholesterol total, SODIUM= sodium, TRIG = triglycerides, TSH = thyroid stimulating hormone. Acceptable MS\_TEST\_SUB\_CATEGORY changed; Added: CLC = Calculated, DIRECT = Direct; Removed: FST = Fasting, RAN = Random. Increased Orig\_Result character length from 8 to 50. Increased Orig\_Result\_Unit character length from 11 to 20. Increased MS\_Result\_C character length from 12 to 50. Added acceptable LOINC and Specimen\_Source values for both new and existing tests. Removed acceptable LOINC values for some existing tests. Added new CPT codes for new tests. Corrected typos and examples. Created Sentinel Common Data Model Laboratory Result Table Documentation (v1.0) for comprehensive guidance to populate the Laboratory Result Table. | SOC |
| V5.0.1 | 02/02/16 | Minor text modifications. | SOC |
| V6.0 | 09/13/16 | Added new tables: Inpatient Pharmacy, Inpatient Transfusion. Added Padmit variable to the Diagnosis table (variable only populated by one Data Partner). Minor text modifications. | SOC |
| V6.0.1 | 04/20/17 | Added two additional allowable values for variable Padmit in the Diagnosis table. Changed EncounterID description to "Arbitrary encounter-level identifier. Used to link across the Encounter, Diagnosis, Procedure, Vital Signs, Inpatient Pharmacy, & Inpatient Transfusion tables", for all tables that contain the EncounterID variable. Removed State Vaccine Table tab. The State Vaccine Table is not regularly maintained and updated so is not a part of the SCDM itself. Removed Summary Table (ST) tabs. Summary Tables are derived from SCDM tables and are not considered to be part of the SCDM itself. Modified several examples that were inconsistent with the variable description. Other minor text and formatting modifications. | SOC |
| V6.0.2 | 10/02/17 | Updated Inpatient Pharmacy table description. | SOC |
| V7.0.0 | 10/31/18 | Added new table: Mother-Infant Linkage. | SOC |
| V7.0.1 | 12/31/19 | Updated Table Description for Table 8. Inpatient Transfusion. | SOC |
| V7.1.0 | 7/18/20 | Updated Laboratory Result Table as follows. Added new allowable values to several existing variables in order to include new Covid-19 diagnostic test results. New MS\_Test\_Name value of SARS\_COV\_2 added. New MS\_Test\_Sub\_Category value of IA\_RAP = immunoassay, rapid and SEQ=sequencing added. New Specimen\_Source value of SALIVA=saliva added. | SOC |
| V8.0.0 | 12/11/20 | Added new tables: Prescribing, Facility, and Provider. PatID, EncounterID, FacilityID, and ProviderID are set to numeric data type with as short a variable length as needed to capture all values. All identification variable names end with “ID”. Additional modifications to other tables as discussed in the [Additional Version 8.0.0 Table Modifications page](file:///C:\repos\DEV-12518\800_02FM_Model_Change_Facility_Provider.md) |  |

# Overview and Description of the Common Data Model v8.0.0

## Sentinel

The primary goal of Sentinel is to build and operate a national public health surveillance system to monitor the safety of FDA-regulated medical products, including drugs, biologics, and devices. Sentinel is part of the Sentinel Initiative, the FDA’s response to a congressional mandate to create an active surveillance system using electronic health data.

The U.S. Food and Drug Administration’s (FDA) Sentinel Initiative is a long-term effort to improve the FDA’s ability to identify and assess medical product safety issues. The Sentinel System is an active surveillance system that uses routine querying tools and pre-existing electronic healthcare data from multiple sources to monitor the safety of regulated medical products.

## Sentinel Common Data Model

The Sentinel Operations Center (SOC) coordinates the network of Sentinel Data Partners and leads development of the Sentinel Common Data Model (SCDM), a standard data structure that allows Data Partners to quickly execute distributed programs against local data. The SOC manages creation of the Sentinel Distributed Database (SDD) using the SCDM, and maintains complete documentation of the implementation and characteristics of the SDD. The SCDM was developed in accordance with the Mini-Sentinel Common Data Model Guiding Principles and was modeled after the Health Care Systems Research Network (formerly known as HMO Research Network) Virtual Data Warehouse.

The SCDM currently includes 16 tables that represent information for the data elements needed for Sentinel activities. Some tables are grouped into categories. Utilization tables (Encounter, Diagnosis, Procedure) are within the 4.0 group. Death and Cause of Death are within the 5.0 group. Laboratory Result and Vital Signs within the 6.0 group. Inpatient Pharmacy and Inpatient Transfusion are within the 7.0 group. Mother-Infant Linkage is within the 8.0 group. Prescribing is within the 9.0 group. Auxillary tables (Facility and Provider) are within the 10.0 group.

Several identifiers are used to link records across tables: a unique person identifier,PatID, a unique provider identifier, ProviderID, and a unique encounter identifier, EncounterID. Details of the 16 tables are provided in this document.

This data model is freely available to all.

* For more information about Sentinel visit the website at: [www.sentinelinitiative.org](https://www.sentinelinitiative.org/)
* For comments and suggestions, please email: [info@sentinelsystem.org](mailto:info@sentinelsystem.org?subject=Git%20SCDM%208.0.0)

# Overview and Description of the Sentinel Common Data Model (SCDM) v8.0.0 Enhancements

Up-versioning the Sentinel Common Data Model to v8.0.0 included substantial modifications in the service of the following goals: (1) Increasing capture of data, (2) Improving precision in organization of some of the data, and (3) Improving run-time efficiencies for data reading and manipulation. Additional rationale and detailed table changes from the prior version are provided below.

|  |  |
| --- | --- |
| **Goal of v8.0.0 Enhancements** | **Rationale** |
| (1) Increase capture of data. |  |
| Add Prescribing Table | Satisfy FDA requirement to better understand prescribing patterns which may affect medical product safety and use, particularly in the relationship of prescribing and actual dispensing. |
| In the Dispensing Table, add variable Rx\_CodeType and replace variable NDC with variable Rx | Enable the SCDM to be used internationally with code types other than the National Drug Codes (NDC). |
| In the Diagnosis and Procedures Tables, add values for Dx\_CodeType and for Px\_CodeType | Enable the SCDM to be used internationally with additional code types. |
| (2) Improve precision in organization of some of the data. |  |
| In the Encounter Table, remove variables Provider and Facility\_Location. In Diagnosis and Procedure Tables, modify definition of Provider variable. Added tables Facility and Provider. Enabled Specialty\_Codes as a reference table to be used by Data Partners in this model, for populating the Provider table. | Improve precision in identifying facilities, providers, and specialists for purposes of chart selection. |
| (3) Improve run-time efficiencies for data reading and manipulation. |  |
| In all tables, set a required sort order. | Enable distributed code to take advantage of uniform sorting of rows in all SCDM tables. |
| Set all identification variables (e.g., PatID) to numeric data type. | Using the fewest number of bytes to hold distinct values results in less data being transferred between computer storage and computer memory, enabling increased query performance. |
| Name all identification variables with a suffix of “ID”. | Uniformity in variable naming. |
| In the Dispensing, Diagnosis, Procedure and Inpatient Transfusion tables, enable the Rx, Dx, Px, and Orig\_Trans\_Prod variable lengths to be variable by Data Partners’ ETLs, as the minimal length necessary to contain values. | Using the fewest number of bytes to hold distinct values results in less data being transferred between computer storage and computer memory, enabling increased query performance. |
| Detailed Table Changes from Version 7.1.0 to v8.0.0 | Change |
| All tables | PatID, EncounterID, ProviderID, and FacilityID, are set to numeric data type with as short a variable length as needed to capture all values; all identification variables end with “ID”. |
| Enrollment | Added value for MedCov |
| Demographic | Changed ZipCode and ZipCode\_Date to PostalCode and PostalCode\_Date to accommodate international collaborators |
| Dispensing | Add ProviderID variable; Replace National Drug Codes (NDC variable) with Rx\_CodeType and Rx variables |
| Encounter | Remove Provider and Facility\_Location; Clarify definition of Encounter table row; Add value to Ddate, Discharge\_Status, and Discharge\_Disposition |
| Diagnosis | Modify definition of Provider; Add values for Dx\_CodeType; Render variable length for Dx DP/ETL specific. |
| Procedure | Modify definition of Provider; Add values for Px\_CodeType; Render variable length for Px DP/ETL specific. |
| Death | Enhanced labels for Source; Values did not change |
| Cause of Death | Enhanced labels for Source; Values did not change |
| Laboratory Result | Addition of LabID. Valid values for 3 variables (MS\_Test\_Name, MS\_Test\_Sub\_Category, and Specimen\_Source) have been removed from this document, and included as a reference table. |
| Vital Signs | Diastolic and Systolic both changed to Num(3); Tobacco and Tobacco\_Type both changed to Char(1); |
| Inpatient Pharmacy | No changes except as noted above |
| Inpatient Transfusion | Render variable length for Orig\_Trans\_Prod DP/ETL specific. |
| Mother-Infant Linkage | No changes except as noted above. |
| Prescribing | New table. |
| Facility | New table. |
| Provider | New table. |

# SCDM: Enrollment Table Structure

**Description:** The SCDM Enrollment Table has a start/stop structure that contains one record per continuous enrollment period. Patients with medical coverage, drug coverage, or both should be included. A unique combination of PatID, Enr\_Start, Enr\_End, MedCov, DrugCov, and Chart identifies a unique record. A break in enrollment (of at least one day) or a change in either the medical or drug coverage variables should generate a new record.

**Sort Order:** The Enrollment Table should be sorted by PatID, Enr\_Start, Enr\_End, MedCov, DrugCov, Chart.

**Unique Row:** PatID, Enr\_Start, Enr\_End, MedCov, DrugCov, Chart.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID1 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. A new enrollment period generates a new record, but the same person should have the same PatID on subsequent records. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| Enr\_Start2 | Num(4) | SAS date | Required | Date of the beginning of the enrollment period. If the exact date is unknown, use the first day of the month. Enr\_Start should not be before January 1, 2000. | 1/1/2019 |
| Enr\_End2,3 | Num(4) | SAS date | Required | Date of the end of the enrollment period. If the exact date is unknown, use the last day of the month. | 12/31/2019 |
| MedCov | Char(1) | Y = Yes  N = No  U = Unknown  A = Ambulatory Only | Required | Mark as Y if the health plan has any responsibility for covering medical care for the member during this enrollment period (i.e., if you expect to observe medical care provided to this member during the enrollment period). Mark as A if only ambulatory visit coverage is provided. | Y |
| DrugCov | Char(1) | Y = Yes  N = No  U = Unknown | Required | Mark as Y if the health plan has any responsibility for covering outpatient prescription drugs for the member during this enrollment period (i.e., if you expect to observe outpatient pharmacy dispensings for this member during this enrollment period). | Y |
| Chart4 | Char(1) | Y = Yes  N = No | Required | Chart abstraction flag to answer the question, “Are you able to request charts for this member?” This flag does not address chart availability. Mark as Y if there are no contractual restrictions between you and the member (or sponsor) that would prohibit you from requesting any chart for this member. | Y |

NOTES:

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
2. Adjacent and overlapping enrollment periods with the same PatID, Enr\_Start, Enr\_End, MedCov, DrugCov, and Chart values should be collapsed. Enrollment periods separated by more than one day should not be bridged. For example, an Enr\_End date of 1/31/2019 should be bridged with an Enr\_Start date of 2/1/2019, but should not be bridged with an Enr\_Start date of 2/2/2019.
3. Enr\_End should not be imputed using the date of death found in the Death table.
4. Chart variable aims to identify enrollment periods for which medical charts cannot be requested. Potential scenarios include:
   1. Charts cannot be requested for Medicare members (all enrollment periods for Medicare members should be assigned Chart=N)
   2. Charts cannot be requested for administrative services only (ASO) populations (all ASO enrollment periods should be assigned Chart=N)

* If there is no definitive information indicating that medical charts cannot be requested for member enrollment period(s), records should be assigned Chart=Y.

# SCDM: Demographic Table Structure

**Description:** The SCDM Demographic Table contains one record per PatID with the most recent information on Birth\_Date, Sex, Race/Ethnicity, and PostalCode.

**Sort Order:** The Demographic table should be sorted by PatID.

**Unique Row:** PatID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID1 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| Birth\_Date | Num(4) | SAS date | Optional | Date of birth. | 12/5/1971 |
| Sex | Char(1) | A = Ambiguous (e.g., transgender/ hermaphrodite)  F = Female  M = Male  U = Unknown | Required | Sex. | F |
| Hispanic | Char(1) | N = No  Y = Yes  U = Unknown | Required | A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. | N |
| Race | Char(1) | 0 = Unknown  1 = 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.  2 = 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.)  3 = Black or African American (A person having origins in any of the black racial groups of Africa.)  4 = Native Hawaiian or Other Pacific Islander (A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.)  5 = White (A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.) | Please use only one race value per patient. | Required | 2 |
| PostalCode | Char(#) | Postal/region code | Optional | USA: First 5 digits of the ZIP code of the patient’s most recent primary residence. (5 characters only)Other: Complete postal code or region identifier. (variable length is dependent on code length) | 04090 |
| PostalCode\_Date | Num(4) | SAS date | Optional | Earliest date that the PostalCode is believed to be continuously correct up until the end date of your source data for the ETL. Date will be updated/overwritten as postal code for a patient/member changes over time. | 12/12/2009 |

NOTES:

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.

# SCDM: Dispensing Table Structure

**Description:** The SCDM Outpatient Pharmacy Dispensing Table contains one record per unique outpatient pharmacy dispensing. Rollback transactions and other adjustments should be processed before populating this table.1,2

**Sort Order:** The Dispensing Table should be sorted by PatID and RxDate.

**Unique Row:** PatID, RxDate, Rx\_CodeType, Rx, ProviderID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID3 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| ProviderID | Num(#)5 | Unique provider identifier | Required | Identifier for the individual provider who prescribed the drug. As with the PatID, the provider identifier is a pseudoidentifier with a consistent crosswalk to the real identifier. If an individual provider/prescriber can not be identified, set to special missing value .U. This variable links to the Provider table. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 12345 |
| RxDate | Num(4) | SAS date | Required | Dispensing date (as close as possible to date the person received the dispensing). | 11/29/2005 |
| Rx | Char(#) | Drug Code | Required | Code representing a prescribed medication or medical device. Please expunge any place holders (e.g., ‘-‘ or extra digit). Use the fewest number of bytes to contain values for all values of Rx\_CodeType. | 00006007431 |
| Rx\_CodeType4 | Char(2) | ND = National Drug Code (US)  SN = SNOMED CT (US)  SK = SNOMED CT (UK/CPRD)  DM = Dictionary of Medicines and Devices (UK)  DI = Drug Identification Number (CA)  RN = RxNorm (US)  AT= Anatomical Therapeutic Chemical Classification (DK) | Required | Code type of prescribed medication or medical device. This field combined with the Rx field should be used to capture any type of prescribed medication or medical device available in the source data. Other code types may be added as new terminologies are used. | SK |
| RxSup2 | Num(4) | Days supply | Optional | Number of days that the medication supports based on the number of doses as reported by the pharmacist. This amount is typically found on the dispensings record. It should not be necessary to calculate this variable for use in the SCDM. Positive integer values are expected. | 30 |
| RxAmt2 | Num(4) | Amount dispensed | Optional | Number of units (pills, tablets, vials) dispensed. Net amount per dispensing. This amount is typically found on the dispensings record. It should not be necessary to calculate this variable for use in the SCDM. Positive values are expected. | 60 |

NOTES:

1. Medications distributed in other settings such as infusions given in medical practices or inpatient hospitals are captured in the utilization tables. Medication prescriptions (as opposed to dispensings) are captured in the Prescribing table within the SCDM.
2. Rollback transactions and other adjustments that are indicative of a dispensing being canceled or not picked up by the member should be processed before populating this table. This may be handled differently by Data Partners and may be affected by billing cycles.
3. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
4. Rx\_CodeType includes options for values that are relevant to medication and medical device codes used in different international jurisdictions.
5. If all ProviderID values are unknown (i.e., set to .U), use Num(3) for the length of the variable.

# SCDM: Encounter Table Structure

**Description:** The SCDM Encounter Table contains one record per PatID and EncounterID. Each encounter should have a single record in the SCDM Encounter Table. Each diagnosis and procedure recorded during the encounter should have a separate record in the Diagnosis or Procedure Tables. Rollback transactions and other adjustments should be processed before populating this table.1 • Conversion from Ambulatory or Emergency Visit (ED, AV, or OA) into Inpatient Hospital or Institutional Stay (IP, IS) through admission represents multiple encounters. The Ambulatory or Emergency Visit is one encounter, the Inpatient Hospital or Institutional Stay after admission is a second encounter.• Transfer from one facility to another facility starts a new encounter at the new facility.• If supported by Data Partner source data, multiple visits on the same day to the same facility, with no conversion from Ambulatory or Emergency Visit (ED, AV, or OA) into Inpatient Hospital or Institutional Stay (IP, IS) admission, should be created as distinct encounters and should include all diagnoses and procedures that were recorded during those separate visits, with distinct ProviderID values populated. If source data cannot identify distinct multiple visits on the same day, then populate as a single encounter.

**Sort Order:** The Encounter Table should be sorted by PatID and ADate.

**Unique Row:** PatID, EncounterID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID2 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| EncounterID3 | Num(#) | Unique encounter identifier | Required | Arbitrary encounter-level identifier. Used to link across the Encounter, Diagnosis, Procedure, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 98765432159753 |
| ADate | Num(4) | SAS date | Required | Encounter or admission date. | 12/24/2019 |
| DDate | Num(4) | SAS date | Conditional on EncType value | Discharge date. Should be populated for all Inpatient Hospital Stay (IP) and Non-Acute Institutional Stay (IS) encounter types. May be populated for Emergency Department (ED) encounter types. Should be missing for ambulatory visit (AV or OA) encounter types. For patients still in facility (IP or IS) use special missing value of .S. | 12/31/2019 |
| EncType | Char(2) | AV = Ambulatory Visit (Includes visits at outpatient clinics, same day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes Emergency Department encounters. Transfer from AV facility to an ED facility starts a new encounter at the new facility.)  ED = Emergency Department (Includes ED encounters that become inpatient stays through hospital admission. In this scenario, ED is one encounter, Inpatient Hospital Stay after admission from the ED is a second encounter. ED data should be identified before hospitalization data to ensure that ED with subsequent admission won’t be rolled up in the hospital event. Transfer from one ED facility to another ED facility starts a new encounter at the new facility. Excludes urgent care visits.)  IP = Inpatient Hospital Stay (Includes all inpatient stays, same-day hospital discharges, hospital transfers, and other acute hospital care where the discharge is after the admission date. Transfer from one facility to another starts a new encounter at the new facility.)  IS = Non-Acute Institutional Stay (Includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays. Transfer from one facility to another starts a new encounter at the new facility.)  OA = Other Ambulatory Visit (Includes other non-overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.) | Required | Encounter Type | IP |
| FacilityID | Num(#)4 | Servicing provider identifier | Required | Local facility pseudoidentifier that identifies hospital or clinic in which the encounter occurred. There must be only one facility per encounter. Used for chart abstraction and validation. This variable links to the Facility table. If unavailable, set to special missing value .U.Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 45678 |
| Discharge\_ Disposition | Char(1) | A = Discharged aliveE = ExpiredS = Still in facilityU = Unknown | Conditional on EncType value | Should be populated for Inpatient Hospital Stay (IP) and Non-Acute Institutional Stay (IS) encounter types. May be populated for Emergency Department (ED) encounter types. Should be missing for ambulatory visit (AV or OA) encounter types. | A |
| Discharge\_Status | Char(2) | AF = Adult Foster Home  AL = Assisted Living Facility  AM = Against Medical Advice  AW = Absent without leave  EX = Expired  HH = Home Health  HO = Home / Self Care  HS = Hospice  IP = Other Acute Inpatient Hospital  NH = Nursing Home (Includes ICF)  OT = Other  RH = Rehabilitation Facility  RS = Residential Facility  SH = Still In Facility  SN = Skilled Nursing Facility  UN = Unknown | Conditional on EncType value | Should be populated for Inpatient Hospital Stay (IP) and Non-Acute Institutional Stay (IS) encounter types. May be populated for Emergency Department (ED) encounter types. Should be missing for ambulatory visit (AV or OA) encounter types. | SN |
| DRG | Char(3) | 3-digit Diagnosis Related Group | Conditional on EncType value | Diagnosis Related Group. Should be populated for IP and IS encounter types. May be populated for ED encounter types. Can be missing for IP, IS, ED. Should be missing for AV or OA encounters. Use leading zeroes for codes less than 100. | 372 |
| DRG\_Type | Char(1) | 1 = CMS-DRG (old system)  2 = MS-DRG (current system) | Conditional on EncType value | DRG code version. MS-DRG (current system) began on 10/1/2007. Should be missing for AV or OA encounters. Can be missing for IP, IS, ED. | 1 |
| Admitting\_Source | Char(2) | AF = Adult Foster Home  AL = Assisted Living Facility  AV = Ambulatory Visit  ED = Emergency Department  HH = Home Health  HO = Home / Self Care  HS = Hospice  IP = Other Acute Inpatient Hospital  NH = Nursing Home (Includes ICF)  OT = Other  RH = Rehabilitation Facility  RS = Residential Facility  SN = Skilled Nursing Facility  UN = Unknown | Conditional on EncType value | Should be populated for Inpatient Hospital Stay (IP) and Non-Acute Institutional Stay (IS) encounter types. May be populated for Emergency Department (ED) encounter types. Should be missing for ambulatory visit (AV or OA) encounter types. | HH |

NOTES:

1. Rollback transactions and other adjustments should be processed before populating this table. This may be handled differently by Data Partners and may be affected by billing cycles. Encounters for a patient to the same facility but with different individual providers should be set as distinct encounters.The definition of a unique row in the Encounter table (i.e., PatID/ EncounterID) may be satisfied while multiple rows may have the same PatID/ ADate / FacilityID / EncType. Uniqueness of encounters can be verified by linking to the ProviderID values in the Diagnosis and Procedure tables.For claims-based source systems:
   * Multiple claims that reflect a single encounter should be rolled into a single encounter, such as an inpatient hospitalization that generates multiple claims from the facility.
   * Transfers from one hospitalization to another should have each facility’s hospitalization set as a single encounter.
   * Claims with visits on multiple dates should have each date established as a separate encounter, such as multiple outpatient visits to the same individual provider all billed on a single claim.
2. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
3. For efficiency, medical utilization data is captured in 3 tables:
   * **Encounter**: the encounter record that characterizes the outpatient visit or hospital stay
   * **Diagnosis**: the diagnosis or other clinical code(s) associated with the encounter record
   * **Procedure**: the procedure code(s) associated with the encounter record.

* All diagnoses and procedures for an encounter should have the same EncounterID. It is allowable to have “orphan” diagnosis or procedure records with EncounterIDs that do not have a match in the Encounter table.The Encounter, Diagnosis, Procedure, Inpatient Transfusion, Inpatient Pharmacy, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables are linked by PatID and EncounterID.

1. If all FacilityID values are unknown (i.e., set to .U), use Num(3) for the length of the variable.

# SCDM: Diagnosis Table Structure

**Description:** The SCDM Diagnosis Table contains one record per unique combination of PatID, EncounterID, DX\_CodeType, DX, and ProviderID. This table should capture all uniquely recorded diagnoses for all encounters, per provider.

**Sort Order:** The Diagnosis Table should be sorted by PatID and ADate.

**Unique Row:** PatID, EncounterID, DX\_CodeType, DX, ProviderID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID1 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| EncounterID2 | Num(#) | Unique encounter identifier | Required | Arbitrary encounter-level identifier. Used to link across the Encounter, Diagnosis, Procedure, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 98765432159753 |
| ADate | Num(4) | SAS date | Required | Encounter or admission date; Value must match ADate in the Encounter table for the same PatID/ EncounterID combination. | 12/24/2019 |
| ProviderID | Num(#)4 | Unique provider identifier | Required | Identifier for the individual provider who made the diagnosis. As with the PatID, the ProviderID identifier is a pseudoidentifier with a consistent crosswalk to the real identifier. If an individual provider cannot be identified, populate the ProviderID value with special missing value of .U. This variable links to the Provider table. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 99218766 |
| EncType | Char(2) | AV = Ambulatory Visit (Includes visits at outpatient clinics, same day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes Emergency Department encounters. Transfer from AV facility to an ED facility starts a new encounter at the new facility.)  ED = Emergency Department (Includes ED encounters that become inpatient stays through hospital admission. In this scenario, ED is one encounter, Inpatient Hospital Stay after admission from the ED is a second encounter. ED data should be identified before hospitalization data to ensure that ED with subsequent admission won’t be rolled up in the hospital event. Transfer from one ED facility to another ED facility starts a new encounter at the new facility. Excludes urgent care visits.)  IP = Inpatient Hospital Stay (Includes all inpatient stays, same-day hospital discharges, hospital transfers, and other acute hospital care where the discharge is after the admission date. Transfer from one facility to another starts a new encounter at the new facility.)  IS = Non-Acute Institutional Stay (Includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays. Transfer from one facility to another starts a new encounter at the new facility.)  OA = Other Ambulatory Visit (Includes other non-overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.) | Required | Encounter Type | IP |
| DX | Char(#) | Diagnosis code | Required | Remove decimal points, site specific suffixes and prefixes. Other codes should be listed as recorded in the source data. Use the fewest number of bytes to contain values for all values of DX\_CodeType. | 7615 |
| Dx\_Codetype | Char(2) | 09 = ICD-9-CM  C9 = ICD-9 (Canada)  10 = ICD-10-CM  11 = ICD-11-CM  SM = SNOMED CT  OT = Other | Required | Diagnosis code type. This field combined with the DX field should be used to capture any type of diagnosis or clinical concept available in the source data. Other code types may be added as new terminologies are used. | 09 |
| OrigDX | Char(#) | Original diagnosis from source table, if different | Optional | Used if Data Partner has to map internal codes to standard codes. |  |
| PDX | Char(1) | P = Principal  S = Secondary  X = Unable to Classify | Conditional on EncType value | Principal discharge diagnosis flag. Populate only for IP and IS encounters. For ED, AV, and OA encounter types, set as missing/blank. One principal diagnosis is expected per Encounter, although in some instances more than one diagnosis may be flagged as principal. | P |
| PAdmit3 | Char(1) | N = No  Y = Yes  U = Unknown or unable to determine  X = Unreported/not used | Required | Indicates whether the diagnosis code is indicative of a condition present at admission. | X |

NOTES

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
2. For efficiency medical utilization data is captured in 3 tables:
   * **Encounter**: the encounter record that characterizes the outpatient visit or hospital stay
   * **Diagnosis**: the diagnosis code(s) associated with the encounter record
   * **Procedure**: the procedure code(s) associated with the encounter record

* All diagnoses and procedures for an encounter should have the same EncounterID. It is allowable to have “orphan” diagnosis or procedure records with EncounterIDs that do not have a match in the Encounter table.
* The Encounter, Diagnosis, Procedure, Inpatient Transfusion, Inpatient Pharmacy, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables are linked by PatID and EncounterID.

1. Sentinel Data Partners receive individual guidance for populating the PAdmit field.
2. If all ProviderID values are unknown (i.e., set to .U), use Num(3) for the length of the variable.

# SCDM: Procedure Table Structure

**Description:** The SCDM Procedure Table contains one record per unique combination of PatID, EncounterID, Px\_CodeType, Px, and ProviderID. This table should capture all uniquely recorded procedures for all encounters, per provider.

**Sort Order:** The Procedure Table should be sorted by PatID and ADate.

**Unique Row:** PatID, EncounterID, Px\_CodeType, Px, ProviderID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID1 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see “SAS Lengths” Reference Table. | 123456789 |
| EncounterID2 | Num(#) | Unique encounter identifier | Required | Arbitrary encounter-level identifier. Used to link across the Encounter, Diagnosis, Procedure, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 98765432159753 |
| ADate | Num(4) | SAS date | Required | Encounter or admission date; Value must match ADate in the Encounter table for the same PatID/ EncounterID combination. | 12/24/2019 |
| ProviderID | Num(#)3 | Unique provider identifier | Required | Identifier for the individual provider who made the diagnosis. As with the PatID, the ProviderID identifier is a pseudoidentifier with a consistent crosswalk to the real identifier. If an individual provider cannot be identified, populate the ProviderID value with special missing value of .U. This variable links to the Provider table. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 99218766 |
| EncType | Char(2) | AV = Ambulatory Visit (Includes visits at outpatient clinics, same day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes Emergency Department encounters. Transfer from AV facility to an ED facility starts a new encounter at the new facility.)  ED = Emergency Department (Includes ED encounters that become inpatient stays through hospital admission. In this scenario, ED is one encounter, Inpatient Hospital Stay after admission from the ED is a second encounter. ED data should be identified before hospitalization data to ensure that ED with subsequent admission won’t be rolled up in the hospital event. Transfer from one ED facility to another ED facility starts a new encounter at the new facility. Excludes urgent care visits.)  IP = Inpatient Hospital Stay (Includes all inpatient stays, same-day hospital discharges, hospital transfers, and other acute hospital care where the discharge is after the admission date. Transfer from one facility to another starts a new encounter at the new facility.)  IS = Non-Acute Institutional Stay (Includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays. Transfer from one facility to another starts a new encounter at the new facility.)  OA = Other Ambulatory Visit (Includes other non-overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.) | Required | Encounter Type | IP |
| PX | Char(#) | Procedure code | Required | Remove decimal points, site specific suffixes and prefixes. Other codes should be listed as recorded in the source data. Convert local codes to standard codes. Use the fewest number of bytes to contain values for all values of Px\_CodeType. | 76815 |
| PX\_CodeType | Char(2) | 09 = ICD-9-CM  10 = ICD-10-CM  11 = ICD-11-CM  C2 = CPT Category II  C3 = CPT Category III  C4 = CPT-4 (i.e., HCPCS Level I)  CP = Canadian Classification of Diagnostic, Therapeutic, and Surgical Procedures (CCP)  CX = Canadian Classification of Health Interventions (CCI)  H3 = HCPCS Level III  HC = HCPCS (i.e., HCPCS Level II)  LC = LOINC  LO = Local homegrown  ND = NDC  OT = Other  RE = Revenue  SK = SNOMED CT (UK/CPRD) | Required | Procedure code type. | C4 |
| OrigPX | Char(#) | Original procedure code from source table, if different. | Optional | Used if Data Partner has to map internal codes to standard codes. |  |

NOTES

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
2. For efficiency medical utilization data is captured in 3 tables:
   * **Encounter**: the encounter record that characterizes the outpatient visit or hospital stay
   * **Diagnosis**: the diagnosis code(s) associated with the encounter record
   * **Procedure**: the procedure code(s) associated with the encounter record

* All diagnoses and procedures for an encounter should have the same EncounterID. It is allowable to have “orphan” diagnosis or procedure records with EncounterIDs that do not have a match in the Encounter table.
* The Encounter, Diagnosis, Procedure, Inpatient Transfusion, Inpatient Pharmacy, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables are linked by PatID and EncounterID.

1. If all ProviderID values are unknown (i.e., set to .U), use Num(3) for the length of the variable.

# SCDM: Laboratory Result Table Structure

**Description:** The SCDM Laboratory Result Table contains one record per result/entry. Include only resulted lab tests.1 Data Partners are strongly encouraged to review the comprehensive [Sentinel Common Data Model Laboratory Result Table Documentation](https://www.sentinelinitiative.org/sites/default/files/data/distributed-database/Sentinel_Common-Data-Model_Laboratory-Result-Table-Documentation_0.pdf) for details on how to populate each variable.

**Sort Order:** The Laboratory Result Table should be sorted by PatID.

**Unique Row:** PatID and LabID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID2 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| LabID | Num(#) | Unique laboratory results/ row identifier | Required | Useful to map back to source data. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 027 |
| MS\_Test\_Name | Char(10) | See LAB.ms\_test\_name within the [Reference Tables](file:///C:\repos\DEV-12518\SCDM_v8.0.0_reference_tables_v1.0.0.xlsx). | Required | Abbreviated test name. Populated for all records. Several LOINC codes (LOINC) and/or local codes (LOCAL\_CD) can point to one MS\_Test\_Name. | ALP |
| Result\_Type | Char(1) | N = numeric  C = character | Required | Indicates whether the laboratory test result in Data Partner’s source data is Numeric (e.g., 100 ug/mL, <100 ug/mL, or >100 ug/mL) or Character (e.g., +, POS, POSITIVE, or ranges, such as 50-100 mg/mL). | N |
| MS\_Test\_Sub\_ Category | Char(6) | See LAB.ms\_test\_sub\_category within the [Reference Tables](file:///C:\repos\DEV-12518\SCDM_v8.0.0_reference_tables_v1.0.0.xlsx) | Conditionally required, based on MS\_Test\_Name | Sub-category for MS\_Test\_Name. Sub-categories apply to only select laboratory tests. DIRECT and CLC are populated only for MS\_Test\_Name = CHOL\_LDL. DDU and FEU is populated for only MS\_Test\_Name = D\_DIMER, Result\_Type = NBHCG and HCG are populated only for MS\_Test\_Name = PG. | PCR |
| Fast\_Ind | Char(1) | F= fasting  R= random  X= not applicable | Required | Fasting Indicator. Not all laboratory tests are differentiated by fasting status. For laboratory tests where fasting status is not considered to interpret results, Fast\_Ind is marked X (not applicable). For laboratory test results where fasting status may be considered to interpreting results (e.g., glucose), Fast\_Ind is marked F (fasting) only if the source data included with the laboratory test result indicates fasting test. All other laboratory test results where fasting status may be considered that is not explicitly marked as fasting, Fast\_Ind is marked R (random). | F |
| Specimen\_Source | Char(6) | See LAB.specimen\_source within the [Reference Tables](file:///C:\repos\DEV-12518\SCDM_v8.0.0_reference_tables_v1.0.0.xlsx) | Required | Specimen source. Populated for all records. Some laboratory tests have several possible valid values for Specimen\_Source. | SERUM |
| LOINC | Char(10) | LOINC code | Optional | Logical Observation Identifiers, Names, and Codes (LOINC) is a universal coding system for tests, measurements, and observations developed by the Regenstrief Institute. LOINC provides very granular information about the tests such as the long name of the test, test definition/description, component, system, property, timing, scale, method, and examples of units. All parts of the LOINC code, including the hyphen, are included. The last digit of the LOINC code is a check digit and is always preceded by a hyphen. If a record utilizes a local LOINC (e.g., LOINC candidate codes), the result of that record is included, however, the LOINC variable is set to null. Values in the LOINC variable do not contain leading zeros. LOINC is populated when available, thus not all records have LOINC. | 16182-8 |
| Stat | Char(1) | E = Expedite  R = Routine  S = Stat  U = Unknown or null | Required | Immediacy of test. The intent of this variable is to determine whether the test was obtained as part of routine care or as an emergent/urgent diagnostic test (designated as Stat or Expedite). | E |
| Pt\_Loc | Char(1) | E = Emergency department  H = Home  I = Inpatient  O = Outpatient  U = Unknown or null | Required | Patient location where the lab specimen was obtained. | O |
| Result\_Loc | Char(1) | L = Lab  P = Point of Care | Optional | Location of the test result. Point of Care locations may include anticoagulation clinic, newborn nursery, finger stick in provider office, or home. The default value is L unless the result is Point of Care. There are not any null values. | L |
| LOCAL\_CD | Char(#) | Unique to each Data Partner | Optional | Local code (non-LOINC) related to an individual lab test. Values for LOCAL\_CD are not required. LOCAL\_CD is only populated if available in source data. This variable will not be used in queries, but may be used by local programmers to identify and extract the required CDM tests. |  |
| BATTERY\_CD | Char(#) | Unique to each Data Partner | Optional | Local code (non-LOINC) related to a battery or panel of lab tests. Values for BATTERY\_CD are not required. BATTERY\_CD is only populated if available in source data. This variable will not be used in queries, but may be used by local programmers to identify and extract the required CDM tests. |  |
| PX | Char(#) | Procedure code | Conditionally required if PX\_CodeType is populated | Procedure Code associated with the laboratory result record. Values for PX are not required. PX is only populated if available in source data. PX is populated if PX\_CodeType is populated. | 76815 |
| PX\_CodeType | Char(2) | 09 = ICD-9-CM  10 = ICD-10-CM  11 = ICD-11-CM  C2 = CPT Category II  C3 = CPT Category III  C4 = CPT-4 (i.e., HCPCS Level I)  CP = Canadian Classification of Diagnostic, Therapeutic, and Surgical Procedures (CCP)  CX = Canadian Classification of Health Interventions (CCI)  H3 = HCPCS Level III  HC = HCPCS (i.e., HCPCS Level II)  LO = Local homegrown  RE = Revenue  SK = SNOMED CT (UK/CPRD)  OT = Other | Conditionally required if PX is populated | Procedure code type associated with the laboratory result record. Values for PX\_CodeType are not required. PX\_CodeType is only populated if available in source data. PX\_CodeType is populated if PX is populated. | C4 |
| Order\_dt3 | Num(4) | SAS date | Optional | Date that the test was ordered. This date could fall anywhere from the same day the specimen was collected to months before the specimen was collected. Please see footnote 3. | 11/9/2009 |
| Lab\_dt3 | Num(4) | SAS date | Optional | Date that the specimen was collected. For most Sentinel activities, this is the most relevant date. Please see footnote 3. | 11/21/2009 |
| Lab\_tm | Num(4) | SAS time value HH:MM | Optional | Time of day that the specimen was collected. Valid values are between 00:00 to 23:59. Please note that Lab\_tm is associated with Lab\_dt. | 15:15 |
| Result\_dt3 | Num(4) | SAS date | Optional | Date that the laboratory test was resulted. Dependent on the time of the test, this date could be the same day the specimen was collected or any date up to weeks later. Please see footnote 3. | 11/22/2009 |
| Result\_tm | Num(4) | SAS time value HH:MM | Optional | Time that the laboratory test was resulted, represented as a SAS time value. SAS format is HHMM. Valid values are between 00:00 to 23:59. Please note that Result\_tm is associated with Result\_dt. | 2:33 |
| Orig\_Result | Char(50) | Text | Required | Orig\_Result is populated for all records. If Result\_Type equals N, then the Orig\_Result value represents the numeric portion of the test result, stripped of any Modifiers (e.g., >, LE, GT) and/or result units (e.g., ng/ml, cells/mm3, %). If Result\_Type equals C, Orig\_Result value reflects the test string based on source data. Additionally, for records where Result\_Type = C, values may include a decimal point (.), a sign (-, +) or text (e.g., POSITIVE, NEGATIVE, DETECTED). For records where Result\_Type = N, the symbols >, <, >=, <= are removed from the value and stored in the Modifier variable and result units are removed and stored as Orig\_Result\_unit variable. | + |
| MS\_Result\_C | Char(50) | BORDERLINE  NEGATIVE  POSITIVE  UNDETERMINED  RANGE:start|end[unit] | Conditionally required when Result\_Type = C | This standardized result value is only populated for text or character results (Result\_Type = C) and is null for numeric results (Result\_Type = N). If Result\_Type = C and the source result is a range (e.g., 50-100 mg/mL), then populate MS\_Result\_C using Orig\_Result with the start and end values of the range delimited by a vertical bar (e.g.,“50-100 mg/mL” becomes 50|100 mg/mL). | POSITIVE50|100 mg/mL |
| MS\_Result\_N | Num(8) | Numeric digits with or without a decimal | Conditionally required when Result\_Type = N | Standardized/converted numeric result for records where Result\_Type=N. Acceptable values are numeric digits with or without a decimal (“.”). If the standardized result unit (Std\_Result\_unit) differs from an acceptable MS\_Result\_unit for a numeric test (Result\_Type=N), then Orig\_Result is converted prior to populating the MS\_Result\_N value. Additionally, MS\_Result\_unit reflects this conversion. This variable is only populated for numeric results (Result\_Type = N) and does not contain negative values. This variable is null for text/character results (Result\_Type = C). | 100 |
| Modifier | Char(2) | EQ = equal  GE = greater than or equal to  GT = greater than  LE = less than or equal to  LT = less than  TX = text | Required | Modifier for result values. Any relational operators in the original source data value (e.g., <, >, or = ) are reflected in the Modifier variable. For example, if the original source data value is <=200, then Orig\_Result = 200 and Modifier = LE. If the original source data result value is text, then Modifier = TX. If the original source data result value is numeric (digits with or without decimal) and does not contain an operator, then Modifier = EQ. | LE |
| Orig\_Result\_unit | Char(20) | Text | Optional | Original units for the test result, as reported in source data. This variable is directly related to Orig\_Result and Modifier. This variable does not include the test name, or any special characters, unless that character is part of the unit value. For example, special characters are included in 10^9/L. However, special characters are not included in “U/L”, as these carats are not part of the unit value. Some laboratory tests may not have a result unit. | 10^9/L |
| Std\_Result\_unit | Char(11) | Text | Optional | Standardized units for the result. The purpose of Std\_Result\_unit is to modify Orig\_Result\_unit from free text to a standardized unit, as an intermediary step in converting from Orig\_Result\_unit to MS\_Result\_unit. This variable is only populated for records where Result\_Type = N. Common rules and guidelines for populating Std\_Result\_unit, include: converting all text values for Orig\_Result\_unit to uppercase, and using standard abbreviations as provided by SOC. This variable does not include special characters, unless that character is part of the unit. For example, special characters are included in 10^9/L. However, special characters are not included in “U/L”, as these carats are not part of the unit value. This value is not usually null, though there are exceptions, such as when the test result is a ratio (e.g., International Normalized Ratio *INR*. This value is null for character tests (Result\_Type=C) until that test has been reviewed and characterized by the Clinical Data Elements Workgroup. | CELL/MM3 |
| MS\_Result\_unit | Char(11) | Text | Conditionally required when Result\_Type = N | Converted/standardized result units for the value populated in MS\_Result\_N. This value is null for records where Result\_Type = C, and null for Laboratory Tests that have not been characterized and reviewed by the Clinical Data Elements Workgroup. This value may be null for some numeric tests (e.g., as International Normalized Ratio *INR* is a ratio, it does not have a result unit). For tests that require a result unit, MS\_Result\_unit is set to UNKNOWN for all records where the original result unit is missing or blank, “NULL”, “N/A”, “NA”, or “UNK”. Guidance is provided for only Laboratory Tests that have been reviewed by the Clinical Data Elements Workgroup. | G/L |
| Norm\_Range\_low | Char(8) | Text | Conditionally required when Result\_Type = N | Lower bound of the normal reference range, as assigned by the laboratory. The normal range associated with a test, as assigned by the laboratory is parsed out into the following variables: Norm\_Range\_low, Modifier\_low, Norm\_Range\_high, Modifier\_high, and reflects what is seen in source data. Value only contains the value of the lower bound of the normal reference range. This value is not converted and unit of measure is not included. It is assumed that the associated unit is the same as the original result unit from the source data. The symbols >, <, >=, <= are removed. For example, if the normal range for a test is >100 and <300, then 100 is entered. Additionally, this value is null for records where Result\_Type = C. | 100 |
| Modifier\_low | Char (2) | EQ = equal  GE = greater than or equal to  GT = greater than | Conditionally required when Result\_Type=N | Modifier for Norm\_Range\_low values. The normal range associated with a test, as assigned by the laboratory is parsed out into the following variables: Norm\_Range\_low, Modifier\_low, Norm\_Range\_high, Modifier\_high and reflects what is seen in source data. This value is null for records where Result\_Type=C. For numeric results one of the following needs to be true:  Both Modifier\_low and Modifier\_high contain EQ (e.g., normal values fall in the range 3-10).  Modifier\_low contains GT or GE and Modifier\_high is null (e.g., normal values are >3 with no upper boundary).  Modifier\_high contains LT or LE and Modifier\_low is null (e.g., normal values are <=10 with no lower boundary). | EQ |
| Norm\_Range\_high | Char (8) | Text | Conditionally required when Result\_Type = N | Upper bound of the normal reference range, as assigned by the laboratory. The normal range associated with a test, as assigned by the laboratory is parsed out into the following variables: Norm\_Range\_low, Modifier\_low, Norm\_Range\_high, Modifier\_high and reflects what is seen in source data. Value only contains the value of the upper bound of the normal reference range. This value is not converted and unit of measure is not included. It is assumed that the associated unit is the same as the original result unit from source data. The symbols >, <, >=, <= are removed. For example, if the normal range for a test is >100 and <300, then 100 is entered. Additionally, this value is null for records where Result\_Type = C. | 300 |
| Modifier\_high | Char (2) | EQ = equal  LE = less than or equal to  LT = less than | Conditionally required when Result\_Type = N | Modifier for Norm\_Range\_high values. The normal range associated with a test, as assigned by the laboratory is parsed out into the following variables: Norm\_Range\_low, Modifier\_low, Norm\_Range\_high, Modifier\_high and reflects what is seen in source data. The value is null for records where Result\_Type=C. For numeric results one of the following needs to be true:  Both Modifier\_low and Modifier\_high contain EQ (e.g., normal values fall in the range 3-10).  Modifier\_low contains GT or GE and Modifier\_high is null (e.g., normal values are >3 with no upper boundary).  Modifier\_high contains LT or LE and Modifier\_low is null (e.g., normal values are <=10 with no lower boundary). | LT |
| Abn\_ind | Char (2) | AB = abnormal  AH = abnormally high  AL = abnormally low  CH = critically high  CL = critically low  CR = critical  IN = inconclusive  NL = normal  UN = unknown | Required | Abnormal result indicator. This value comes directly from the source data; this value is not created programmatically based on variables such as MS\_Result\_N, Norm\_Range\_high, or Norm\_Range\_low. | CR |
| Order\_dept | Char (Site Specific length) | Unique to each Data Partner | Optional | Local code for ordering provider department. Values for Order\_dept are not required. Populate only if ordering provider department is available in source data. |  |
| FacilityID | Num(#)4 | Servicing facility identifier | Required | Local facility pseudoidentifier that identifies the hospital or clinic. Taken from facility claims. Used for chart abstraction and validation. This variable links to the Facility table. If unavailable or is not purposely populated, set to special missing value .U. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 12345678 |

NOTES:

1. Only records with actual lab results should be included in this table. If the result suggests that the test was run (e.g., result is “borderline” or “inconclusive”) include it. But if the test is not resulted for any reason (specimen not sufficient, patient did not show) then do not include it. Additionally, negative numeric values (e.g., -5.0 mg/ml) are not included.
2. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
3. There are three dates that can be associated to the laboratory results: Order date (ORDER\_DT), Laboratory date (Lab\_dt), and Result date (RESULT\_DT). The typical sequence of these date variables, from earliest to latest occurrence, is: ORDER\_DT ≤ Lab\_dt ≤ RESULT\_DT. One or more of these dates is populated for each record in the Laboratory Result Table. These dates are all populated if available in source data.
4. If all FacilityID values are unknown (i.e., set to .U), use Num(3) for the length of the variable.

# SCDM: Vital Signs Table Structure

**Description:** The SCDM Vital Signs Table contains one record per result/entry.

**Sort Order:** The Vital Signs Table should be sorted by PatID and Measure\_Date.

**Unique Row:** No definition for this table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID1 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). |  |
| EncounterID2 | Num(#) | Unique encounter identifier | Optional | Arbitrary encounter-level identifier. Used to link acronss the Encounter, Diagnosis, Procedure, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). |  |
| Measure\_Date | Num(4) | SAS date | Required | Date the vital signs were measured. |  |
| Measure\_Time | Num(4) | SAS time value HH:MM | Optional | Time associated with the vital signs record. This may be the time an actual blood pressure measurement was taken or it may be a check-in time from encounter. |  |
| HT | Num(8) | Number gt 0 | Optional | Height (in inches). ####.## = If HT can be represented in inches. Only populated if height was taken on this date. If missing, leave blank. |  |
| WT | Num(8) | Number gt 0 | Optional | Weight (in lbs). ####.## = If WT can be represented in pounds. Only populated if weight was taken on this date. If missing, leave blank. |  |
| Diastolic | Num(4) | Integer ge 0 | Optional | Diastolic blood pressure. ### = If Diastolic can be represented in mmHg. Only populated if diastolic blood pressure was taken on this date. If missing, leave blank. |  |
| Systolic | Num(4) | Integer ge 0 | Optional | Systolic blood pressure. ### = If Systolic can be represented in mmHg. Only populated if systolic blood pressure was taken on this date. If missing, leave blank. |  |
| BP\_Type | Char(1) | E = Extended  M = Multiple  O = Orthostatic  R = Rooming | Optional | Type of blood pressure taken. |  |
| Position | Char(1) | 1 = Sitting  2 = Standing  3 = Supine | Optional | Position for orthostatic blood pressure. If unknown, leave blank. |  |
| Tobacco | Num(3) | 1 = Current user  2 = Never  3 = Quit/former user  4 = Passive  5 = Environmental exposure  6 = Not asked  7 = Conflicting | Optional | Tobacco status as of the visit date. Unknown values should be left blank. The “Not asked” value should be used only when it is a valid response from your system (e.g. this is a valid value for EPIC). The “Conflicting” value should be used when you receive tobacco information from multiple sources that disagree. |  |
| Tobacco\_Type | Num(3) | 1 = Cigarettes only 2 = Other tobacco only 3 = Cigarettes and other tobacco 4 = None | Optional | Type of tobacco used. Unknown values should be left blank. |  |

NOTES:

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
2. The Encounter, Diagnosis, Procedure, Inpatient Transfusion, Inpatient Pharmacy, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables are linked by PatID and EncounterID.

# SCDM: Death Table Structure

**Description:** The SCDM Death Table1 contains one record per PatID. When legacy data have conflicting reports, please make a local determination as to which to use. There is typically a 1-2 year lag in death registry data.

**Sort Order**: The Death Table should be sorted by PatID.

**Unique Row**: PatID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID2 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| DeathDt | Num(4) | SAS date | Required | Date of death. | 1/10/2019 |
| DtImpute | Char(1) | B = Both month and day imputed  D = Day imputed  M = Month imputed  N = Not imputed | Required | When DeathDt is imputed, this variable indicates which parts of the date were imputed. | N |
| Source | Char(1) | L = Other, locally defined  N = National Death Registry  S = Death files from State/ Region/ Province  T = Tumor data | Required | Source of death information. | S |
| Confidence | Char(1) | E = Excellent  F = Fair  P = Poor | Required | Confidence that the patient drawn from the Source data represents the actual patient (contrasts with Confidence in the Cause of Death table). If uncertain, use P = Poor. | E |

NOTES:

1. For efficiency, death data is captured in 2 tables:
   * **Death:** the record that characterizes the death date and source of that information,
   * **Cause of Death:** the cause(s) of death associated with the death record.

* These 2 tables are linked by PatID. All Cause of Death records have a matching PatID in the Death Table.

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.

# SCDM: Cause of Death Table Structure

**Description**: The SCDM Cause of Death Table can contain multiple COD records per PatID1. When legacy data have conflicting reports, please make a local determination as to which to use. There is typically a 1-2 year lag in death registry data.

**Sort Order**: The Cause of Death Table should be sorted by PatID.

**Unique Row**: PatID, CodeType, COD.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID2 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| COD | Char(8) | Diagnosis code | Required | Remove decimal points, site specific suffixes and prefixes. | J180 |
| CodeType | Char(2) | 09 = ICD-9  10 = ICD-10 | Cause of death code type. | 09 |  |
| CauseType | Char(1) | C = Contributory  I = Immediate / Primary  O = Other  U = Underlying | Cause of death type. There should be only one “Underlying” code for cause of death, per PatID. | C |  |
| Source | Char(1) | L = Other, locally defined  N = National Death  Registry  S = Death files from State/ Region/ Province  T = Tumor data | Required | Source of cause of death information. | S |
| Confidence | Char(1) | E = Excellent  F = Fair  P = Poor | Required | Confidence that the patient drawn from the Source data represents the actual patient (contrasts with Confidence in the Death table). If uncertain, use P = Poor. | E |

NOTES:

1. For efficiency, death data is captured in 2 tables:
   * **Death**: the record that characterizes the death date and source of that information,
   * **Cause of Death**: the cause(s) of death associated with the death record.

* These 2 tables are linked by PatID. All Cause of Death records have a matching PatID in the Death Table.

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.

# SCDM: Inpatient Pharmacy Table Structure

**Description:** The SCDM Inpatient Pharmacy table contains data on inpatient drug administrations. It contains one record per unique combination of PatID, NDC, RxADate, RxATime, and RxID. Each record represents a unique inpatient pharmacy dispensing administration.

**Sort Order:** The Inpatient Pharmacy Table should be sorted by PatID and RxADate.

**Unique Row:** PatID and RxID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID1 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| EncounterID2 | Num(#) | Unique encounter identifier | Required | Arbitrary encounter-level identifier. Used to link across the Encounter, Diagnosis, Procedure, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables. Use the fewest number of bytes necessary to hold all distinct values; [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 98765432159753 |
| NDC | Char(11) | National Drug Code | Required | Please expunge any place holders (e.g., ‘-’ or extra digit) | 12345678910 |
| RxID | Num(#) | Unique Rx administration identifier | Required | Useful to map back to source data. Use the fewest number of bytes necessary to hold all distinct values. Use the fewest number of bytes necessary to hold all distinct values; [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). |  |
| RxADate | Num(4) | SAS date value | Required | Rx Administration date | 12/1/2019 |
| RxATime | Num(4) | SAS time value HH:MM | Optional | Rx Administration time | 20:56 |
| RxRoute | Char(10) | Actual route description from source system | Optional | Actual / administered route. Standard list of allowable values under development. | IV |
| RxDose | Num(8) | Numeric digits with or without a decimal | Optional | Actual/administered dose. Intended to be analyzed in conjunction with the RxUOM (unit of measure) field and product strength data associated with the Drug Code (available from drug databases). Format captures maximum # of whole and decimal digits allowed by software technology for numeric data. | 100 |
| RxUOM | Char(10) | Actual unit of measure from source system | Optional | Actual/administered unit of measure. Intended to be analyzed in conjunction with the RxDose field and product strength data associated with the Drug Code (available from drug databases). Standard list of allowable values under development. | ML |

NOTES:

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
2. The Encounter, Diagnosis, Procedure, Inpatient Transfusion, Inpatient Pharmacy, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables are linked by PatID and EncounterID.

# SCDM: Inpatient Transfusion Table Structure

**Description:** The SCDM Inpatient Transfusion table contains data on inpatient blood transfusion administrations. It contains one record per unique combination of PatID and TransID. Each record represents a unique inpatient pharmacy transfusion administration, as defined by unique value combinations of PatID/ TransCode/ TransCode\_Type/ TDate\_Start/ Ttime\_Start.

**Sort Order:** The Inpatient Transfusion Table should be sorted by PatID and TDate\_Start.

**Unique Row:** PatID and TransID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID1 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| EncounterID2 | Num(#) | Unique encounter identifier | Required | Arbitrary encounter-level identifier. Used to link across the Encounter, Diagnosis, Procedure, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 98765432159753 |
| TransID | Char(15) | Unique transfusion administration identifier | Required | Retain because useful to map back to source data | 123456789012345 |
| TransCode | Char (15) | Code value for an infusion product | Required | Must be paired with the correct TransCode\_Type | 123451224200599 |
| TransCode\_Type | Char(2) | CD = CODABAR  IS = ISBT | Required | Transfusion product code type. This variable combined with the TransCode variable should be used to capture any type of Inpatient Infusion product in the source data. Other code types will be added as new terminologies are used. | CD |
| Orig\_TransProd | Char(#) | Original product name/ mnemonic | Optional | Name of product within Data Partner. Site-specific length. | Thawed POOLED PLATELETS |
| BloodType | Char(3) | A, B, O, AB (upper case) with Rh factor (+, -, or null only) or UN = Unknown | Required | Blood type and Rh factors, without leading spaces. Convert any text Rh factor to symbols (e.g., “pos” to “+”, “negative” to “-“). Rh factor can be blank. | AB+ |
| TDate\_Start | Num(4) | SAS date value | Required | Administration start date. | 12/1/2015 |
| TTime\_Start | Num(4) | SAS time value HH:MM | Optional | Administration start time. | 14:27 |
| TDate\_End | Num(4) | SAS date value | Optional | Administration end date. | 12/1/2015 |
| TTime\_End | Num(4) | SAS time value HH:MM | Optional | Administration end time. | 20:56 |
| EncType | Char(2) | ED = Emergency Department (Includes ED encounters that become inpatient stays through hospital admission. In this scenario, ED is one encounter, Inpatient Hospital Stay after admission from the ED is a second encounter. ED data should be identified before hospitalization data to ensure that ED with subsequent admission won’t be rolled up in the hospital event. Transfer from one ED facility to another ED facility starts a new encounter at the new facility. Excludes urgent care visits.)  IP = Inpatient Hospital Stay (Includes all inpatient stays, same-day hospital discharges, and other acute hospital care where the discharge is after the admission date. Transfer from one facility to another facility starts a new encounter at the new facility.)  IS = Non-Acute Institutional Stay (Includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays. Transfer from one facility to another facility starts a new encounter at the new facility.)  OA = Other Ambulatory Visit (Includes other non-overnight  AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.) | Optional | Encounter Type | IP |

NOTES:

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
2. The Encounter, Diagnosis, Procedure, Inpatient Transfusion, Inpatient Pharmacy, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables are linked by PatID and EncounterID.

# SCDM: Mother-Infant Linkage Table Structure

**Description:** The SCDM Mother-Infant Linkage Table contains one record per MPatID, CPatID, and ADate. This table is created following identification of mothers (via evidence of live delivery by women aged 10-54 inclusive) and infants (via date of birth) in the Sentinel Distributed Database (SDD). The file may include:

1. Live birth deliveries (with MPatID and ADate) that were linked to an infant (CPatID);
2. Live birth deliveries (with MPatID and ADate) that were not linked to an infant (CPatID, CBirth\_Date, Sex, and CEnr\_Start will have missing values); and
3. Infants (with CPatID) who were not linked to a mother (MPatID, MBirth\_Date, Age, EncounterID, EncType, ADate, DDate, Birth\_Type, and Birth\_Type\_Primes will have missing values).

**Sort Order:** The Mother-Infant Linkage Table should be sorted by MPatID, Adate, and CPatID.

**Unique Row:** MPatID, EncounterID, CPatID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| MPatID1 | Num(#) | Unique patient identifier | Required for mother | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). Must match mother PatID value in all other SCDM tables. Blank for infant-only records. | 123456789 |
| MBirth\_Date | Num(4) | SAS Date | Required for mother | Mother Birth\_Date value from SCDM Demographic table. Missing for infant-only records. | 12/5/1971 |
| Age | Num(3) | 10-54 inclusive | Required for mother | Mother’s age as of ADate. Missing for infant-only records. | 32 |
| EncounterID2 | Num(#) | Unique encounter identifier | Required for mother | Arbitrary encounter-level identifier. Used to link across the Encounter, Diagnosis, Procedure, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). EncounterID value from SCDM Encounter table, for mother’s delivery encounter. Missing for infant-only records. | 98765432159753 |
| EncType3 | Char(2) | AV = Ambulatory Visit  ED = Emergency Department  IP = Inpatient Hospital Stay  IS = Non-Acute Institutional Stay  OA = Other Ambulatory Visit | Required for mother | EncType value from SCDM Encounter table, for mother’s delivery encounter. Blank for infant-only records. | IP |
| ADate | Num(4) | SAS Date | Required for mother | ADate value from SCDM Encounter table, for mother’s delivery encounter. Missing for infant-only records. | 12/24/2005 |
| DDate | Num(4) | SAS Date; may be null | Optional for mother | DDate value from SCDM Encounter table, for mother’s delivery encounter. Missing for infant-only records. | 12/31/2005 |
| CPatID | Num(#) | Unique member identifier. | Required for infant | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). Must match infant PatID value in all other SCDM tables. Missing for mother/delivery only records. | 12341234 |
| CBirth\_Date | Num(4) | SAS Date | Required for infant | Infant Birth\_Date value from SCDM Demographic table. Missing for mother/delivery-only records. | 1/2/2015 |
| Sex | Char(1) | A = Ambiguous  F = Female  M = Male  U = Unknown | Required for infant | Infant Sex value from SCDM Demographic table. Blank for mother/ delivery-only records. | F |
| CEnr\_Start | Num(4) | SAS Date | Required for infant | Earliest Enr\_Start from Enrollment table. Missing for mother/delivery-only records. | 1/1/2005 |
| Birth\_Type | Num(3) | 0 = Unspecified # of live births  1 = 1 live birth  2 = 2 live births  3 = 3 live births  4 = 4 live births  5 = 5 live births  8 = Multiple live births, unspecified number  9 = Conflicting code(s) for number of live births | Required for mother | Based upon ICD-9-CM/ICD-10-CM codes in the health plan data for the delivery admission. Missing for infant-only records. | 3 |
| Birth\_Type\_Primes | Num(8) | 2+ | Required for mother | Multiplication of all prime numbers assigned to all instances of Birth\_Type found in delivery codes within the selected encounter, as follows: Prime = Birth\_Type 2 = Birth\_Type of 0 3 = Birth\_Type of 1 5 = Birth\_Type of 2 7 = Birth\_Type of 3 11 = Birth\_Type of 4 13 = Birth\_Type of 5 17 = Birth\_Type of 8 This provides a record of all values of Birth\_Type for the selected encounter. Missing for infant-only records. | 5 |
| MatchMethod | Char(2) | BC = Birth Certificate  RE = DP maintained birth registry  SI = health plan subscriber or family number  LA = exact or probabilistic last name and address match based upon health plan administrative data  OT = other  N1 = No subscriber/ family IDs available for linkage  N2 = No name/ address available for linkage  N3 = Neither subscriber/ family IDs nor name/ address available for linkage  NA = no linkage made; any other reason | Required | Prioritized method of linkage for mother-infant match, or reason for unlinked record: For linked records, prioritize so that only one method is listed: RE > SI > LA > BC > OT,For cases where a mother/ delivery is not linked to an infant OR an infant is not linked to a mother/delivery, the value of this variable should be one of N1, N2, N3, or NA only. | RE |

NOTES:

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
2. The Encounter, Diagnosis, Procedure, Inpatient Transfusion, Inpatient Pharmacy, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables are linked by PatID and EncounterID.
3. If more than 1 delivery encounter occur on the same ADate, then the EncType values are based on the encounter selected from the following hierarchy: IP > ED > AV > IS > OA.

# SCDM: Prescribing Table Structure

**Description:** The SCDM Prescribing Table contains one record per PatID and PrescribingID. This table should capture all uniquely recorded prescription orders, as unique combination of PatID, OrderDate, Rx\_CodeType, Rx, and RxRefills.

**Sort Order:** The Prescribing Table should be sorted by PatID and OrderDate.

**Unique Row:** PatID and PrescribingID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| PatID1 | Num(#) | Unique patient identifier | Required | Arbitrary person-level identifier. Used to link across tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789 |
| EncounterID2 | Num(#) | Unique encounter identifier | Optional | Arbitrary encounter-level identifier. Used to link across the Encounter, Diagnosis, Procedure, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 98765432159753 |
| PrescribingID3 | Num(#) | Unique row identifier | Required | Arbitrary identifier for each unique Prescribing record. Does not need to be persistent across refreshes, and may be created by any method that achieve a unique identifier per row. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 123456789012345 |
| ProviderID | Num(#)3 | Unique provider identifier | Required | Provider code for the individual provider who prescribed the medication. The provider code is a pseudoidentifier with a consistent crosswalk to the real identifier and is the same set of pseudoidentifiers for ProviderID in other SCDM tables. If an individual provider can not be identified, populate the ProviderID value with special missing value of .U. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 99218766 |
| OrderDate | Num(4) | Valid SAS dates | Required | Order date of the prescription by the provider | 2/16/2011 |
| Rx\_CodeType | Char(2) | ND = National Drug Code (US)  SN = SNOMED CT (US) SK = SNOMED CT (UK/CPRD)  DM = Dictionary of Medicines and Devices (UK)  DI = Drug Identification Number (CA)  RN = RxNorm (US)  AT= Anatomical Therapeutic Chemical Classification (DK)  GP = Generic Product Identifier | Required | Code type of prescribed medication or medical device. This field combined with the Rx field should be used to capture any type of prescribed medication or medical device available in the source data. Other code types may be added as new terminologies are used. | ND |
| Rx | Char(#) | Drug Code | Required | Code representing a prescribed medication or medical device. Please expunge any place holders (e.g., ‘-‘ or extra digit). Use the fewest number of bytes to contain values for all values of Rx\_CodeType. | 00006007431 |
| RxAmt | Num(4) | Positive integer values are expected. | Optional | Quantity ordered. | 90 |
| RxSup | Num(4) | Positive integer values are expected. | Optional | Number of days supply ordered, as specified by the prescription. | 90 |
| RxSource | Char(2) | OD = Order/EHR  DR = Derived  UN = Unknown  OT = Other | Required | Source of the prescribing information. | OD |
| RxRoute | Char(25) | Fixed list; see [Reference Tables](file:///C:\repos\DEV-12518\SCDM_v8.0.0_reference_tables_v1.0.0.xlsx) | Required | Route of medication delivery. | ORAL\_TABLET |
| RxDoseQuantity | Num(8) | Values greater than zero | Required | Dose of a given medication, as ordered by the provider. | 120 |
| RxDoseUnit | Char(25) | Fixed list; see [Reference Tables](file:///C:\repos\DEV-12518\SCDM_v8.0.0_reference_tables_v1.0.0.xlsx) | Required | Units of measure associated with the dose of the medication (i.e., RxDoseQuantity) as ordered by the provider. | ueq |
| RxDoseForm | Char(40) | Fixed list; see [Reference Tables](file:///C:\repos\DEV-12518\SCDM_v8.0.0_reference_tables_v1.0.0.xlsx) | Optional | The unit associated with the quantity prescribed. This is equivalent to RxNorm Dose Form. Only valuable if using RxNorm (Rx\_CodeType = RN). Can be blank. | PELLET |
| RxFreqQuantity | Num(4) | Number per unit in RxFreqUnit; integers expected | Required | Specified frequency of medication per unit of time. | 2 |
| RxFreqUnit | Char(1) | D = Per day  W = Per week  M = Per month  O = Other | Required | Frequency unit of administration. | D |
| RxRefills | Num(3) | 0 or positive integers | Required | Number of refills ordered (not including the original prescription). If no refills are ordered, the value should be zero. | 2 |
| RxPrnFlag | Char(1) | Y = Yes  N = No  U = Unknown | Required | Flag to indicate that all or part of medication frequency instructions includes “as needed.” | N |
| RxDAW | Char(1) | Y = Yes  N = No  U = Unknown  O = Other | Required | Flag to indicate whether the provider indicated that the medication order was to be dispensed as written (DAW). | Y |

NOTES:

1. PatID is a pseudoidentifier with a consistent crosswalk to the true identifier retained by the source Data Partner. For analytical data sets requiring patient-level data, only the pseudoidentifier is used to link across all information belonging to a patient.
2. The Encounter, Diagnosis, Procedure, Inpatient Transfusion, Inpatient Pharmacy, Vital Signs, Mother-Infant Linkage, Inpatient Pharmacy, Inpatient Transfusion, and Prescribing tables are linked by PatID and EncounterID.
3. If all ProviderID values are unknown (i.e., set to .U), use Num(3) for the length of the variable.

# SCDM: Facility Table Structure

**Description:** The SCDM Facility Table contains one record per FacilityID. This table should capture all uniquely recorded facility identifiers in the Encounter table and the Laboratory Results (if populated) tables.1

**Sort Order:** The Facility Table should be sorted by FacilityID.

**Unique Row:** FacilityID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| FacilityID2 | Num(#) | Servicing facility identifier | Required | Local facility pseudoidentifier that identifies hospital or clinic. Taken from facility claims. Used for chart abstraction and validation. | 12345678 |
| Facility\_Location | Char(#) | Geographic location (postal/region code) of servicing facility (not billing location) | Optional | Should be left blank if missing. | 04090 |

NOTES

1. If ALL FacilityID values in the other tables are set to .U, then create a Facility table, that meets these requirements:
   * Only 1 row in the table
   * FacilityID has a length of Num(3)
   * FacilityID is set to .U
   * Facility\_Location has a length of Char(1)
   * Facility\_Location is set to " " (i.e., blank)
2. FacilityID links to the same-named variable in the Encounter and Laboratory Results table.

# SCDM: Provider Table Structure

**Description:** The SCDM Provider Table contains one record per ProviderID. This table should capture all uniquely recorded individual provider identifiers in the Dispensing, Diagnosis, Procedure, and Prescribing (if populated) tables.1

**Sort Order:** The Provider Table should be sorted by ProviderID.

**Unique Row:** ProviderID.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable Name | Variable Type and Length (Bytes) | Values | Status | Definition / Comments / Guideline | Example |
| ProviderID2 | Num(#) | Unique provider identifier | Required | Identifier for the individual provider who wrote a prescription in the Prescribing table, was identified in a row in the Dispensing table, made a diagnosis in the Diagnosis table, or performed a procedure or service in the Procedure table. As with the PatID, the provider identifier is a pseudoidentifier with a consistent crosswalk to the real identifier. Use the fewest number of bytes necessary to hold all distinct values; see [“SAS Lengths” Reference Table](file:///C:\repos\DEV-12518\SAS_lengths_reference_table.md). | 99218766 |
| Specialty3 | Char(#) | Provider specialty, See PVD.specialty table within [Auxiliary Tables](file:///C:\repos\DEV-12518\SCDM_v8.0.0_reference_tables_v1.0.0.xlsx). | Required | Code indicating the medical specialty of the Provider. If an individual provider has more than one specialty, select the specialty under which the provider practices most often. Data Partners are requested to map to the most specific description possible. That is, Map to a 10-character Taxonomy Code if possible; otherwise use a 2-character specialty code. Length of either 2 or 10 per row, aligning with Specialty\_CodeType. Use 99 for unknown or undefined individual provider specialty. | 45 or 207X00000X |
| Specialty\_CodeType | Char(1) | 2 = 2-character code 0 = 10-character code | Required | 2 = a 2-character code as found in the “PVD.specialty” Table within the [Reference Tables](file:///C:\repos\DEV-12518\SCDM_v8.0.0_reference_tables_v1.0.0.xlsx). 0 = a 10-character code as found in the “PVD.specialty” Table within the [Reference Tables](file:///C:\repos\DEV-12518\SCDM_v8.0.0_reference_tables_v1.0.0.xlsx). | 2 |

NOTES

1. If ALL ProviderID values in the other tables are set to .U, then create a Provider table, that meets these requirements:
   * Only 1 row in the table
   * ProviderID has a length of Num(3)
   * ProviderID is set to .U
   * Specialty has a length of Char(2)
   * Specialty is set to 99
   * Specialty\_CodeType is set to 2
2. ProviderID links to the same-named variable in the Dispensing, Diagnosis, Procedure, and if populated, the Prescribing tables.
3. CMS Provider Taxonomy & Specialty Codes: Use only those values found in “PVD.specialty” Table, located within the [Reference Tables](file:///C:\repos\DEV-12518\SCDM_v8.0.0_reference_tables_v1.0.0.xlsx). These are a subset from the [CMS Taxonomy Crosswalk.](https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/MedicareProviderSupEnroll/Downloads/TaxonomyCrosswalk.pdf)