**ACT Data Harmonization Work Group**

**ACT Common Data Model Version 1.7**

**For ontology version ACT\_SHRINE\_ONTOLOGY\_V201**

**Modification History**

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| Version | Date | Modification / comment | Modified by |
| 1.7 | 06/27/2019 | * Minor updates to correspond with Ontology V2.0.1 add NDCs, reference UMLS version as ontology source | Michele Morris for DHWG |
| 1.6 | 03/03/2019 | * The following data elements were removed:   DIAGNOSIS\_PRIORITY  MEDICATION \_TYPE | Shyam Visweswaran for DHWG |
| 1.5 | 04/03/2018 | * Substantially changed from version 1.4 | Shyam Visweswaran and Chuck Borromeo for DHWG |
| 1.4 | 01/18/2017 | * Added source column to all tables | Chuck Borromeo for DHWG |
| 1.3 | 05/07/2015 | * Added i2b2 basecodes | Shyam Visweswaran for DHWG |
| 1.2 | 03/23/2015 | * Demographic: SEX. Changed definition to “Sex” from “Administrative Sex” since this field reflects a blending of administrative gender and biological sex data. * Visit: VISIT\_TYPE. Added “Emergency Department Admit to Inpatient Hospital Stay” and “Non-Acute Institutional Stay” to value set. * Medication: ORDER\_TYPE AP=Ambulatory Prescribed, and ID=Inpatient Dispensed refer medication **orders** and not medication dispensing, administration or billing, because data on orders will be available at all sites while administration and billing data may not be. Changed value set to A=Ambulatory Order and I=Inpatient Order. * In Medication and Laboratory Test tables, clarified that fields with “RAW” in the name are optional, and will not be used in queries. | Shyam Visweswaran for DHWG |
| 1.1 | 01/13/2015 | First published version | Shyam Visweswaran for DHWG |
| 1.0 | 11/25/2014 | Initial version | Shyam Visweswaran for DHWG |

**Overview**

The ACT Common Data Model document specifies the data domains and the data elements that are represented in the ACT network.

Missing or Unknown data values:

The ACT Common Data Model will use a single null value as a basis for representing missing or unknown values. Specifically, use NI=No Information which means:

1. A data field is not present in the source system.

2. A data field is present in the source system, but the source value is null or blank.

3. A data field is present in the source system, but the source value explicitly denotes an unknown value.

4. A data field is present in the source system, but the source value cannot be mapped to the common data model.

SHRINE Ontology Version 2.0.1 was developed using on codes contained in UMLS 2018AA.

**Demographic**

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| **Field Name** | **Data Type** | **Value Sets and Table Guidance in i2b2** | **Definition / Comments** | **Source** |
| BIRTH\_DATE | DATETIME | YYYY-MM-DD HH:MM:SS  (use BIRTH\_DATE in PATIENT\_DIMENSION) | Date and time of birth.  Current age (at time of query) in the SHRINE ontology is calculated from this. If times don’t exist in the source data, set HH:MM:SS to 00:00:00. |  |
| SEX | TEXT | i2b2 basecodes:  Ambiguous = DEM|SEX:A  Female = DEM|SEX:F  Male = DEM|SEX:M  No Information = DEM|SEX:NI  Other = DEM|SEX:O  (use SEX\_CD in PATIENT\_DIMENSION) | Sex.  The “Ambiguous” category may be used for individuals who are physically undifferentiated from birth. The “Other” category may be used for individuals who are undergoing gender re-assignment. | Administrative Gender (HL7 2x) from 2016 ISA\* |
| HISPANIC | TEXT | i2b2 basecodes:  Yes = DEM|HISP:Y  No = DEM|HISP:N  No Information = DEM|HISP:NI  (use CONCEPT\_CD in OBSERVATION\_FACT) | A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.  Uses “two question” approach. | Office of Management and Budget (OMB) Oct. 30, 1997 rev. from 2016 ISA |
| RACE | TEXT | i2b2 basecodes:  American Indian or Alaska Native = DEM|RACE:NA  Asian = DEM|RACE:AS  Black or African American = DEM|RACE:B  Native Hawaiian or Other Pacific Islander = DEM|RACE:H  White = DEM|RACE:W  Multiple race = DEM|RACE:M  No Information = DEM|RACE:NI  (use RACE\_CD in PATIENT\_DIMENSION) | Use one or more race values per patient.  American Indian or Alaska Native – A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.  Asian – A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea,  Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.  Black or African American – A person having origins in any of the black racial groups of Africa.  Native Hawaiian or Other Pacific Islander – A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.  White – A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.  Multiple - A person identifying themselves as more than one race.  Uses “two question” approach. | Office of Management and Budget (OMB) Oct. 30, 1997 rev. from 2016 ISA |
| VITAL\_STATUS | TEXT | i2b2 basecodes:  Known Deceased = DEM|VITAL STATUS:D  (use VITAL\_STATUS\_CD in PATIENT\_DIMENSION) | Note that NI is not allowed. |  |
| DEATH\_DATE | DATETIME | YYYY-MM-DD HH:MM:SS  (use DEATH\_DATE in PATIENT\_DIMENSION) | Date and time of death. Death date is not PHI. If times don’t exist in the source data, set HH:MM:SS to 00:00:00. |  |

**Diagnosis**

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| **Field Name** | **Data Type** | **Value Sets and Table Guidance in i2b2** | **Definition / Comments** | **Source** |
| DIAGNOSIS\_CODE | STRING | i2b2 basecodes:  ICD-9 xxx = ICD9CM:xxx  ICD-10-CM xxx = ICD10CM:xxx  (use CONCEPT\_CD in OBSERVATION\_FACT) | Diagnosis concept in coding system. |  |
| DIAGNOSIS\_DATE | DATETIME | YYYY-MM-DD HH:MM:SS  (use START\_DATE OBSERVATION\_FACT) | Diagnosis date and time. If times don’t exist in the source data, set HH:MM:SS to 00:00:00. |  |

**Procedure**

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| **Field Name** | **Data Type** | **Value Sets and Table Guidance in i2b2** | **Definition / Comments** | **Source** |
| PROCEDURE\_CODE | STRING | i2b2 basecodes:  ICD-9 xxx = ICD9PROC:xxx  ICD-10-PCS xxx = ICD10PCS:xxx  CPT-4 xxx = CPT4:xxx  HCPCS xxx = HCPCS:xxx  (use CONCEPT\_CD in OBSERVATION\_FACT) | Procedure concept in coding system. |  |
| PROCEDURE\_DATE | DATETIME | YYYY-MM-DD HH:MM:SS  (use START\_DATE OBSERVATION\_FACT) | Procedure date and time. If times don’t exist in the source data, set HH:MM:SS to 00:00:00. |  |

**Visit**

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| **Field Name** | **Data Type** | **Value Sets and Table Guidance in i2b2** | **Definition / Comments** | **Source** |
| ADMIT\_DATE | DATETIME | YYYY-MM-DD HH:MM:SS  (use START\_DATE in VISIT\_DIMENSION) | Date and time of visit or admission. Age at visit field in SHRNE ontology is calculated from this. If times don’t exist in the source data, set HH:MM:SS to 00:00:00. |  |
| DISCHARGE\_DATE | DATETIME | YYYY-MM-DD HH:MM:SS  (use END\_DATE in VISIT\_DIMENSION) | Date and time of discharge.  Length of stay in SHRINE ontology is calculated from this. If times don’t exist in the source data, set HH:MM:SS to 00:00:00. |  |
| VISIT\_TYPE | TEXT | i2b2 basecodes:  Ambulatory Visit = O  Emergency Department Visit = E  Emergency Department Visit To Inpatient = EI  Inpatient Hospital Stay = I  Non-Acute Hospital Stay = NA  Other Ambulatory Visit = X  No information = N  (use INOUT\_CD in VISIT\_DIMENSION) | Visit type.  Details of categorical definitions:  Ambulatory Visit: Includes visits at outpatient clinics, physician offices, same day/ambulatory surgery centers, urgent care facilities, and other same-day ambulatory hospital encounters, but excludes emergency department encounters.  Emergency Department (ED): Includes ED encounters that become inpatient stays (in which case inpatient stays would be a separate encounter). Excludes urgent care visits. ED claims should be pulled before hospitalization claims to ensure that ED with subsequent admission won't be rolled up in the hospital event.  Emergency Department Admit to Inpatient Hospital Stay: Permissible substitution for preferred state of separate ED and IP records. Only for use with data sources where the individual records for ED and IP cannot be distinguished.  Inpatient Hospital Stay: Includes all inpatient stays, including: same-day hospital discharges, hospital transfers, and acute hospital care where the discharge is after the admission date.  Non-Acute Institutional Stay: Includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays.  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. May also include "lab only" visits (when a lab is ordered outside of a patient visit), "pharmacy only" (e.g., when a patient has a refill ordered without a face-to-face visit), "imaging only", etc.  No Information: Any Visit in which the type cannot be determined.  \*This value should not be NULL |  |

**Medication**

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| **Field Name** | **Data Type** | **Value Sets and Table Guidance in i2b2** | **Definition / Comments** | **Source** |
| MEDICATION\_CODE | STRING | RxNorm RxCUI  i2b2 basecodes:  RxCUI xxx = RXNORM:xxx  NDC xxx = NDC:xxx  (use CONCEPT\_CD in OBSERVATION\_FACT) | Medication concept in coding system.  Map drugs to RxNorm’s concepts of Semantic Clinical Drug (SCD), Semantic Branded Drug (SBD), Generic Pack (GPCK), or Branded Pack (BPCK). These concepts contain drug name, strength, form, and route of administration.  Map all of the available medications to SCD or SBD. If unable to map to SCD/SBD map to IN.  Dispensed, Filled or Administered drugs can be mapped to NDCs. |  |
| MEDICATION\_DATE | DATETIME | YYYY-MM-DD HH:MM:SS  (use START\_DATE OBSERVATION\_FACT) | Order, Fill or Dispensed date and time . If times don’t exist in the source data, set HH:MM:SS to 00:00:00. |  |

**Laboratory Test**

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| **Field Name** | **Data Type** | **Value Sets and Table Guidance in i2b2** | **Definition / Comments** | **Source** |
| LAB\_CODE | STRING | LOINC laboratory test code  i2b2 basecodes:  LOINC xxx = LOINC:xxx  (use CONCEPT\_CD in OBSERVATION\_FACT) | Laboratory test concept in coding system.  Load all lab results to the extent possible. See ACT SHRINE Query Ontology document for details. |  |
| SPECIMEN\_DATE | DATETIME | YYYY-MM-DD HH:MM:SS  (use START\_DATE in OBSERVATION\_FACT) | Date and time specimen was collected. If times don’t exist in the source data, set HH:MM:SS to 00:00:00. |  |
| RESULT\_QUALITATIVE | TEXT | Use for non-numerical results.  (use TVAL\_CHAR OBSERVATION\_FACT) | Does not use a standardized value set currently. Load source values as is. |  |
| RESULT\_NUMERICAL | INTEGER | Use for numerical results.  (use NVAL\_NUM in OBSERVATION\_FACT) | Leave blank for non-numerical values |  |
| RESULT\_MODIFIER | TEXT | E=Equal  GE=Greater than or equal to  G=Greater than  LE=Less than or equal to  L=Less than  TX=Text  (use TVAL\_CHAR in OBSERVATION\_FACT) | Modifier for result values. The value set comes from i2b2. |  |
| RESULT\_UNIT | TEXT | Use for units.  (use UNITS\_CD in OBSERVATION\_FACT) | The ACT SHRINE Query Ontology specifies UCUM units for many of the lab results. |  |
| ABNORMAL\_RESULT\_INDICATOR | TEXT(2) | H=High  L=Low  N=Normal  null=Unknown  (use VALUEFLAG\_CD in OBSERVATION\_FACT) | Abnormal result indicator. The value set comes from i2b2. | LAB\_RESULT\_CM table, ABN\_IND column from PCORnet CDM v3.1 |