Handling of admission-discharge transfers (ADT) to CDM

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Owner

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Details

Background

Presently, admission source and discharge disposition are stored in the Observation table and linked to Visit_Occurrence table via visit_occurrence_id. There is no explicit connection between two linked visits, the connection is derived by visit start and end date.

Proposed Changes

1. Move attributes representing admitting source and discharge disposition to Visit_Occurence table as first class attributes.
   This change will eliminate the need to join Visit_Occurrence and Observation tables to link visit and visit attributes. It will also simplify ETL from the source by targeting only one table rather than splitting attributes related to a visit to two tables.

2. Represent transition of care by two explicitly linked visits (e.g. from emergency room to inpatient admission).

This addition will provide an unambiguous link between two connected visits.

Admitting Source

Add the following admitting source fields to Visit_Occurrence table:

Field	Type	Required	Description
admitting_source_concept_id	Integer	No	A foreign key to the predefined concept in the Place of Service Vocabulary reflecting the admitting source for a visit.
admitting_source_value	Varchar(50)	No	The source code for the admitting source as it appears in the source data.

Discharge Disposition

Add the following discharge disposition to Visit_Occurrence table:

Field	Type	Required	Description
discharge_to_concept_id	Integer	No	A foreign key to the predefined concept in the Place of Service Vocabulary reflecting the discharge disposition for a visit.
discharge_to_source_value	Varchar(50)	No	The source code for the discharge disposition as it appears in the source data.

In addition to the “Place of Service” vocabulary, the following SNOMED concepts for discharge disposition can be used:

Patient died: 4216643
Absent without leave: 44814693
Patient self-discharge against medical advice: 4021968

Convention for handling death in hospital

In case when patient died during admission (Visit_Occurrence. discharge_disposition_concept_id = 4216643 ‘Patient died’), a record in the Death table should be created with death_type_concept_id = 44818516 (“EHR discharge status "Expired").

Convention for linking connected visits:

Add a field indicating a visit immediately preceding the current visit to Visit_Occurrence table:

Field	Type	Required	Description
preceding_visit_occurrence_id	Integer	No	A foreign key to the Visit_Occurrence table of the visit immediately preceding this visit

An example is below:

visit_occurrence_id	preceding_visit_id
46233680	
46233690	46233680

Convention for representing linked emergency room – inpatient admission visits

Some EMR systems combine emergency room followed by inpatient admission into one visit, and it is close to impossible to separate the two. To annotate this visit type, add a new visit concept “Emergency Room and Inpatient Visit”.

Use cases, analytical questions

- Analysis of continuity of care
- Key clinical outcomes - e.g. risk factors for being transferred ED to IP, SX to ICU, etc.
- Readmission analysis, readmission inclusion and exclusion criteria

Importance, also with respect to other projects

This change is an important enhancement to the model and can be implemented immediately without impacting other projects.

This change will have an immediate affect on three OMOP-based CDRNs: NYC-CDRN representing over 2.5 million patients; pSCANNER covering over 21 million patients; and PEDSnet which includes eight of the nation's largest children's hospitals and provides service to 4.6 million children per year.

Consequences of doing it and not doing it including technical (e.g. implications on vocab, existing software), resources

This change will enhance representation and analysis of transition of care in OMOP CDM and simplify ETL for the sites that are presently using Observation table.

It will have no implications on vocabulary or existing software.