MIMIC-II v3.0 Guidelines

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Chapter 1

Background

1.1 Introduction to MIMIC-II v3.0

For the first time MIMIC-II contains data from two different source databases (CareVue and MetaVision). This new version of MIMIC-II maps and combines data from MIMIC2V26 (45 tables) and MetaVision (506 tables), as well as additional data sets from Beth Israel Deaconess Medical Center (23 tables) and Social Security datasets (2 tables).

Mapping and combining data from the two systems was challenging due to large differences between the two systems and limited availability of documentation. As a result of the mapping process it was necessary to make numerous changes to the database structure, so V3.0 is significantly different from earlier (V2.x) versions.

We are aware that further work is needed to clean, optimise, and develop the database and we welcome your assistance in doing this. Please share observations, bugs, and suggestions for improvement via the issue tracker https://github.com/mimic2/v3.0/issues. Alternatively, please email us at mimic-support@physionet.org.

1.2 What's new?

Version 3.0 of MIMIC II contains around 48,000 patients, including over 15,000 newly added adult patients (neonates patients will be added at a later release).

The total count of hospital admissions is now nearly 58,000 with over 60,000 ICU stays. Version 2.6 contains ICU clinical data from 2001 to 2008; version 3.0 extended the data set to October of 2012. The comparison of patients, admissions, and icustays between v2.6 and v3.0 is listed below:

Table name (Primary key column)	Count (MIMIC2 v2.6)	Count (MIMIC2 v3.0)	Difference	New ID data in MIMIC2V30 starting point
`D_Patients` (`subject_id`)	32,536	48,018	15,482	33,000
`Admissions` (`hadm_id`)	36,095	57,955	21,860	37,000
`ICUStayEvents` (`icustay_id`)	40,426	63,508	23,082	48,000

1.3 How to contribute

Providing support for the MIMIC-II database is an ongoing process. Our resources are limited, so please help us to update and improve documentation. These guidelines are hosted on GitHub, making it straightforward for you to raise issues and suggest changes.

1.3.1 Raising an issue

If you notice something that could be improved, such as:

- a factual error in the guidelines;
- a common question that should be documented;

…then please raise an issue on Github. To raise an issue, open the issue tracker, select "New issue", and then add a description (along with a suggested solution, if possible).

1.3.2 Updating the guidelines

We encourage you to directly contribute to the guidelines. To do this, please:

- fork the repository
- edit the documentation as appropriate (more detail below)
- submit a pull request

1.3.3 Editing the documentation

Content hosted on a `gh-pages` branch on GitHub is automatically rendered as a website with Jekyll.

Each page of the website is generated from content in the `\_posts` directory. Editing the content in `\_posts` will be reflected in the corresponding webpage automatically.

For example, any edits made to `Additives.md` will result in changes to the Additives webpage.

Chapter 2

Accessing MIMIC-II

2.1 First steps

Access to the MIMIC-II Clinical Database requires a PhysioNetWorks account, so begin by creating a PhysioNetWorks account if you have not already done so.

The MIMIC-II Clinical Database, although de-identified, still contains detailed information regarding the clinical care of patients, and must be treated with appropriate care and respect. Researchers seeking to use the database must formally request access by following these steps:

- Follow the instructions to create and log in to a PhysioNetWorks account. If you already have a PhysioNetWorks account, log in to it.
- On your PhysioNetWorks home page, click on the link titled "MIMIC II Clinical Database", and follow the instructions to apply for access.

All applications are reviewed, and if yours is approved you will receive separate emails containing instructions for downloading the database from PhysioNetWorks. Note that approval usually requires at least a week, and will be delayed if your request is missing any required information.

2.2 Installing the MIMIC-II Database

Before working with MIMIC-II data, you will first need to complete the application process. Once this process is complete, you will be granted access to a set of data files on PhysioNet which can be used to reconstruct the database. The process for downloading the data files and reconstructing the text-delimited tables is as follows:

- download all of the compressed files linked from the PhysioNet webpage
- check the integrity of the compressed files against the checksums. On a unix-based system, this can be done with:

  ```
  md5sum -c md5_checksum_compressed.hash
  ```

- decompress the files as follows:

  ```
  cat mimic2v30b.tgz_* | tar xvz
  ```

- check the integrity of the reconstructed data tables with:

  ```
  md5sum -c md5_checksum_uncompressed.hash
  ```

Once the tables have been downloaded, they can be imported into a relational database system such as Postgres, Oracle, or Maria-DB to reconstruct MIMIC-II. Guidelines for the import process will be provided soon.

Chapter 3

MIMIC-II Database

3.1 Overview of the tables

MIMIC-II consists of 24 core tables, along with a growing number of tables and views containing derived information such as severity scores (identifiable by a preceding 'lcp' in the table names).

Table | Remarks — | — ADDITIVES | ADMISSIONS | CENSUSEVENTS | CHARTEVENTS | CPTEVENTS | D_CAREGIVERS | D_CAREUNITS | D_ITEMS | D_PATIENTS | D_UNITS | DEMOGRAPHIC_DETAIL | DRGEVENTS | ICD9 | ICUSTAY_DAYS | ICUSTAYEVENTS | IOEVENTS | LABEVENTS | LCP_COMORBIDITY_SCORES | LCP_DAILY_SAPSI | LCP_DAILY_SOFA | LCP_ELIXHAUSER_SCORES | LCP_VENTILATION | MEDEVENTS | MICROBIOLOGYEVENTS | NOTEEVENTS | ORDERENTRY | POE_MED_ORDER | PROCEDUREEVENTS | TOTALBALEVENTS |

3.2 ADDITIVES table

In version 2.6, patient input/output (IO) data is recorded in the IOEVENTS, D_IOITEMS, DELIVERIES, TOTALBALEVENTS and ADDITIVES tables.

The ADDITIVES tables has new columns, including 'ORDERID', a foreign key referring to the ORDERENTRY table. Users can get more detailed medical order-related information from the ORDERENTRY table.

The new IO data includes STARTTIME and ENDTIME, making calculations of total INPUT/OUTPUT volumes more straightforward. Another change to these tables is that the 'LABEL' of ITEMID is included, enabling simple word-based searches without the need to join with the D_ITEMS table.

Please note that the ITEMIDs for IO and ADDITIVES ITEMS have been shifted up by 40001 to avoid overlapping with ITEMIDs for the CHART ITEMS (refer to table 3).

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Foreign key, referring to D_PATIENTS
ICUSTAY_ID	NUMBER(7)	N	Foreign key, referring to ICUSTAYEVENTS
ORDERID	NUMBER(10)	Y	Foreign key, referring to ORDERENTRY
ITEMID	NUMBER(7)	N	Foreign key, referring to D_ITEMS
LABEL	VARCHAR2(100)	Y	Included for easy word-based searches
IOITEMID	NUMBER(7)	N	Foreign key, referring to IOEVENTS
IOITEMLABEL	VARCHAR2(100)	Y	Label for the IO item, included for easy word-based searches
CHARTTIME	TIMESTAMP(6)	N	Used for old data, null for new data
STARTTIME	TIMESTAMP(6)	Y	Used for new data, null for old data
ENDTIME	TIMESTAMP(6)	Y	Used for new data, null for old data
ELEMID	NUMBER(7)	N	The ELEMID of a combined additive
CGID	NUMBER	N	Foreign key, referring to D_CAREGIVERS
CUID	NUMBER	N	Foreign Key – referring to D_CAREUNITS table
VALUE	NUMBER	N	Called 'AMOUNT' in v2.6
UOM	NVARCHAR2(70)	Y	Called 'DOSEUNITS' in v2.6

Column name	Data type	New column	Remarks
IOITEMVALUE	NUMBER	N	Called 'SOLVOLUME' in v2.6
IOITEMUOM	NVARCHAR2(101)	N	Called 'SOLUNITS' in v2.6
SOURCE_FLG	VARCHAR2(10)	N	Source of data (v2.6 or METAVISION)
ADDITIVESDATAID	NUMBER	N	Unique row identifier

3.3 ADMISSIONS table

Source data for the ADMISSIONS table comes from the BIDMC admission/discharge/transfer dataset, which includes hospital admissions and discharges for all patients between 2 January 2001 and 31 October 2012.

The ADMISSIONS table in MIMIC2V26 has a date range of 3 April 2001 to 16 September 2008. The date range for patient admissions in the MetaVision database is 12 July 2007 to 25 September 2012. Therefore, some patients in the MetaVision table were included in MIMIC2 v2.6.

Initial data mapping and merging between MIMIC-II v2.6 and the MetaVision Database involved filtering out new hospital admissions. Among the new hospital admissions, there were old patients and new patients. For old patients, we needed to map to the existing SUBJECT_ID; for new patients, we generated new SUBJECT_IDs.

Changes to the ADMISSIONS table in v3.0 include:

- ADMIT_DT and DISCH_DT for new admissions include date and time, while data coming from MIMIC-II v2.6 includes only date.
- Three new columns were added: ADM_DIAGNOSIS, FIRST_SERVICE_UNIT, and LAST_SERVICE_UNIT

Column name	Data type	New column	Remark
HADM_ID	NUMBER	N	Primary key
SUBJECT_ID	NUMBER	N	Foreign key, referring to D_PATIENTS table

Column name	Data type	New column	Remark
ADMIT_DT	DATE	N	Admission Date
ADMIT_TIME	TIMESTAMP(6)	Y	Detailed admission time for new patients
DISCH_DT	DATE	N	Discharge date
DISCH_TIME	TIMESTAMP(6)	Y	Detailed discharge time for new patients
ADM_DIAGNOSIS	VARCHAR2(250)	Y	Diagnosis on admission
FIRST_SERVICE	VARCHAR2(4)	Y	First service unit
LAST_SERVICE	VARCHAR2(4)	Y	Last service unit
ADMISSIONSDATAID	NUMBER(38)	Y	Unique row identifier

3.4 CENSUSEVENTS table

The CENSUSEVENTS table tracks the changes of beds or care units and transfer of patients. For MIMIC2 v3.0, this table is generated based on the PATIENTTRACKING table in the MetaVision database.

Column name	Data type	New column	Remarks
CENSUS_ID	NUMBER	N	Primary key
SUBJECT_ID	NUMBER	N	Foreign key, referring to D_PATIENTS table
ICUSTAY_ID	NUMBER(7)	N	Foreign key, referring to ICUEVENTS table
INTIME	TIMESTAMP(6)	N	ICU admission time
OUTTIME	TIMESTAMP(6)	N	ICU discharge time
CUID	NUMBER(7)	N	Foreign key – referring to D_CAREUNITS table
LOS	NUMBER	N	ICU length of stay in minutes
DESTCAREUNIT	NUMBER(7)	N	Destination care unit
DISCHSTATUS	VARCHAR2(20)	N	Discharge status
CENSUSEVENTSDATAID	NUMBER	Y	Unique row identifier

Column name	Data type	New column	Remarks

3.5 CHARTEVENTS table

The CHARTEVENTS table is the largest table in the database and contains all bedside patient records. In v2.6, the CHARTEVENTS table has about 196 million rows of data; in v3.0, the row count of the CHARTEVENTS table is 234 million.

One change we made to the CHARTEVENTS table in v3.0 is that we renamed CHARTTIME column to TIME and REALTIME column to KEYINTIME. The new names were introduced to avoid confusion often associated with the CHARTTIME and REALTIME columns in v2.6. The new names in v3.0 should be easier to understand: TIME refers to the actual time the measurements were taken, and KEYINTIME refers to the time when the values of the measurements were keyed into the system.

A new column from the MetaVision database is called COMMENTS, which contains units of measure and the normal range of a measurement. Note that there is no VALUE2 for the new data coming from MetaVision. One example is the recording of blood pressure. In MIMIC2V26, the itemid=51 (LABEL= 'Arterial BP') included VALUE1 and VALUE2 for systolic and diastolic blood pressures. For new patients in MIMIC2V30, there are two ITEMIDs for blood pressure measurements: for systolic blood pressure, the ITEMID=220179, and for diastolic blood pressure, ITEMID=220180.

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Foreign key, referring to D_PATIENTS
HADM_ID	NUMBER(7)	Y	Foreign key, referring to ADMISSIONS
ICUSTAY_ID	NUMBER(7)	N	Foreign key, referring to ICUSTAYEVENTS
ITEMID	NUMBER(7)	N	Foreign key, referring to D_ITEMS
LABEL	VARCHAR2(100)	Y	Included for easy word-based searches
TIME	TIMESTAMP(6)	N	Called 'CHARTTIME' in v2.6
ELEMID	NUMBER(7)	N	The ELEMENTID of the chart event
KEYINTIME	TIMESTAMP(6)	N	Called 'REALTIME' in v2.6

Column name	Data type	New column	Remarks
CGID	NUMBER(7)	N	Foreign key, referring to D_CAREGIVERS
CUID	NUMBER(7)	N	Foreign key, referring to D_UNITS
VALUE1	VARCHAR2(110)	N	Can be numeric or alphabetic values
VALUE1NUM	NUMBER	N	Numeric values only
VALUE1UOM	VARCHAR2(120)	N	Unit of measure for VALUE1
COMMENTS	NCLOB	Y	Includes range for 'normal' measurements (MetaVision only).
VALUE2	VARCHAR2(110)	N	For old data only. Numeric and alphabetic.
VALUE2NUM	NUMBER	N	For old data only. Numeric values only.
VALUE2UOM	VARCHAR2(20)	N	For old data only. Unit of Measure for value2.
RESULTSTATUS	VARCHAR2(20)	N	For old data (v2.6) only.
STOPPED	VARCHAR2(20)	N	For old data (v2.6) only.
WARNING	NUMBER(1)	Y	For new data.
ERROR	NUMBER(1)	Y	For new data.

3.6 CPTEVENTS table

The CPTEVENTS table is new to v3.0 of the MIMIC-II database.

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	Y	Foreign key.
HADM_ID	NUMBER(7)	Y	Foreign key.
CPT_CD	VARCHAR2(8)	Y	?
CPTEVENTSDATAID	NUMBER	Y	Unique row identifier

3.7 D_CAREGIVERS table

The Caregiver IDs (CGID) are stored in table D_CAREGIVERS, which contains about 11,000 rows in version 2.6 and about 15,500 rows in version 3.0. However, we discovered that in version 2.6, one caregiver could be assigned with multiple CGIDs. In version 3.0, we added one new column called CG_UNIQUEID, which is the unique ID for caregivers. For the multiple CGIDs for one Care Giver, we chose one ID as the active one and assigned status 'A' (*A*ctive) in the CGID_STATUS column, all other CGIDs were assigned status 'M' (*M*erged), indicating a 'merged' status of the CGID. Only the CGID with CGID_status='A' was used in other tables like MEDEVENTS, CHARTEVENTS, etc.

Another change to this table in version 3.0 is that we added a new column - 'DESCRIPTION', which gives more detailed information about the Care giver. For example, a 'MD' can be 'Attending' or 'Resident/Fellow/PA/NP'.

Column name	Data type	New column	Remarks
CGID	NUMBER	N	Care giver ID (the old ones from v2.6 is not unique)
CG_UNIQUEID	NUMBER	Y	Unique ID of a care giver
LABEL	VARCHAR2(6)	N	Title of Care Giver
DESCRIPTION	NVARCHAR2(30)	Y	More detailed description of care giver
CGID_STATUS	VARCHAR2(1)	Y	'A' indicates an active CGID, 'M' indicates a merged CGID.
D_CAREGIVERSDATAID	NUMBER(38)	Y	Unique row identifier

3.8 D_CAREUNITS table

This table did not change much between version 2.6 and version 3.0, the only difference is that CUID 54 used to be CSRU, but it is now called CVICU, so the label of this care unit in version 3.0 includes both names.

Column name	Data type	New Column	Remarks
CUID	NUMBER	N	Care unit ID

Column name	Data type	New Column	Remarks
LABEL	VARCHAR2(20)	N	Title of Care Giver
D_CAREUNITSDATAID	NUMBER(38)	Y	Unique row identifier

3.9 D_ITEMS table

In version 2.6, the ITEMID and labels (descriptions) for different events tables (such as CHARTEVENTS, MEDEVENTS, IOEVENTS, LABEVENTS) are stored in separate tables; the ranges of the ITEMIDs in these tables are listed below:

Table name	Range of ITEMID
D_Chartitems	1 - 20009
D_Meditems	1 – 405
D_IOitems	-1 - 6807
D_Labitems	50001 - 50735
D_Codeditems	60001 - 101885
D_Demographicitems	200001 - 200088

Since Metavision data does not separate ITEMIDs into the same categories (Med, IO, Coded, Lab, Chart etc.), it is not simple to map them directly to the six different D_…ITEMS tables and the ITEMIDs in MIMIC2V26. To solve the problem, we took the approach of combining all D_…ITEMS tables in v2.6 and the PARAMETERS Table in MetaVision, thus forming the new D_ITEMS table.

Please note that, in version 2.6 and earlier versions of MIMIC2 database, one specific ITEM can have more than one ITEMID. This is still the case in version 3.0; users will have to add the MetaVision ITEMID to the list of ITEMIDs by running a name (or word)-based search in the D_ITEMS table.

Since we needed to merge all the D_…ITEMS tables into one table in version 3.0, we had to make sure different types of ITEMIDs (from different

D_…ITEMS tables in version 2.6) are within their own numeric range (no overlapping). Therefore, two types of ITEMIDs (MED and IO) from version 2.6 had to be shifted to a higher range of integers to avoid overlap with ITEMIDs from D_Chartitems (see Table 2).

The 'ORIGIN' column added to the new D_ITEMS table indicates the source table of the data (ITEMIDs). The following table lists the ORIGINs and ITEMID ranges in version 3.0.

v3.0 Table name	ORIGIN	Range of ITEMID	Difference	Source table in v2.6 database
D_ITEMS	CHART	1 - 20009	None	D_Chartitems (v2.6)
MED	30001 – 30405	+ 30000	D_Meditems (v.2.6)	
IO	40000 – 46808	+ 40001	D_IOitems (v2.6)	
LAB	50800 – 51554	Re-generated ITEMIDs	D_ Labitems (v2.6)	
CODED	60001 - 101885	None	D_Codeditems (v2.6)	
DEMOGRAPHIC	200001 - 200088	none	D_Demographicitems (v2.6)	
METAVISION	220003 - 228647	+220000	MetaVision DB	

Since the D_ITEMS table in v3.0 combined all six of the D_…ITEMS tables in v2.6 and we kept all related columns, the D_ITEMS table does have more columns than any of its source tables. The following table lists the column names, data types and source tables of all columns in MIMIC2V30.D_ITEMS table.

Column name	Data type	New column	Source tables/Database
ITEMID	NUMBER(7)	N	Consolidated list of itemids.
LABEL	VARCHAR2(100)	N	Text label.
ABBREVIATION	VARCHAR2(50)	Y	Abbreviation.
ORIGIN	VARCHAR2(12)	Y	Origin of the ITEMID (v2.6 or Metavision)
CODE	VARCHAR2(10)	N	D_Codeditems
CATEGORY	VARCHAR2(50)	N	Category of the ITEMID
UNITID	NUMBER(5)	Y	METAVISION Database

Column name	Data type	New column	Source tables/Database
UNITNAME	VARCHAR2(50)	Y	METAVISION Database
TYPE	VARCHAR2(40)	N	D_Codeditems and METAVISION
DESCRIPTION	VARCHAR2(150)	N	D_Chartitems, D_Codeditems
LOWNORMALVALUE	FLOAT(126)	Y	METAVISION Database
HIGHNORMALVALUE	FLOAT(126)	Y	METAVISION Database
ALLERGYACTION	NUMBER(3)	Y	METAVISION Database
LOINC_CODE	Varchar2(7)	N	Lab data from BIDMC
LOINC_DESCRIPTION	Varchar2(100)	N	Lab data from BIDMC
OLD_LABITEMID	NUMBER(7)	Y	D_Labitems
OLD_TEST_NAME	VARCHAR2(50)	Y	D_Labitems
OLD_LOINC_CODE	VARCHAR2(7)	Y	D_Labitems
D_ITEMSDATAID	NUMBER	Y	Unique row identifier

3.10 D_PATIENTS table

The source table for new patients added to D_PATIENTS comes from the PATIENTS table in the MetaVision (for ICU Adult patients) database; the date range is 12 July 2012 - 25 September 2012. In addition to data from source databases and data sets, this table also incorporates DOD (date of death) information from social security up to February 2013.

The structure of the D_Patients table in version 3.0 did not change much, but we did add a new column - the first 3 digits of zip codes. This information should provide new information for geographic based studies. Table 2 lists all columns in the D_PATIENTS table.

Another change to this table is that we shifted the ages of all patients over age 90 to an older age (over 200) for de-identification purposes. In the old version (2.6), only patients who are alive and over 90 were shifted. This change is to minimize confusion for users who are interested in age related studies.

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Primary key
SEX	VARCHAR2(1)	N	Gender (M/F)
DOB	DATE	N	Date of birth.
DOD	DATE	N	Date of death. Null if alive on Feb 2013 (the export date of social security data)
HOSPITAL_EXPIRE_FLG	VARCHAR2(1)	N	Whether or not the patient died in the hospital
ZIPCODE	VARCHAR2(5)	Y	First three digits of the patient's home zipcode
D_PATIENTSDATAID	NUMBER(38)	Y	Unique row identifier

3.11 D_UNITS table

The D_UNITS table is new to v3.0 of the MIMIC-II database.

Column name	Data type	New column	Remarks
UNITID	NUMBER(7)	?	ID of the unit of measurement.
UNITNAME	NVARCHAR2(7)	?	Name of the unit of measurement.
MULTIPLIER	FLOAT	?	?
ADDITION	FLOAT	?	?
ISBASEUNIT	NUMBER(1)	?	?
ISRELATIONAL	NUMBER(1)	?	?
ISTIME	NUMBER(1)	?	?
ISVOLUME	NUMBER(1)	?	?
CATEGORY	NVARCHAR2(50)	?	Category of the unit of measurement.
D_UNITSDATAID	NUMBER	?	Unique row identifier.

3.12 DEMOGRAPHIC_DETAIL table

This table contains patient demographic information such as ethnicity, religion, marital status as well as admission source, admission type and insurance information. For version 3.0, this table contains ITEMID as well as descriptions, making word-based searches much easier.

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Primary key
HADM_ID	NUMBER(7)	N	Foreign key referring to ADMISSIONS table
MARITAL_STATUS_ITEMID	NUMBER(7)	N	The ID of the marital status
MARITAL_STATUS_DESCR	VARCHAR2(50)	N	Description of the marital status
ETHNICITY_ITEMID	NUMBER(7)	N	The ID of the ethnicity
ETHNICITY_DESCR	VARCHAR2(60)	N	Description of the ethnicity
OVERALL_PAYOR_GROUP_ITEMID	NUMBER(7)	N	The itemid for the payor group
OVERALL_PAYOR_GROUP_DESCR	VARCHAR2(50)	N	Description of the payor group
RELIGION_ITEMID	NUMBER(7)	N	The ID of the religion
RELIGION_DESCR	VARCHAR2(50)	N	Description of the religion
ADMISSION_TYPE_ITEMID	NUMBER(7)	N	The ID of the admission type
ADMISSION_TYPE_DESCR	VARCHAR2(50)	N	Description of the admission type
ADMISSION_SOURCE_ITEMID	NUMBER(7)	N	The ID of the admission source
ADMISSION_SOURCE_DESCR	VARCHAR2(50)	N	Description of the admission source
DEMOGRAPHIC_DETAILDATAID	NUMBER(7)	Y	Unique row identifier

3.13 DRGEVENTS table

Another table that contains diagnosis related data is the DRGEVENTS table; we included descriptive columns for the ITEMID in the new version. The following table lists all columns of DRGEVENTS in v3.0.

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Foreign Key – referring to D_PATIENTS table
ITEMID	NUMBER(7)	N	Foreign Key – referring to ADMISSIONS table
TYPE	VARCHAR2(12)	Y	Type of DRG event
CODE	VARCHAR2(10)	Y	Code for the DRG event
DESCRIPTION	VARCHAR2(100)	Y	Description of the DRG event
COST_WEIGHT	NUMBER(7)	Y	The weight for the DRG event
DRGEVENTSDATAID	NUMBER	Y	Unique row identifier

3.14 ICD9 table

The ICD9 table is an important table for users to check patient diagnoses. The structure of this table did not change in the new version.

But for the first time, the admission diagnosis (adm_diagnosis) information is now available in the ADMISSIONS table in v3.0. (This diagnosis is assigned by the admitting office at the moment of admission based on input from the admitting physician. It may be modified after the patient is treated in the hospital.)

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Foreign key, referring to D_PATIENTS table
HADM_ID	NUMBER(7)	N	Foreign key, referring to ADMISSIONS table
SEQUENCE	NUMBER(7)	N	
CODE	VARCHAR2(100)	N	
DESCRIPTION	VARCHAR2(100)	N	
ICD9DATAID	NUMBER	Y	Unique row identifier

3.15 ICUSTAYEVENTS table

The ICUSTAYEVENTS table is generated from the CENSUSEVENTS table. An ICUSTAY_ID is generated to mark any new ICUSTAY events for patients. In many cases, patients can be in and out of the ICU care units multiple times during one hospital admission. For these cases, we set the following rule regarding ICUSTAY_IDs:

For patients transferred out of ICU units but re-admitted to the same or different ICU care unit within 24 hours, it is considered as one ICUSTAY event with the same ICUSTAY_ID. However, if the patient was re-admitted back to the same or different ICU care unit after 24 hours, it is considered as a new ICUSTAY event and is assigned a new ICUSTAY_ID.

Column name	Data type	New column	Remarks
ICUSTAY_ID	NUMBER(7)	N	Primary key
SUBJECT_ID	NUMBER	N	Foreign Key – referring to D_PATIENTS table
INTIME	TIMESTAMP(6)	N	ICU admission time
OUTTIME	TIMESTAMP(6)	N	ICU discharge time
LOS	NUMBER	N	ICU length of stay in minutes
FIRST_CAREUNIT	NUMBER	N	First care unit
LAST_CAREUNIT	NUMBER	N	Last care unit
ADMISSIONSDATAID	NUMBER	Y	Unique row identifier

3.16 IOEVENTS table

In version 2.6, patient input/output (IO) data is recorded in the IOEVENTS, D_IOITEMS, DELIVERIES, TOTALBALEVENTS and ADDITIVES tables.

In version 3.0, we retired the DELIVERIES table since the data contained in this table (RATE, RATEUOM etc.) are included in the IOEVENTS table. As mentioned earlier, the D_IOITEMS table has been merged into the D_ITEMS table.

Please note that the ITEMIDs for IO and ADDITIVES ITEMS have been shifted up by 40001 to avoid overlapping with ITEMIDs for the CHART ITEMS (refer to table 3).

The IOEVENTS table has new columns, including 'ORDERID', a foreign key referring to the ORDERENTRY table. Users can get more detailed medical order-related information from the ORDERENTRY table. The new IO data includes STARTTIME and ENDTIME, making calculations of total INPUT/OUTPUT volumes more straightforward.

Another change to these tables is that the 'LABEL' of ITEMID is included in the table; users can do word-based searches right on the events table, no need to join with the D_ITEMS table first.

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Foreign key, referring to D_PATIENTS
ICUSTAY_ID	NUMBER(7)	N	Foreign key, referring to ICUSTAYEVENTS
ORDERID	NUMBER(7)	Y	Foreign key, referring to ORDERENTRY
ITEMID	NUMBER(7)	N	Foreign key, referring to D_ITEMS
LABEL	NVARCHAR2(366)	Y	Label for the IO event, included for easy word-based searches
CHARTTIME	TIMESTAMP(6)	N	Used for old data, null for new data
ELEMID	NUMBER(7)	N	Element ID of a multi-component IO event
ALTID	NUMBER(7)	N	Alternate ID of the IO event
REALTIME	TIMESTAMP(6)	N	Used for old data, null for new data
STARTTIME	TIMESTAMP(6)	Y	Used for new data, null for old data
ENDTIME	TIMESTAMP(6)	Y	Used for new data, null for old data
CGID	NUMBER	N	Foreign key, referring to D_CAREGIVERS
CUID	NUMBER	N	Foreign Key – referring to D_CAREUNITS table
VALUE	NUMBER	N	Called 'VOLUME' in v2.6
UOM	NVARCHAR2(101)	N	Called 'VOLUMEUOM' in v2.6
UNITSHUNG	NUMBER(5)	N	Called 'SOLVOLUME' in v2.6
UNITSHUNGUOM	VARCHAR2(20)	N	Called 'SOLUNITS' in v2.6

Column name	Data type	New column	Remarks
NEWBOTTLE	NUMBER	N	New bottle attached
STOPPED	VARCHAR2(20)	N	Stopped recording
ESTIMATE	VARCHAR2(20)	N	Estimate?
IOEVENTSDATAID	NUMBER	Y	Unique row identifier

3.17 LABEVENTS table

In v3.0, the LABEVENTS table was re-generated from the raw lab tests data set from BIDMC. As there have been additions of new lab tests over the years or name changes of lab tests, and the majority of lab tests do not have LOINC codes, it was very hard to map to the Lab ITEMIDs in v2.6. Therefore, the ITEMIDs for Labevents are re-generated based on current lab tests. However, whenever possible, the old lab ITEMID was mapped and listed in the D_ITEMS table (ORIGIN='LAB') (see table 4). Also, we tried our best to map to the current LOINC codes as well.

Like other facts (…events) tables in v3.0, we included related ITEMID descriptive columns like TESTNAME, FLUID, CATEGORY and LOINC_CODE to facilitate word-based searches. Please note that we collect all lab events for a patient independent of when they were done. Some lab events are from subsequent clinic visits, for example.

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Foreign key, referring to D_PATIENTS
HADM_ID	NUMBER(7)	N	Foreign key, referring to ADMISSIONS
ITEMID	NUMBER(7)	N	Foreign key, referring to D_ITEMS
CHARTTIME	TIMESTAMP(6)	N	Time of lab event.
TEST_NAME	VARCHAR2(50)	Y	Included for easy word-based searches
VALUE	VARCHAR2(200)	N	The result value of the lab event
VALUENUM	NUMBER	N	Numeric representation of VALUE if the result was numeric.
VALUEUOM	VARCHAR2(15)	N	Units of measurement for the value of the lab event

Column name	Data type	New column	Remarks
FLAG	VARCHAR2(10)	Y	Flag or annotation on the lab result
FLUID	VARCHAR2(40)	Y	Type of fluid sample.
CATEGORY	VARCHAR2(20)	Y	Category of the lab event
LOINC_CODE	VARCHAR2(15)	Y	LOINC code for the lab event
LABEVENTSDATAID	NUMBER	Y	Unique row identifier

3.18 LCP_COMORBIDITY_SCORES table

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(5)	N	?
HADM_ID	NUMBER(5)	N	?
CATEGORY	CHAR(10)	N	?
CONGESTIVE_HEART_FAILURE	NUMBER(5)	N	?
CARDIAC_ARRHYTHMIAS	NUMBER(5)	N	?
VALVULAR_DISEASE	NUMBER(5)	N	?
PULMONARY_CIRCULATION	NUMBER(5)	N	?
PERIPHERAL_VASCULAR	NUMBER(5)	N	?
HYPERTENSION	NUMBER(5)	N	?
PARALYSIS	NUMBER(5)	N	?
OTHER_NEUROLOGICAL	NUMBER(5)	N	?
CHRONIC_PULMONARY	NUMBER(5)	N	?
DIABETES_UNCOMPLICATED	NUMBER(5)	N	?
DIABETES_COMPLICATED	NUMBER(5)	N	?
HYPOTHYROIDISM	NUMBER(5)	N	?

Column name	Data type	New column	Remarks
RENAL_FAILURE	NUMBER(5)	N	?
LIVER_DISEASE	NUMBER(5)	N	?
PEPTIC_ULCER	NUMBER(5)	N	?
AIDS	NUMBER(5)	N	?
LYMPHOMA	NUMBER(5)	N	?
METASTATIC_CANCER	NUMBER(5)	N	?
SOLID_TUMOUR	NUMBER(5)	N	?
RHEUMATOID_ARTHRITIS	NUMBER(5)	N	?
COAGULOPATHY	NUMBER(5)	N	?
OBESITY	NUMBER(5)	N	?
WEIGHT_LOSS	NUMBER(5)	N	?
FLUID_ELECTROLYTE	NUMBER(5)	N	?
BLOOD_LOSS_ANEMIA	NUMBER(5)	N	?
DEFICIENCY_ANEMIAS	NUMBER(5)	N	?
ALCOHOL_ABUSE	NUMBER(5)	N	?
DRUG_ABUSE	NUMBER(5)	N	?
PSYCHOSES	NUMBER(5)	N	?
DEPRESSION	NUMBER(5)	N	?
LCP_COMORBIDITY_SCORESDATAID	NUMBER(5)	N	Unique row identifier

3.19 LCP_DAILY_SAPSI table

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	?

Column name	Data type	New column	Remarks
ICUSTAY_ID	NUMBER(7)	N	?
ICUSTAY_DAY	NUMBER(7)	N	?
AGE_SCORE	NUMBER	N	?
BUN_SCORE	NUMBER	N	?
GCS_SCORE	NUMBER	N	?
GLUCOSE_SCORE	NUMBER	N	?
HCT_SCORE	NUMBER	N	?
HR_SCORE	NUMBER	N	?
POTASSIUM_SCORE	NUMBER	N	?
SODIUM_SCORE	NUMBER	N	?
RR_SCORE	NUMBER	N	?
SYSABP_SCORE	NUMBER	N	?
TEMPERATURE_SCORE	NUMBER	N	?
URINE_SCORE	NUMBER	N	?
WBC_SCORE	NUMBER	N	?
HCO3_SCORE	NUMBER	N	?
SAPSI_SCORE	NUMBER	N	?
LCP_DAILY_SAPSIDATAID	NUMBER	Y	Unique row identifier

3.20 LCP_DAILY_SOFA table

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	?
ICUSTAY_ID	NUMBER(7)	N	?

Column name	Data type	New column	Remarks
ICUSTAY_DAY	NUMBER(7)	N	?
RESPIRATORY_FAILURE	NUMBER	N	?
NEUROLOGICAL_SCORE	NUMBER	N	?
CARDIOVASCULAR_SCORE_FINAL	NUMBER	N	?
HEPATIC_SCORE	NUMBER	N	?
HEMATOLOGIC_SCORE	NUMBER	N	?
RENAL_SCORE	NUMBER	N	?
SOFA_TOTAL	NUMBER	N	?
LCP_DAILY_SOFADATAID	NUMBER	N	Unique row identifier

3.21 LCP_ELIXHAUSER_SCORES table

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(8)	N	?
HADM_ID	NUMBER(8)	N	?
HOSPITAL_MORT_PT	NUMBER(3)	N	?
TWENTY_EIGHT_DAY_MORT_PT	NUMBER(3)	N	?
ONE_YR_MORT_PT	NUMBER(3)	N	?
TWO_YR_MORT_PT	NUMBER(3)	N	?
ONE_YEAR_SURVIVAL_PT	NUMBER(3)	N	?
TWO_YEAR_SURVIVAL_PT	NUMBER(3)	N	?
LCP_ELIXHAUSER_SCORESDATAID	NUMBER	Y	Unique row identifier

3.22 LCP_VENTILATION table

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	X	?
HADM_ID	NUMBER(7)	X	?
ICUSTAY_ID	NUMBER(7)	X	?
SEQ	NUMBER	X	?
STARTTIME	X	X	?
ENDTIME	X	X	?
LCP_VENTILATIONDATAID	NUMBER	Y	Unique row identifier

3.23 MEDEVENTS table

In version 3.0, a new table – ORDERENTRY, which contains all medical treatment order information, is added to medication related tables. MEDEVENTS, ADDITIVES and IOEVENTS now all contain ORDERID, which is a foreign key referring to the ORDERENTRY table.

A key change is that all new medication records have START and END times, making it more straightforward to calculate the total amount of medication. Because of this, the A_MEDDURATIONS table is no longer needed. But users can still use that table in v2.6 for any checking and calculations for the old data. The following table lists the columns of MEDEVENTS:

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Foreign key, referring to D_PATIENTS
ICUSTAY_ID	NUMBER(7)	N	Foreign key, referring to ICUSTAYEVENTS
ORDERID	NUMBER(7)	Y	Foreign key, referring to ORDERENTRY
ITEMID	NUMBER(7)	N	Foreign key, referring to D_ITEMS
LABEL	VARCHAR2(100)	Y	Included for easy word-based searches

Column name	Data type	New column	Remarks
SOLITEMID	NUMBER(7)	N	ITEMID of the solution used in the medication event
SOLITEMLABEL	VARCHAR2(100)	Y	Label of the solution used in the medication event.
CHARTTIME	TIMESTAMP(6)	N	Used for old data, null for new data
ELEMID	NUMBER(7)	N	Element ID for the event
REALTIME	TIMESTAMP(6)	N	Used for old data, null for new data
STARTTIME	TIMESTAMP(6)	Y	Used for new data, null for old data
ENDTIME	TIMESTAMP(6)	Y	Used for new data, null for old data
VALUE	NUMBER	N	Dosage of the medication event. Called 'DOSE' in v2.6
UOM	VARCHAR2(100)	Y	Units of measurement of the medication event. (DOSEUOM in v2.6).
SOLITEMVALUE	NUMBER	N	Volume of solution used in the medication event (SOLVOLUME in v2.6).
SOLITEMUOM	VARCHAR2(100)	N	Units of the volume of solution used. (SOLUNITS in v2.6)
CGID	NUMBER	N	Foreign key, referring to D_CAREGIVERS
CUID	NUMBER	N	Foreign Key – referring to D_CAREUNITS table
STOPPED	VARCHAR2(20)	N	Medication stopped
MEDEVENTSDATAID	NUMBER	Y	Unique row identifier

3.24 MICROBIOLOGYEVENTS table

The MICROBIOLOGYEVENTS table in v3.0 also included names, descriptions of the ITEMIDs. The following table lists all the columns in this table in v3.0, all new columns are noted.

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Foreign key, referring to D_PATIENTS
HADM_ID	NUMBER(7)	N	Foreign key, referring to ADMISSIONS

Column name	Data type	New column	Remarks
TIME	DATE	N	'CHARTTIME' in v2.6
SPEC_TYPE_CD	VARCHAR2(10)	Y	Code of the specimen type tested.
SPEC_ITEMID	NUMBER(7)	N	The ID of the specimen tested. Foreign key, referring to D_ITEMS
SPEC_TYPE_DESC	VARCHAR2(100)	Y	Description of the specimen type.
ORG_CD	VARCHAR2(4)	Y	Code of the organism tested.
ORG_ITEMID	NUMBER(7)	N	The ID of the organism tested. Foreign key, referring to D_ITEMS
ORG_NAME	VARCHAR2(100)	Y	Name of the organism tested for.
ISOLATE_NUM	VARCHAR2(10)	N	The isolate number for the test.
AB_CD	VARCHAR2(2)	Y	Code for the antibacterium used.
AB_ITEMID	NUMBER(7)	N	ID of the antibacterium used. Foreign key, referring to D_ITEMS.
AB_NAME	VARCHAR2(100)	Y	Name of the antibacterium used.
DILUTION_AMOUNT	VARCHAR2(10)	N	The dilution amount tested for
DILUTION_COMPARISON	VARCHAR2(10)	N	The comparison against DILUTION_AMOUNT (<= , =, >=).
INTERPRETATION	VARCHAR2(1)	N	Interpretation: (R)esistant, (P)ending, (I)ntermediate, or (S)usceptible.
MICROBIOLOGYEVENTSDATAID	NUMBER	Y	Unique row identifier

3.25 NOTEEVENTS table

In version 3.0, we added three new types of notes in the NOTEEVENTS table: ECG reports, Echo reports, and the physician notes from MetaVision. Here is a list of NOTES categories in v3.0 and v2.6 (Extracted from the NOTEEVENTS table, exact upper/lower case match).

Categories of Notes in v3.0	Categories of Notes in v2.6
ECG_REPORT	*(Not available in v2.6)*
ECHO_REPORT	*(Not available in v2.6)*

Categories of Notes in v3.0	Categories of Notes in v2.6
DISCHARGE_SUMMARY	DISCHARGE_SUMMARY
NURSING/OTHER	Nursing/Other
PROVIDER_NOTE	*(Not available in v2.6)*
RADIOLOGY_REPORT	RADIOLOGY_REPORT

The Nursing/Other category contains the nursing and respiratory therapist notes collected (2008 or earlier) from the CareVue system. Provider notes collected from the MetaVision are under the PROVIDER_NOTE category and include notes by physicians, nurses, therapists and others. The table structure of NOTEEVENTS did not change between v2.6 and v3.0. However, the CHARTTIME of DISCHARGE_SUMMARY notes used DISCHARGE_TIME in v3.0 while the ADMISSION_TIME was used in v2.6.

Column name	Data Type	New Column	Remarks
REC_ID	NUMBER	Y	Primary key
SUBJECT_ID	NUMBER(7)	N	Foreign key, referring to D_PATIENTS
HADM_ID	NUMBER(7)	N	Foreign key, referring to ADMISSIONS
ICUSTAY_ID	NUMBER(7)	N	Foreign key, referring to ICUSTAYEVENTS
ELEM_ID	NUMBER(7)	N	Element ID of each note
CHARTTIME	TIMESTAMP(6)	N	Datetime of the note request
REALTIME	TIMESTAMP(6)	N	Datetime of the note request
CGID	NUMBER(7)	N	Foreign key, referring to D_CAREGIVERS
CORRECTION	CHAR(1)	N	Is the note a correction to a previous note?
CUID	NUMBER(7)	N	Foreign key, referring to D_CAREUNITS
CATEGORY	VARCHAR2(26)	N	Type of note
TITLE	VARCHAR2(255)	N	Title of the note
TEXT	CLOB	N	Main body of the note
EXAM_NAME	VARCHAR2(100)	N	Name of the examination

Column name	Data Type	New Column	Remarks
PATIENT_INFO	VARCHAR2(4000)	N	Patient information
NOTEEVENTSDATAID	NUMBER	Y	Unique row identifier

3.26 ORDERENTRY table

ORDERENTRY is a newly added table that contains order information for all medical treatments. MEDEVENTS, ADDITIVES and IOEVENTS now all contain ORDERID, which is a foreign key referring to the ORDERENTRY table.

Since the new source database, MetaVision, has a totally different schema design and table structure, new columns were added to the medication-related tables while trying to preserve data and columns from the earlier version. Here is a list of all columns in the newly added "ORDERENTRY"' table:

Column name	Data type	Remarks
ORDERID	NUMBER(7)	Primary key
LINKORDERID	NUMBER(7)	Link to the ORDERID
SUBJECT_ID	NUMBER(7)	Foreign key, referring to D_PATIENTS
ICUSTAY_ID	NUMBER(7)	Foreign key, referring to ICUSTAYEVENTS
CGID	NUMBER	Foreign key, referring to D_CAREGIVERS
ISSUEDATE	TIMESTAMP(6)	Issue date for the order
ORDERCATEGORY	VARCHAR2(84)	Category for the order
PATIENTWEIGHT	NUMBER(12)	Weight of the patient in grams
ISOPENBAG	NUMBER(1)	Unknown
CANCELREASON	NUMBER(5)	Unknown
COMMENTS	NVARCHAR2(1000)	Comments
LOCATIONNAME	NVARCHAR2(153)	Body location

Column name	Data type	Remarks
ROUTE	NVARCHAR2(50)	Route of administration
DURATION	NUMBER(12)	Duration of the order
DURATIONUOM	VARCHAR2(70)	Units of measurement of the order duration
TOTALVOLUME	NUMBER(12)	Total volume of order event
TOTALVOLUMEUOM	VARCHAR2(70)	Units of the order event
CONTINUEINNEXTDEPT	NUMBER(1)	Order continued in external department? (0/1)
ORDERENTRYDATAID	NUMBER	Unique row identifier

3.27 POE_MED_ORDER table

Another table that is related to medication is POE_MED_ORDER. The source data for this table comes from Beth Israel Deaconess Medical Center datasets, not from the MetaVision database. This table documents medications that were *ordered* not administered, and includes orders well beyond the ICU stay.

In version 2.6, this table was divided into two tables, POE_MED and POE_ORDER. However, in the new data set we have already combined the data from these two tables, so we just created one table.

Column name	Data type	Remarks
SUBJECT_ID	NUMBER(7)	Foreign key, referring to D_PATIENTS
HADM_ID	NUMBER(7)	Foreign key, referring to ADMISSIONS
ICUSTAY_ID	NUMBER(7)	Foreign key, referring to ICUSTAYEVENTS
STARTTIME	TIMESTAMP(6)	Start date of the POE order
ENDTIME	TIMESTAMP(6)	Stop date of the POE order
DRUG_TYPE	VARCHAR2(80)	Type of drug
DRUG	VARCHAR2(80)	Name of the drug

Column name	Data type	Remarks
DRUG_NAME_POE	VARCHAR2(80)	Name of the drug(2). Column to be removed.
DRUG_NAME_GENERIC	VARCHAR2(50)	Generic name of the drug
FORMULARY_DRUG_CD	VARCHAR2(90)	Formulary drug code
GSN	VARCHAR2(180)	Generic Sequence Number
NDC	VARCHAR2(90)	National Drug Code
PROD_STRENGTH	VARCHAR2(90)	Product strength
DOSE_VAL_RX	VARCHAR2(90)	Value of the dose received
DOSE_UNIT_RX	VARCHAR2(90)	Units of the dose received
FORM_VAL_DISP	VARCHAR2(90)	Unknown
FORM_UNIT_DISP	VARCHAR2(90)	Unknown
ROUTE	VARCHAR2(60)	Route of administration
POE_MED_ORDERDATAID	NUMBER	Unique row identifier

3.28 PROCEDUREEVENTS table

In v2.6, PROCEDUREEVENTS table is a relatively simple table, containing only 5 columns: SUBJECT_ID, HADM_ID, ITEMID, SEQUENCE_NUM, PROC_DT. In v3.0, six new columns are added to this table as shown in the following table. The new procedures all have ORDERIDs, related order information can be found in ORDERENTRY table. We also included 'LABEL' for each ITEMID, make it easier for word-based searches. Also, each new procedure has a 'START' and 'END' time.

In v2.6, checking for INTUBATION/EXTUBATION event and time was not an easy task. In the new version, it is very easy to find these events in the PROCEDUREEVENTS table.

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Foreign key, referring to D_PATIENTS

Column name	Data type	New column	Remarks
HADM_ID	NUMBER(7)	N	Foreign key, referring to ADMISSIONS
ORDERID	NUMBER(7)	Y	Foreign key, referring to ORDERENTRY
ORDERCATEGORYNAME	VARCHAR2(30)	Y	Name of the order category
ITEMID	NUMBER(7)	N	Foreign key, referring to D_ITEMS
LABEL	VARCHAR2(100)	Y	Label of the procedure event, included for easy word-based searches
PROC_DT	DATE	N	The date on which the procedure event occurred
STARTTIME	TIMESTAMP(6)	Y	Timestamp to accompany PROC_DT. Used for new data, null for old data
ENDTIME	TIMESTAMP(6)	Y	Timestamp to accompany PROC_DT. Used for new data, null for old data
CGID	NUMBER(7)	Y	Foreign key, referring to D_CAREGIVERS
PROCEDUREEVENTSDATAID	NUMBER	Y	Unique row identifier

3.29 TOTALBALEVENTS table

In version 2.6, patient input/output (IO) data is recorded in the IOEVENTS, D_IOITEMS, DELIVERIES, TOTALBALEVENTS and ADDITIVES tables. As with the MEDEVENTS table, the IOEVENTS and ADDITIVES tables in v3.0 have some new columns like 'ORDERID', a foreign key referring to the ORDERENTRY table. Users can get more detailed medical order-related information from the ORDERENTRY table.

As with other IO data tables, TOTALBALEVENTS includes STARTTIME and ENDTIME, making it easier to compute input and output volumes. Another change to these tables is that the 'LABEL' of ITEMID is included in the table; users can do word-based searches right on the events table, no need to join with the D_ITEMS table first.

Note that the ITEMIDs for IO and ADDITIVES ITEMS have been shifted up by 40001 to avoid overlapping with ITEMIDs for the CHART ITEMS.

Column name	Data type	New column	Remarks

Column name	Data type	New column	Remarks
SUBJECT_ID	NUMBER(7)	N	Foreign key, referring to D_PATIENTS
ICUSTAY_ID	NUMBER(7)	N	Foreign key, referring to ICUSTAYEVENTS
CHARTTIME	TIMESTAMP(6)	N	Time of total balance event.
ELEMID	NUMBER	N	The element ID of the total balance
REALTIME	TIMESTAMP(6)	N	Time of inputting total balance event.
CGID	NUMBER	N	Foreign key, referring to D_CAREGIVERS
CUID	NUMBER	N	Foreign key, referring to D_CAREUNITS
ITEMID	NUMBER	N	Foreign key, referring to D_ITEMS
LABEL	VARCHAR2(100)	Y	Label of the total balance event
VOLUME	VARCHAR2(100)	N	Called 'PERVOLUME' in v2.6
CUMITEMID	NUMBER	Y	To be merged with itemid.
CUMLABEL	VARCHAR2(40)	Y	To be merged with label.
CUMVOLUME	VARCHAR2(100)	N	Cumulative volume of the total balance events over the period
UOM	NVARCHAR2(10)	Y	Units of measurement of the cumulative volume
ACCUMPERIOD	VARCHAR2(100)	N	The accumulation period
APPROX	VARCHAR2(100)	N	Is the measurement an approximation?
RESET	NUMBER	N	Reset the balance
STOPPED	VARCHAR2(20)	N	Stopped recording the balance
TOTALBALEVENTDATAID	NUMBER	Y	Unique row identifier