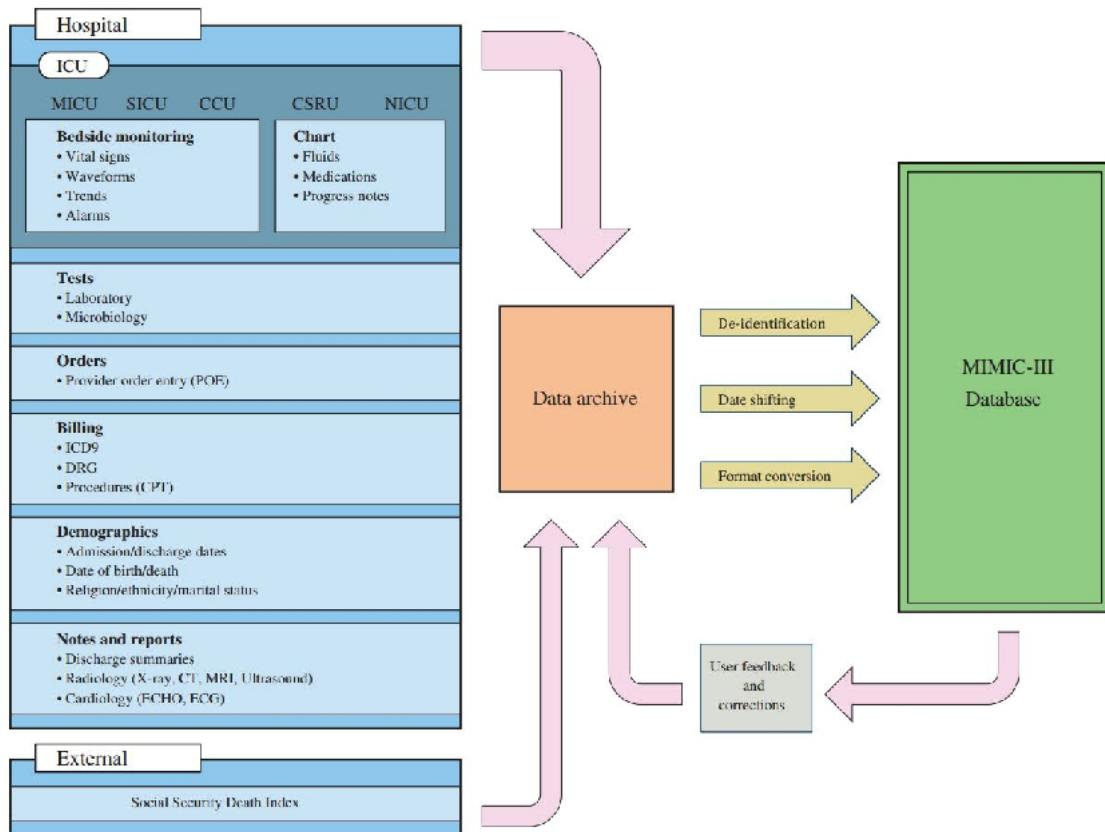


A brief conclusion of MIMIC-III data

MIMIC refers to '**Medical Information Mart for Intensive Care**', is a large, single-center database comprising information relating to critical care units

- Overview of MIMIC-III critical care database



- Different types of ICU in MIMIC-III

CCU	Coronary Care Unit
CSRU	Cardiac Surgery Recovery Unit
MICU	Medical Intensive Care Unit
SICU	Surgical Intensive Care Unit
TSICU	Trauma Surgical Intensive Care Unit

- Tables in MIMIC-III

There are 26 types of table in the database, and the tables can be classified into **4 parts**(roughly): **patients' basic information and transfer information**, **clinic treatment information**, **ICU treatment information** and **auxiliary information**.

1. Patients' basic information and transfer information tables (6 tables):

Table name	Descriptions	Related research
PATIENTS	Every unique patient in the database (defines SUBJECT_ID) Including gender, birthdate, deathtime	Most of research
ADMISSIONS	Every unique hospitalization for each patient (defines HADM_ID) Including admission/Discharge time, and demographics	Most of research
CALLOUT	Information regarding when a patient was cleared for ICU discharge and when the patient was actually discharged	Dejam et al. Mayaud et al.
ICUSTAYS	Every unique ICU stay in the database (defines ICUSTAY_ID) Including the duration in ICU	Lee J et al. Fuches et al.
TRANSFERS	Patient movement from bed to bed within the hospital, Including state of patient when transferring	Lee J et al.
SERVICES	The clinical service under which a patient is registered Including services patient received before	Moskowitz et al.

Using the tables above, researchers found the factors that affect the ICU patients' mortality, also predict the mortality rate. [Dejam et al. researched the effect of age and clinical circumstances on the outcome of red blood cell (RBC) transfusion in critically ill patients, found RBC transfusion is associated with improved outcomes in some cohorts and worse outcome in others, depending on comorbidities and patient characteristics.]

2. Clinic treatment information tables:

Table name	Descriptions	Related research
CPTEVENTS	Procedures recorded as Current Procedural Terminology (CPT) codes	Most of research
DIAGNOSES_ICD	Hospital assigned diagnoses, coded using the International Statistical Classification of Diseases and Related Health Problems (ICD) system.	Lee J et al. Goldstein I et al.
DRGCODES	Diagnosis Related Groups (DRG), which are used by the hospital for billing purposes.	Most of research
LABEVENTS	Laboratory measurements for patients <u>both within the hospital and in outpatient clinics</u> .	Celi et al. Lee J, Kothari R et al. Moskowitz et al.
MICROBIOLOGYEVENTS	Microbiology culture results and antibiotic sensitivities from the hospital database	
PRESCRIPTIONS	Medications ordered for a given patient. Including valid time, dose, drug type	Ghassemi et al.

Using the tables above, researchers did research about optimization of medication dosing, also correlation study between measuring factors and illness. [Ghassemi et al. using logistic regression method demonstrated a novel method that develop statistically optimal dosing strategies]

3. ICU treatment information tables:

Table name	Descriptions	Related research
CAREGIVERS	Every caregiver who has recorded data in the database (define s CGID).	
CHARTEVENTS	All charted observations for patients. Including routine vital signs, mental states, laboratory values	Hunziker et al. Lehman et al.
DATETIMEEVENTS	All recorded observations which are dates, for example time of dialysis or insertion of lines.	Lehman, Saeed et al. Caleb et al.
INPUTEVENTS_CV	Intake for patients monitored using the Philips CareVue syste m while in the ICU, e.g., intravenous medications, enteral feeding, etc.	
INPUTEVENTS_MV	Intake for patients monitored using the iMDSoft MetaVision system while in the ICU, e.g., intravenous medications, enteral feeding, etc	
NOTE_EVENTS	Deidentified notes, including nursing and physician notes, ECG reports, radiology reports, and discharge summaries.	Neamatullah et al. Mayaud et al.
OUTPUТЕVENTS	Output information for patients while in the ICU	
PROCEDUREEVENTS_MV	Patient procedures for the subset of patients who were monitored in the ICU using the iMDSoft MetaVision system	
PROCEDURES_ICD	Patient procedures, coded using the International Statistical Classification of Diseases and Related Health Problems (ICD) system	Lehman, Saeed et al. Lehman et al.

Using the tables above, researchers search the relationship between patients' vital signs and ICU mortality or incidence rate. [Sabina et al. modeled the association between red cell distribution and mortality by using multivariable logistic regression]

4. Auxiliary information tables:

Table name	Descriptions	Related research
D_CPT	High level dictionary of Current Procedural Terminology (CPT) codes. Including 8 possible sections: Evaluation and management, Surgery, Radiology, Anesthesia, Emerging technology, Pathology and laboratory, Performance measurement, Medicine	
D_ICD_DIAGNOSES	Dictionary of International Statistical Classification of Diseases and Related Health Problems (ICD-9) codes relating to diagnoses	
D_ICD PROCEDURES	Dictionary of International Statistical Classification of Diseases and Related Health Problems (ICD-9) codes relating to procedures	Most of research
D_ITEMS	Dictionary of local codes ('ITEMIDs') appearing in the MIMIC database, except those that relate to laboratory tests	
D_LABITEMS	Dictionary of local codes ('ITEMIDs') appearing in the MIMIC database that relate to laboratory tests .	

- Different research topics about MIMIC database
 1. Prognosis and mortality predictions of ICU patients
 2. The factors that affect prognosis and mortality predictions
 3. Research about ICU patients' basic vital signs
 4. Impact factors analysis for specific disease
 5. Introduction to MIMIC database and methods of data-processing
 6. ...