SQL QUERIES FOR THE FINAL DATASET

Study population:

```
-- Step 1: Identify patients with DKA using ICD-9 codes
WITH dka_patients AS (
   SELECT DISTINCT
       di.subject_id,
       di.hadm_id,
       di.icd9_code
   FROM `physionet-data.mimiciii_clinical.diagnoses_icd` di
   WHERE di.icd9_code IN ('25010', '25011', '25012', '25013') -- ICD-9 codes for DKA
),

-- Step 2: Identify patients with CKD stage 5
ckd_stage_5_patients AS (
   SELECT DISTINCT
       di.subject_id,
       di.hadm_id
   FROM `physionet-data.mimiciii_clinical.diagnoses_icd` di
   WHERE di.icd9_code IN ('5855', '5856') -- ICD-9 codes for CKD stage 5
),

-- Step 3: Find the first ICU stay for each hospital admission
first_icu_stay AS (
   SELECT
       icu.subject_id,
       icu.hadm_id,
       icu.icustay_id,
       icu.intime,
       ROW_NUMBER() OVER (PARTITION BY icu.hadm_id ORDER BY icu.intime) AS rn
   FROM `physionet-data.mimiciii_clinical.icustays` icu
),

-- Step 4: Combine DKA patients with their first ICU stay, excluding CKD stage 5
patients
final_population AS (
   SELECT
       dka.subject_id,
```

SQL QUERIES FOR THE FINAL DATASET

```
        dka.hadm_id,
        icu.icustay_id,
        icu.intime
    FROM dka_patients dka
    JOIN first_icu_stay icu
        ON dka.subject_id = icu.subject_id
        AND dka.hadm_id = icu.hadm_id
    LEFT JOIN ckd_stage_5_patients ckd
        ON dka.subject_id = ckd.subject_id
        AND dka.hadm_id = ckd.hadm_id
    WHERE icu.rn = 1 -- Keep only the first ICU stay
      AND ckd.hadm_id IS NULL -- Exclude patients with CKD stage 5
)
SELECT *
FROM final_population
ORDER BY subject_id, intime;
```

Variables
Demographics: subject_id, gender, age, ethnicity, hadm_id, weight, icustay_id.

```
CREATE OR REPLACE TABLE `proud-archery-435803-j0.healthcare_650.demographics` AS
SELECT
    p.subject_id,
    p.gender,
    DATE_DIFF(CAST(a.admittime AS DATE), CAST(p.dob AS DATE), YEAR) AS age, --
Calculate age at admission
    a.ethnicity,
    a.hadm_id, -- Include hadm_id
    wf.weight AS weight, -- Weight from weightfirstday table
    hf.height AS height, -- Height from heightfirstday table
    i.icustay_id
FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
JOIN `physionet-data.mimiciii_clinical.icustays` i
    ON fp.icustay_id = i.icustay_id
JOIN `physionet-data.mimiciii_clinical.admissions` a
    ON i.hadm_id = a.hadm_id
JOIN `physionet-data.mimiciii_clinical.patients` p
```

SQL QUERIES FOR THE FINAL DATASET

```
   ON a.subject_id = p.subject_id
LEFT JOIN `physionet-data.mimiciii_derived.weightfirstday` wf
   ON i.icustay_id = wf.icustay_id
LEFT JOIN `physionet-data.mimiciii_derived.heightfirstday` hf
   ON i.icustay_id = hf.icustay_id
ORDER BY p.subject_id, a.admittime;
```

Vitals: subject_id, hadm_id, icustay_id, Mean Heart Rate, Systolic BP, Diastolic BP, Mean Respiratory Rate, Temperature.

```
CREATE OR REPLACE TABLE `proud-archery-435803-j0.healthcare_650.vitals` AS
SELECT
   fp.subject_id,
   fp.hadm_id,
   fp.icustay_id,
   vf.HeartRate_Mean AS heart_rate,
   vf.SysBP_Mean AS systolic_bp,
   vf.DiasBP_Mean AS diastolic_bp,
   vf.RespRate_Mean AS respiratory_rate,
   vf.TempC_Mean AS temperature,
   -- vf.SpO2_Mean AS spo2 -- Oxygen saturation, if needed
FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
JOIN `physionet-data.mimiciii_derived.vitalsfirstday` vf
   ON fp.icustay_id = vf.icustay_id
-- WHERE vf.HeartRate_Mean IS NOT NULL
--    OR vf.SysBP_Mean IS NOT NULL
--    OR vf.DiasBP_Mean IS NOT NULL
--    OR vf.RespRate_Mean IS NOT NULL
--    OR vf.TempC_Mean IS NOT NULL
ORDER BY fp.subject_id, fp.hadm_id;
```

Complications: 450

```
CREATE OR REPLACE TABLE `proud-archery-435803-j0.healthcare_650.complications` AS
SELECT
   fp.subject_id,
   fp.hadm_id,
   fp.icustay_id,
```

SQL QUERIES FOR THE FINAL DATASET

```
   CASE
       WHEN di.icd9_code IN ('25040', '25041', '25042') THEN 'Diabetic Nephropathy'
       WHEN di.icd9_code IN ('36201', '36202', '36203') THEN 'Diabetic Retinopathy'
       WHEN di.icd9_code IN ('3569', '3572') THEN 'Diabetic Peripheral Neuropathy'
       WHEN di.icd9_code IN ('41401', '41402', '41403') THEN 'Coronary Heart Disease'
       WHEN di.icd9_code IN ('4370', '4371', '4372') THEN 'Cerebral Atherosclerosis'
       WHEN di.icd9_code IN ('44381', '44389', '4439') THEN 'Peripheral Artery
Disease'
       ELSE 'Other'
   END AS complication_type
FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
JOIN `physionet-data.mimiciii_clinical.diagnoses_icd` di
   ON fp.hadm_id = di.hadm_id
WHERE di.icd9_code IN (
   -- Microangiopathy
   '25040', '25041', '25042', -- Diabetic Nephropathy
   '36201', '36202', '36203', -- Diabetic Retinopathy
   '3569', '3572',           -- Diabetic Peripheral Neuropathy
   -- Macroangiopathy
   '41401', '41402', '41403', -- Coronary Heart Disease
   '4370', '4371', '4372',   -- Cerebral Atherosclerosis
   '44381', '44389', '4439'  -- Peripheral Artery Disease
)
ORDER BY fp.subject_id, fp.hadm_id;
```

Comorbidities: 584

```
CREATE OR REPLACE TABLE `proud-archery-435803-j0.healthcare_650.comorbidities` AS
SELECT
   fp.subject_id,
   fp.hadm_id,
   fp.icustay_id,
   CASE
       WHEN di.icd9_code IN ('5851', '5852', '5853', '5854') THEN 'CKD' -- Chronic
Kidney Disease
       WHEN di.icd9_code IN ('5990') THEN 'UTI' -- Urinary Tract Infection
```

SQL QUERIES FOR THE FINAL DATASET

```
       WHEN di.icd9_code IN ('486', '481', '4820', '4821', '4822') THEN 'Pneumonia' --
Pneumonia
       WHEN di.icd9_code IN ('5712', '5715', '5716') THEN 'Liver Disease' -- Liver
Disease
       WHEN di.icd9_code IN ('4011', '4019', '40210') THEN 'Hypertension' -- History
of Hypertension
       WHEN di.icd9_code IN ('4280', '4281', '4289') THEN 'CHF' -- History of
Congestive Heart Failure
       ELSE 'Other'
   END AS comorbidity
FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
JOIN `physionet-data.mimiciii_clinical.diagnoses_icd` di
   ON fp.hadm_id = di.hadm_id
WHERE di.icd9_code IN (
   -- Comorbidities ICD-9 codes
   '5851', '5852', '5853', '5854', -- CKD
   '5990', -- UTI
   '486', '481', '4820', '4821', '4822', -- Pneumonia
   '5712', '5715', '5716', -- Liver Disease
   '4011', '4019', '40210', -- Hypertension
   '4280', '4281', '4289' -- CHF
)
ORDER BY fp.subject_id, fp.hadm_id;
```

Lab Vitals:

```
CREATE OR REPLACE TABLE `proud-archery-435803-j0.healthcare_650.lab_vitals` AS
SELECT
   fp.subject_id,
   fp.hadm_id,
   fp.icustay_id,
   l.BICARBONATE_min AS bicarbonate, -- Bicarbonate
   l.WBC_min AS wbc,                 -- White Blood Cell count
   l.HEMOGLOBIN_min AS hemoglobin,   -- Hemoglobin
   l.PLATELET_min AS platelets,      -- Platelet count
   l.SODIUM_min AS sodium,           -- Sodium
   l.CHLORIDE_min AS chloride,       -- Chloride
```

SQL QUERIES FOR THE FINAL DATASET

```
   l.BUN_min AS bun,                -- Blood Urea Nitrogen
   l.CREATININE_min AS creatinine,  -- Serum Creatinine
   l.POTASSIUM_min AS potassium,    -- Potassium
   l.GLUCOSE_min AS glucose,        -- Blood Glucose
   l.ANIONGAP_min AS anion_gap,     -- Anion Gap
FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
JOIN `physionet-data.mimiciii_derived.labsfirstday` l
   ON fp.icustay_id = l.icustay_id
-- WHERE l.BICARBONATE_min IS NOT NULL
--    OR l.WBC_min IS NOT NULL
--    OR l.HEMOGLOBIN_min IS NOT NULL
--    OR l.PLATELET_min IS NOT NULL
--    OR l.SODIUM_min IS NOT NULL
--    OR l.CHLORIDE_min IS NOT NULL
--    OR l.BUN_min IS NOT NULL
--    OR l.CREATININE_min IS NOT NULL
--    OR l.POTASSIUM_min IS NOT NULL
--    OR l.GLUCOSE_min IS NOT NULL
--    OR l.ANIONGAP_min IS NOT NULL
ORDER BY fp.subject_id, fp.hadm_id;
```

Scoring Systems:

```
CREATE OR REPLACE TABLE `proud-archery-435803-j0.healthcare_650.scoring_systems` AS
SELECT
   fp.subject_id,
   fp.hadm_id,
   fp.icustay_id,
   s.sapsii AS saps_ii,          -- Simplified Acute Physiology Score II
   o.oasis AS oasis,             -- Oxford Acute Severity of Illness Score
   so.SOFA AS sofa,              -- Sequential Organ Failure Assessment Score
   g.GCSEyes AS gcs_eyes,         -- Eyes Glasgow Coma Scale
   g.GCSMotor AS gcs_motor,          -- Motor Glasgow Coma Scale
   g.GCSVerbal AS gcs_verbal          -- Verbal Glasgow Coma Scale
FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
LEFT JOIN `physionet-data.mimiciii_derived.sapsii` s
   ON fp.icustay_id = s.icustay_id
```

SQL QUERIES FOR THE FINAL DATASET

```
LEFT JOIN `physionet-data.mimiciii_derived.oasis` o
   ON fp.icustay_id = o.icustay_id
LEFT JOIN `physionet-data.mimiciii_derived.sofa` so
   ON fp.icustay_id = so.icustay_id
LEFT JOIN `physionet-data.mimiciii_derived.gcsfirstday` g
   ON fp.icustay_id = g.icustay_id
WHERE s.sapsii IS NOT NULL
  OR o.oasis IS NOT NULL
  OR so.SOFA IS NOT NULL
  OR g.GCSEyes IS NOT NULL
  OR g.GCSMotor IS NOT NULL
  OR g.GCSVerbal IS NOT NULL
ORDER BY fp.subject_id, fp.hadm_id;
```

Other Vital Information: Diabetes Melitus type, Infusion volume, Urine output - 9,093 rows

```
CREATE OR REPLACE TABLE `proud-archery-435803-j0.healthcare_650.other_vital_info` AS
WITH dm_type AS (
   -- Step 1: Determine DM type from ICD-9 codes
   SELECT
       fp.subject_id,
       fp.hadm_id,
       fp.icustay_id,
       CASE
           WHEN di.icd9_code IN ('25001', '25003', '25011', '25013', '25021', '25023')
THEN 'T1DM' -- Type 1 Diabetes Mellitus
           WHEN di.icd9_code IN ('25000', '25002', '25010', '25012', '25020', '25022')
THEN 'T2DM' -- Type 2 Diabetes Mellitus
           ELSE 'Unknown'
       END AS dm_type
   FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
   LEFT JOIN `physionet-data.mimiciii_clinical.diagnoses_icd` di
       ON fp.hadm_id = di.hadm_id
),
infusion_volume_combined AS (
   -- Step 2: Combine infusion volumes from inputevents_mv and inputevents_cv
   SELECT
```

SQL QUERIES FOR THE FINAL DATASET

```
        fp.subject_id,
        fp.hadm_id,
        fp.icustay_id,
        CASE
            WHEN SUM(iv_mv.amount) IS NOT NULL THEN SUM(iv_mv.amount) -- Take
inputevents_mv if available
            WHEN SUM(iv_cv.amount) IS NOT NULL THEN SUM(iv_cv.amount) -- Otherwise,
take inputevents_cv
            ELSE NULL
        END AS infusion_volume
    FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
    LEFT JOIN `physionet-data.mimiciii_clinical.inputevents_mv` iv_mv
        ON fp.icustay_id = iv_mv.icustay_id
    LEFT JOIN `physionet-data.mimiciii_clinical.inputevents_cv` iv_cv
        ON fp.icustay_id = iv_cv.icustay_id
    GROUP BY fp.subject_id, fp.hadm_id, fp.icustay_id
),
urine_output AS (
    -- Step 3: Calculate total urine output from outputevents
    SELECT
        fp.subject_id,
        fp.hadm_id,
        fp.icustay_id,
        SUM(oe.value) AS total_urine_output
    FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
    LEFT JOIN `physionet-data.mimiciii_clinical.outputevents` oe
        ON fp.icustay_id = oe.icustay_id
    WHERE oe.itemid IN (40055, 43175, 40069, 40094, 40428, 40405, 40413) -- Urine
output ITEMIDs
        AND oe.value IS NOT NULL
    GROUP BY fp.subject_id, fp.hadm_id, fp.icustay_id
)
-- Combine DM type, infusion volume, and urine output
SELECT
    fp.subject_id,
    fp.hadm_id,
```

SQL QUERIES FOR THE FINAL DATASET

```
   fp.icustay_id,
   dm.dm_type,
   ivc.infusion_volume, -- Single column for infusion volume
   uo.total_urine_output
FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
LEFT JOIN dm_type dm
   ON fp.subject_id = dm.subject_id
   AND fp.hadm_id = dm.hadm_id
LEFT JOIN infusion_volume_combined ivc
   ON fp.subject_id = ivc.subject_id
   AND fp.hadm_id = ivc.hadm_id
LEFT JOIN urine_output uo
   ON fp.subject_id = uo.subject_id
   AND fp.hadm_id = uo.hadm_id
ORDER BY fp.subject_id, fp.hadm_id;
```

Final Population Combined (EXCLUDING creatinine 48hr and 7 day values)

```
CREATE OR REPLACE TABLE
`proud-archery-435803-j0.healthcare_650.final_population_combined` AS
WITH dm_type AS (
   -- Step 1: Determine DM type from ICD-9 codes
   SELECT
       fp.subject_id,
       fp.hadm_id,
       fp.icustay_id,
       CASE
           WHEN di.icd9_code IN ('25001', '25003', '25011', '25013', '25021', '25023')
THEN 'T1DM' -- Type 1 Diabetes Mellitus
           WHEN di.icd9_code IN ('25000', '25002', '25010', '25012', '25020', '25022')
THEN 'T2DM' -- Type 2 Diabetes Mellitus
           ELSE 'Unknown'
       END AS dm_type
   FROM `proud-archery-435803-j0.healthcare_650.final_population` fp
   LEFT JOIN `physionet-data.mimiciii_clinical.diagnoses_icd` di
       ON fp.hadm_id = di.hadm_id
)
SELECT
```

SQL QUERIES FOR THE FINAL DATASET

```
    fp.subject_id,
    fp.hadm_id,
    fp.icustay_id,

    -- Demographics
    ANY_VALUE(d.gender) AS gender,
    ANY_VALUE(d.age) AS age,
    ANY_VALUE(d.ethnicity) AS ethnicity,
    ANY_VALUE(d.weight) AS weight,
    ANY_VALUE(d.height) AS height,

    -- DM Type
    ANY_VALUE(dm.dm_type) AS dm_type,

    -- Complications: Aggregate to a single row per key
    STRING_AGG(c.complication_type, '; ') AS complications,

    -- Comorbidities: Aggregate to a single row per key
    STRING_AGG(co.comorbidity, '; ') AS comorbidities,

    -- Vitals
    ANY_VALUE(v.heart_rate) AS heart_rate,
    ANY_VALUE(v.systolic_bp) AS systolic_bp,
    ANY_VALUE(v.diastolic_bp) AS diastolic_bp,
    ANY_VALUE(v.respiratory_rate) AS respiratory_rate,
    ANY_VALUE(v.temperature) AS temperature,

    -- Lab Vitals
    ANY_VALUE(lv.bicarbonate) AS bicarbonate,
    ANY_VALUE(lv.wbc) AS wbc,
    ANY_VALUE(lv.hemoglobin) AS hemoglobin,
    ANY_VALUE(lv.platelets) AS platelets,
    ANY_VALUE(lv.sodium) AS sodium,
    ANY_VALUE(lv.chloride) AS chloride,
    ANY_VALUE(lv.bun) AS bun,
    ANY_VALUE(lv.creatinine) AS creatinine,
```

SQL QUERIES FOR THE FINAL DATASET

```
    ANY_VALUE(lv.potassium) AS potassium,
    ANY_VALUE(lv.glucose) AS glucose,
    ANY_VALUE(lv.anion_gap) AS anion_gap,

    -- Scoring Systems
    ANY_VALUE(ss.saps_ii) AS saps_ii,
    ANY_VALUE(ss.oasis) AS oasis,
    ANY_VALUE(ss.sofa) AS sofa,
    ANY_VALUE(ss.gcs_eyes) AS gcs_eyes,
    ANY_VALUE(ss.gcs_motor) AS gcs_motor,
    ANY_VALUE(ss.gcs_verbal) AS gcs_verbal,

    -- Other Vital Info
    ANY_VALUE(ovi.infusion_volume) AS infusion_volume,
    ANY_VALUE(ovi.total_urine_output) AS total_urine_output

FROM `proud-archery-435803-j0.healthcare_650.final_population` fp

-- Join Demographics
LEFT JOIN `proud-archery-435803-j0.healthcare_650.demographics` d
    ON fp.subject_id = d.subject_id
    AND fp.hadm_id = d.hadm_id
    AND fp.icustay_id = d.icustay_id

-- Join DM Type
LEFT JOIN dm_type dm
    ON fp.subject_id = dm.subject_id
    AND fp.hadm_id = dm.hadm_id
    AND fp.icustay_id = dm.icustay_id

-- Join Complications: Aggregate to ensure one row per hadm_id and icustay_id
LEFT JOIN (
    SELECT
        subject_id,
        hadm_id,
        icustay_id,
```

SQL QUERIES FOR THE FINAL DATASET

```
        STRING_AGG(complication_type, '; ') AS complication_type
    FROM `proud-archery-435803-j0.healthcare_650.complications`
    GROUP BY subject_id, hadm_id, icustay_id
) c
    ON fp.subject_id = c.subject_id
    AND fp.hadm_id = c.hadm_id
    AND fp.icustay_id = c.icustay_id

-- Join Comorbidities: Aggregate to ensure one row per hadm_id and icustay_id
LEFT JOIN (
    SELECT
        subject_id,
        hadm_id,
        icustay_id,
        STRING_AGG(comorbidity, '; ') AS comorbidity
    FROM `proud-archery-435803-j0.healthcare_650.comorbidities`
    GROUP BY subject_id, hadm_id, icustay_id
) co
    ON fp.subject_id = co.subject_id
    AND fp.hadm_id = co.hadm_id
    AND fp.icustay_id = co.icustay_id

-- Join Vitals
LEFT JOIN `proud-archery-435803-j0.healthcare_650.vitals` v
    ON fp.subject_id = v.subject_id
    AND fp.hadm_id = v.hadm_id
    AND fp.icustay_id = v.icustay_id

-- Join Lab Vitals
LEFT JOIN `proud-archery-435803-j0.healthcare_650.lab_vitals` lv
    ON fp.subject_id = lv.subject_id
    AND fp.hadm_id = lv.hadm_id
    AND fp.icustay_id = lv.icustay_id

-- Join Scoring Systems
LEFT JOIN `proud-archery-435803-j0.healthcare_650.scoring_systems` ss
```

SQL QUERIES FOR THE FINAL DATASET

```
   ON fp.subject_id = ss.subject_id
   AND fp.hadm_id = ss.hadm_id
   AND fp.icustay_id = ss.icustay_id

-- Join Other Vital Info
LEFT JOIN `proud-archery-435803-j0.healthcare_650.other_vital_info` ovi
   ON fp.subject_id = ovi.subject_id
   AND fp.hadm_id = ovi.hadm_id
   AND fp.icustay_id = ovi.icustay_id

GROUP BY fp.subject_id, fp.hadm_id, fp.icustay_id
ORDER BY fp.subject_id, fp.hadm_id;
```

Creatinine values at 48hr and 7 day intervals:

```
CREATE OR REPLACE TABLE `proud-archery-435803-j0.healthcare_650.creatinine_intervals`
AS
WITH first_icu_admissions AS (
   SELECT
       icu.subject_id,
       icu.hadm_id,
       icu.icustay_id,
       icu.intime,
       icu.outtime,
       ROW_NUMBER() OVER (PARTITION BY icu.hadm_id ORDER BY icu.intime) AS rn
   FROM
       `physionet-data.mimiciii_clinical.icustays` icu
   JOIN
       `proud-archery-435803-j0.healthcare_650.final_population_combined` fp
   ON icu.icustay_id = fp.icustay_id -- Ensure we only include ICU stays from
final_population_combined
),
filtered_icu AS (
   SELECT *
   FROM first_icu_admissions
   WHERE rn = 1 -- Keep only the first ICU admission per hospital admission
),
```

SQL QUERIES FOR THE FINAL DATASET

```
creatinine_data AS (
   SELECT
       le.subject_id,
       le.hadm_id,
       icu.icustay_id,
       le.charttime,
       le.valuenum AS creatinine,
       TIMESTAMP_DIFF(le.charttime, icu.intime, HOUR) AS hours_from_admission
   FROM
       `physionet-data.mimiciii_clinical.labevents` le
   JOIN
       filtered_icu icu
   ON le.hadm_id = icu.hadm_id
   AND le.subject_id = icu.subject_id
   WHERE
       le.itemid = 50912 -- Item ID for creatinine in MIMIC-III
       AND le.valuenum IS NOT NULL
       AND le.charttime BETWEEN icu.intime AND TIMESTAMP_ADD(icu.intime, INTERVAL 7
DAY) -- Ignore data beyond 7 days
),
split_intervals AS (
   SELECT
       subject_id,
       hadm_id,
       icustay_id,
       -- First creatinine value within 48 hours
       MIN(CASE
           WHEN hours_from_admission <= 48 THEN creatinine
       END) AS creatinine_48hrs,
       -- First creatinine value beyond 48 hours and within 7 days
       MIN(CASE
           WHEN hours_from_admission > 48 AND hours_from_admission <= 168 THEN
creatinine
       END) AS creatinine_7days
   FROM
       creatinine_data
```

SQL QUERIES FOR THE FINAL DATASET

```
    GROUP BY
        subject_id, hadm_id, icustay_id
)
SELECT
    subject_id,
    hadm_id,
    icustay_id,
    creatinine_48hrs,
    creatinine_7days
FROM
    split_intervals
ORDER BY
    Hadm_id;
```

Join Creatinine intervals table to final population combined table:

```
CREATE OR REPLACE TABLE
`proud-archery-435803-j0.healthcare_650.final_population_combined` AS
SELECT
    -- All columns from final_population_combined
    fp.*,
    -- Columns from creatinine_intervals
    ci.creatinine_48hrs,
    ci.creatinine_7days
FROM
    `proud-archery-435803-j0.healthcare_650.final_population_combined` fp
LEFT JOIN
    `proud-archery-435803-j0.healthcare_650.creatinine_intervals` ci
ON
    fp.subject_id = ci.subject_id
    AND fp.hadm_id = ci.hadm_id
    AND fp.icustay_id = ci.icustay_id;
```