

-- This
query
checks
if the
patient
had
AKI
accordin
g to
KDIGO

-- AKI is calculated every time a creatinine or urine output measurement occurs.
-- Baseline creatinine is defined as the lowest creatinine in the past 7 days.

```
DROP MATERIALIZED VIEW IF EXISTS kdigo_stages CASCADE;
CREATE MATERIALIZED VIEW kdigo_stages AS
-- get creatinine stages
with cr_stg AS
(
  SELECT
    cr.icustay_id
    , cr.charttime
    , cr.creat
    , case
      -- 3x baseline
      when cr.creat >= (cr.creat_low_past_7day*3.0) then 3
      -- *OR* cr >= 4.0 with associated increase
      when cr.creat >= 4
      -- For patients reaching Stage 3 by SCr >4.0 mg/dl
      -- require that the patient first achieve ... acute increase >= 0.3 within 48 hr
      -- *or* an increase of >= 1.5 times baseline
      and (cr.creat_low_past_48hr <= 3.7 OR cr.creat >=
(1.5*cr.creat_low_past_7day))
      then 3
      -- TODO: initiation of RRT
      when cr.creat >= (cr.creat_low_past_7day*2.0) then 2
      when cr.creat >= (cr.creat_low_past_48hr+0.3) then 1
      when cr.creat >= (cr.creat_low_past_7day*1.5) then 1
      else 0 end as aki_stage_creat
    FROM kdigo_creat cr
)
-- stages for UO / creat
, uo_stg as
```

```

(
  select
    uo.icustay_id
    , uo.charttime
    , uo.weight
    , uo.uo_rt_6hr
    , uo.uo_rt_12hr
    , uo.uo_rt_24hr
    -- AKI stages according to urine output
    , CASE
      WHEN uo.uo_rt_6hr IS NULL THEN NULL
      -- require patient to be in ICU for at least 6 hours to stage UO
      WHEN uo.charttime <= ie.intime + interval '6' hour THEN 0
      -- require the UO rate to be calculated over half the period
      -- i.e. for uo rate over 24 hours, require documentation at least 12 hr apart
      WHEN uo.uo_tm_24hr >= 11 AND uo.uo_rt_24hr < 0.3 THEN 3
      WHEN uo.uo_tm_12hr >= 5 AND uo.uo_rt_12hr = 0 THEN 3
      WHEN uo.uo_tm_12hr >= 5 AND uo.uo_rt_12hr < 0.5 THEN 2
      WHEN uo.uo_tm_6hr >= 2 AND uo.uo_rt_6hr < 0.5 THEN 1
      ELSE 0 END AS aki_stage_uo
  from kdigo_uo uo
  INNER JOIN icustays ie
    ON uo.icustay_id = ie.icustay_id
)
-- get all charttimes documented
, tm_stg AS
(
  SELECT
    icustay_id, charttime
  FROM cr_stg
  UNION
  SELECT
    icustay_id, charttime
  FROM uo_stg
)
select
  ie.icustay_id
  , tm.charttime
  , cr.creat
  , cr.aki_stage_creat
  , uo.uo_rt_6hr
  , uo.uo_rt_12hr
  , uo.uo_rt_24hr
  , uo.aki_stage_uo

```

```
-- Classify AKI using both creatinine/urine output criteria
, GREATEST(cr.aki_stage_creat, uo.aki_stage_uo) AS aki_stage
FROM icustays ie
-- get all possible charttimes as listed in tm_stg
LEFT JOIN tm_stg tm
    ON ie.icustay_id = tm.icustay_id
LEFT JOIN cr_stg cr
    ON ie.icustay_id = cr.icustay_id
    AND tm.charttime = cr.charttime
LEFT JOIN uo_stg uo
    ON ie.icustay_id = uo.icustay_id
    AND tm.charttime = uo.charttime
order by ie.icustay_id, tm.charttime;
```