



Outcomes Measure: Acute Kidney Injury (AKI) 01

Measure Abbreviation: AKI 01

Measure Description: Percentage of cases that the baseline creatinine does not increase more than 1.5 times within 7 days post-op or the baseline creatinine level does not increase by ≥ 0.3 mg/dL within 48 hours post-op.

NQS Domain: Effective Clinical Care

Measure Type: Outcome

Measure Summary: AKI 01 identifies when a patient has an increase in their baseline creatinine observed in the first 7 post-op days. More specifically, it identifies when there is an increase of 1.5 x baseline serum creatinine (measured within 60 preoperative days) observed in first 7 post-op days or when the baseline creatinine increases ≥ 0.3 mg/dl in 48 hours from Anesthesia end. (Use the lab draw closest to the date of surgery for baseline preop creatinine value).

Inclusions: All anesthetic cases

Exclusions:

- ASA 5 & 6
- Patients with pre-existing renal (stage 4 or 5) failure based upon $EGFR < 30$ mL/min/1.73 m²
- Patients undergoing procedures affecting kidneys
 - Urologic surgery on kidney/ureter – CPT 00862, 00864, 00870, 00872, 00873, 00865, 00908, 00910, 00912, 00914, 00916, 00918, 00860, 00942
 - Renal Transplants – CPT 00868
- Non-Operative Procedures:
 - Obstetric Non-Operative Procedures – CPT 01958, 01960, 01967
 - Pain Procedures – CPT 01991, 01992, 01996
 - Electroconvulsive Therapy – CPT 00104
- Patients where a creatinine lab is not available within 7 days post-op
- Patients that do not have a baseline creatinine 60 preoperative days
- For patients with more than one case in a 7 day period, the first case will be excluded if there is no postop creatinine documented for that first case. For example, a patient that has surgery twice in a 7 day period, the surgery that occurred first is excluded if there is no creatinine drawn in between cases.
- The surgical duration is less than 30 minutes
- The anesthesia duration is less than 45 minutes

Other Measure Build Details:

Method for calculating EGFR dependent on age and availability of patient race data:

- Adult patients (>18 years), race data available: *CKD-EPI* formula⁹
- Adult patients (>18 years), race data unavailable: *Cockcroft-Gault* formula⁹
- Pediatric patients (≤ 18 years): *Bedside Schwartz* formula¹⁰; if height is missing, see adult algorithm for EGFR calculation.

Success:

1. The creatinine level does not increase above 1.5x the baseline creatinine within 7 days post-op
2. The creatinine level does not increase by ≥ 0.3 mg/dL obtained within 48 hours post-op (anesthesia end).

Threshold: 90% success.

Responsible Provider:

1. The provider signed in during the case when the BP 01 measure failed (it is possible to have more than one provider).
2. If there is no failure for the BP 01 measure, then the responsible provider is the provider signed in the longest.

Risk Adjustment (for outcome measures):

To evaluate provider-level risk adjustment we will calculate the observed to expected outcomes ratio (O/E). The O/E is calculated using a logistic regression model and predicts (given a set list of dependent patient and hospital level variables) the expected probability of having a kidney injury. We adjust for surgery risk score, emergent procedures, ASA, gender, age, body mass index, laboratory values, and teaching versus private hospital. Patient specific comorbidities are evaluated as well.

References:

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