

- AKI Exclusion Criteria**
- Known ESRD on dialysis
 - Critical illness where AKI is not predominant problem (ex. CHF with pulmonary edema, sepsis)
 - Severe electrolyte derangements

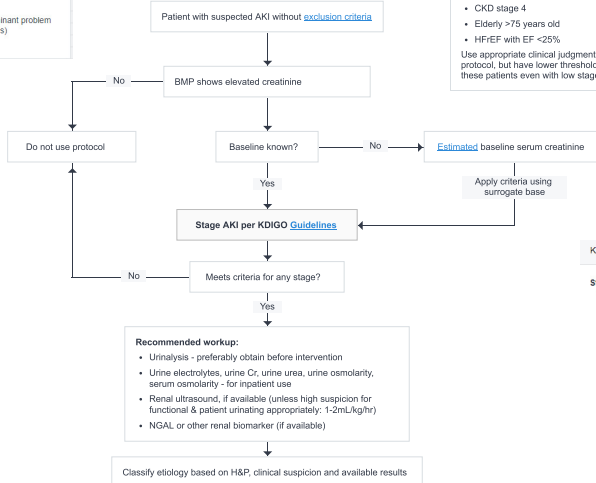
- Special populations:**
- CKD stage 4
 - Elderly >75 years old
 - HF/EF with EF <25%
- Use appropriate clinical judgment and protocol, but have lower threshold to admit these patients even with low stage AKI.

Estimated baseline serum Cr X

Age	Male	Female
20-50	0.9 mg/dl	0.7 mg/dl
60-70	0.9 mg/dl	0.7 mg/dl
70-80	1.1 mg/dl	0.8 mg/dl
80-90	1.1 mg/dl	0.8 mg/dl

KDIGO staging

Stage	Serum Cr	Urine output
1	1.2-1.9 x baseline OR ≥ 0.3 mg/dl increase	< 0.5 mL/kg/hr for 6-12 hours
2	2.0-2.9 x baseline	< 0.5 mL/kg/hr for ≥ 12 hours
3	3 x baseline OR 1 in serum creatinine ≥ 4.0 mg/dl OR initiation of RRT	< 0.3 mL/kg/hr for ≥ 24 hours OR anuria for ≥ 12 hours



Functional AKI (Prerenal)

HISTORY and PHYSICAL:

Mechanism
 Volume depletion
 - GI losses (diarrhea, vomiting)
 - Acute blood loss
 - Diuretic overuse
 - Osmotic diuresis
 - Burns

Decreased arterial pressure
 - Fluid overload (cardiorenal/hepatorenal syndromes)
 - Systemic vasodilation (sepsis)
 - Intra-abdominal hypertension
 - Hypertensive emergency

WORKUP:
 Urinalysis → Normal
 NGAL/biomarker → Normal
 Renal US → Normal

Structural AKI (Intrinsic)

HISTORY and PHYSICAL:

Mechanism
 Tubular
 - Ischemia
 - Prolonged functional insult
 - Nephrotoxins: endogenous (ex. calcium, uric acid, hemolysis, rhabdomyolysis) or exogenous (medications)

Interstitial
 - Some nephrotoxic medications
 - Infections (EBV, Streptococcus)
 - Systemic disease (SLE, sarcoidosis)

Glomerular
 - Post-infection
 - Glomerulonephritis

Vascular
 - Renal thrombosis

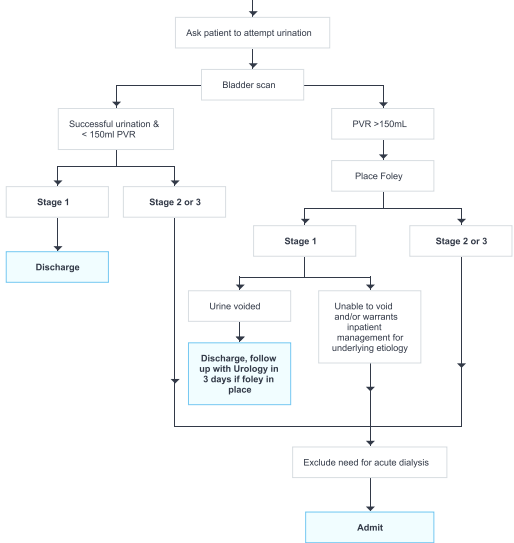
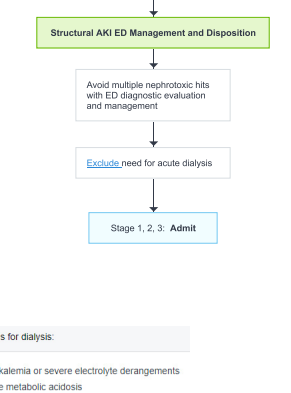
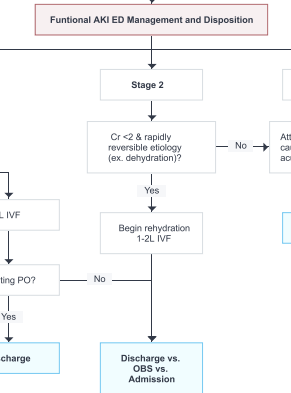
WORKUP:
 Urinalysis → Abnormal (hematuria, proteinuria, casts)
 NGAL/biomarker → Abnormal
 Renal US → Normal

Obstructive AKI (Postrenal)

Underlying etiology

- History of BPH or prostate cancer
- Indwelling Foley or history of urinary tract abnormality
- Suspicion for mass effect (ex. constipation, pregnancy)
- Cauda equina
- Bilateral nephrolithiasis
- Medication side effect of urinary retention
- UTI (predominantly young patients)

WORKUP:
 Urinalysis → Normal (or at baseline)
 NGAL/biomarker → Abnormal
 Renal US → Abnormal



- Indications for dialysis:**
- Hyperkalemia or severe electrolyte derangements
 - Severe metabolic acidosis
 - Diuretic resistant volume overloaded
 - Uremic complications (elevated BUN without complications is not an indication)
 - Some drug intoxications

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 Department of Emergency Medicine