Acute Kidney Injury

N17.9  Acute Kidney Failure, unspecified
N99.0  Postop (acute) (chronic) kidney failure

Diagnosis: acute kidney injury (nontraumatic); acute kidney failure, unspecified; acute postop kidney failure; acute postop kidney injury

Discussion

Nontraumatic acute kidney injury or impairment (AKI) is the rapid loss of kidney function within 48 hours in either pre-existing normal renal function or with pre-existing renal disease (acute on chronic). It is a syndrome of progressive kidney injury/impairment starting with RISK as an increase in absolute serum creatinine (SCr) of either ≥ 0.3 mg/dl (or a percentage increase of ≥ 50 percent or 1.5 fold from baseline) or a reduction in urine output and increases in designated stages of injury, failure and with outcomes of LOSS, and end stage kidney disease (ESKD) or end stage renal disease (ESRD). These stages were given the acronym RIFLE by the Acute Dialysis Quality Initiative to develop a uniformly accepted definition of AKI. Acute kidney injury is considered reversible until it progresses to the outcome of complete loss of renal function or ESRD. Treatment depends on both the underlying cause and the severity or stage of AKI.

At the present time, ICD-10-CM makes no distinction between the stages of AKI as identified by the RIFLE Classification system. AKI is classified to N17.9 Acute kidney failure, unspecified. When using the RIFLE Classification system for staging of severity, acute kidney failure represents stage III.

The Acute Kidney Injury Network (AKIN) also developed standardized clinical indicators to help diagnose AKI. The criteria involve the timing and amount of reduction in kidney function. Although these criteria cannot be used for code assignment without physician verification, its presence in the documentation ensures the appropriateness of reporting a code for AKI.

When acute kidney injury (AKI) is documented, if the clinical indicators for acute kidney failure are not met, query the provider if AKI represents “acute kidney insufficiency” (N28.9) as this is the early stage of renal impairment before it evolves into renal failure. Blood urea nitrogen (BUN) and serum creatinine values may be mildly elevated and other clinical symptoms may or may not be present or minimal. RIFLE/AKIN stages I and II represent acute kidney insufficiency, which are milder forms of impairment that do not meet clinical indicators for acute kidney failure.

If AKI is documented and the serum creatinine levels are less than 0.3 mg/L or lasts less than 24 hours, and returns to baseline with no to minor treatment, query for the clinical significance and note the inconsistency with clinical indicators for AKI. If not indicative of acute kidney insufficiency or acute kidney failure, the physician should be queried if the rise in creatinine represents azotemia (R79.89) or if it is integral to another condition, (i.e., hemoconcentration due to dehydration) with minimal rise in BUN/Cr ratio.

Coding Tip

When documentation, clinical criteria, and code assignment do not match, query the provider for clarification of the diagnosis.

Linking acute kidney injury to any type of nephropathy does not alter reporting N17.9 for documented AKI. Acute kidney injury/failure can occur in the presence of end stage renal disease when caused by another condition; in such cases, both AKI/AKF and ESRD are reported.
The etiology of AKI should be documented and the link made to the underlying pathology; depending on the underlying condition, the category N17-code may be further defined. For example, if documented as acute kidney injury, meaning acute kidney failure, and is further specified as “with tubular necrosis,” code N17.0 would be reported.

The etiologies of acute kidney injury or failure are classified into three categories:

- **Pre-renal:** diminished blood flow to the kidneys or volume loss; oliguria
  - severe dehydration
  - shock
  - embolism
  - cardiac failure
  - hepatic failure
  - sepsis
  - excessive diuresis
  - hemorrhage
  - tense ascites
  - peritonitis
  - pancreatitis
  - burns
  - myocardial infarction
  - antihypertensive meds, NSAIDS, cyclosporine, tacrolimus, ACE inhibitors
  - anesthetics
  - renal artery obstruction/renal vein thrombosis

- **Intrinsic/renal:** diseases and disorders of the kidneys
  - acute tubular necrosis
  - SLE/glomerulonephritis
  - Sickle cell disease
  - nephrotoxins: IV iodinated radiologic contrast agents
  - renal ischemia
  - acute pyelonephritis
  - acute poststreptococcal glomerulonephritis
  - Wegener's granulomatosis
  - Goodpasture syndrome
  - acute tubulointerstitial nephritis as drug reaction
  - acute vascular nephropathy: vasculitis, malignant hypertension, systemic sclerosis
  - atheroembolism
  - infiltrative diseases: lymphoma, sarcoidosis, leukemia

- **Post-renal:** bilateral obstruction of urinary outflow; anuria
  - ureteral calculi
  - blood clot
  - neoplasm
  - BPH
  - urethral stricture
  - congenital defects
  - retroperitoneal fibrosis
  - ureteral trauma or surgical ureteral injury
- phimosis
- obstructed indwelling urinary catheter
- anticholinergic meds

Some of the associated conditions of AKI (acute renal failure) (stage III) are:
- cardiac arrhythmia
- hyperkalemia
- acidemia
- hypernatremia
- encephalopathy

When evaluating clinical indicators, it must be noted that when using AKIN criteria, serum creatinine (SCr) levels must represent an elevation (from baseline or seen between two creatinine levels within 48 hours) and not merely a "jump" and that this calculation is based on levels obtained after adequate fluid resuscitation, when possible. RIFLE criteria do not use these parameters. Stage is determined by whichever of the two criteria, serum creatinine (SCr) or Urinary Output (UO), is higher and only after meeting the criteria for AKI.

**Coding Tip**

*Code assignment cannot be based on ancillary test results or therapies alone. A diagnosis and its clinical significance must be supported by both physician or other qualified health care professional documentation, and clinical criteria. When it is unclear or there is contradictory information, query the physician or other qualified health care professional for clarification.*

**Action**

In order to assign the ICD-10-CM code for acute kidney injury as a principal diagnosis or comorbidity or as a complication of care, the criteria for official coding guidelines, Uniform Hospital Discharge Data Set (UHDDS) definition, clinical criteria, and physician or other qualified health care professional documentation must be met.

**References**

AHA Coding Clinic  
Acute Dialysis Quality Initiative (ADQI): http://ccforum.com  
Acute Kidney Injury Network: http://www.akinet.org  
The Merck Manual  
MLN Matters Number SE1121  
Regulatory Audits Desk Reference, Optum  
ICD-10-CM Clinical Documentation Improvement Desk Reference, 2013, Optum  
ICD-10-CM Draft Official Guidelines for Coding and Reporting 2014
<table>
<thead>
<tr>
<th>Coding Guideline</th>
<th>Clinical Criteria</th>
</tr>
</thead>
</table>
| **1. Physical Evaluation**  
*(routine/expected in italics)* | • *Asymptomatic*  
• Symptoms include those of underlying condition  
• *Insufficiency*: s/s may be absent to minimal  
• Anorexia  
• Nausea/vomiting  
• Decreased urine output  
• Asterixis  
• Hyperreflexia  
• Weakness  
• Peripheral edema/fluid retention  
• Orthostasis  
• Myoclonic jerks  
• Seizures  
• Confusion  
• Fluid overload  
• Uremic pericarditis  
  – chest pain  
  – pericardial friction rub  
  – pericardial tamponade  
• Pulmonary edema  
  – dyspnea  
  – crackles on auscultation  
• Coma |
| **2. Clinical Evaluation**  
*(routine/expected in italics)* | • Serum creatinine with "jump" or < 0.3 mg/L, short-term; indicating hemoconcentration of clinical dehydration  
• Serum creatinine (SCR):  
  – RIFLE and AKIN:  
    • increase of SCR by >/+ 0.3 mg/dl (>/+ 26.4 μmol/L or increase to >/+ 150%–200% from baseline [SCR x 1.5-2] [RISK]  
    • increase of SCR to > 200%–300% from baseline [SCR x 2-3] [INJURY]  
    • increase of SCR to > 300% from baseline or SCR >/+ 4.0 mg/dl (>/+ 354 [μmol/L] with an acute increase with at least 0.5mg/dl (44 μmol/L) [SCR x >3] [FAILURE] or treatment with RRT  
• Urine output (UO):  
  – RIFLE and AKIN:  
    • increase of SCR by >/+ 0.3 mg/dl (>/+ 26.4 μmol/L or increase to >/+ 150%–200% from baseline [SCR x 1.5-2] [RISK]  
    • increase of SCR to > 200%–300% from baseline [SCR x 2-3] [INJURY]  
    • increase of SCR to > 300% from baseline or SCR >/+ 4.0 mg/dl (>/+ 354 [μmol/L] with an acute increase with at least 0.5mg/dl (44 μmol/L) [SCR x >3] [FAILURE] or treatment with RRT  
• Urine output (UO):  
  – RIFLE and AKIN:  
    • I. UO < 0.5 ml/kg/hr for > 6 hours [RISK]  
    • II. UO < 0.5 ml/kg/hr for > 12 hours [INJURY]  
    • III. UO < 0.3 ml/kg/hr for > 24 hours (oliguria) or anuria for 12 hours [FAILURE]  
• Serum BUN/Cr ratio > 20/1  
• FENa < 1 (Fractional excretion of sodium) (< 1 prerenal; > 3 ATN)  
• GFR  
• Urinary sediment, protein, blood, casts  
• Urine: specific gravity > 1.018, osmolarity (> 500)  
• CBC  
• Electrolytes  
• Urine Na concentration > 20  
• Postvoid residual bladder volume (postrenal cause suspected)  
• Peripheral smear  
• Fractional excretion of sodium and urea  
• Biomarkers (future) |
3. **Diagnostic Px**  
   *(routine/expected in italics)*
   - Urine output < 500 mL/day
   - Kidney biopsy
   - EKG
   - Renal scan
   - Ultrasound of kidney
   - KUB
   - IV pyelogram
   - Renal arteriography

4. **Therapeutic Tx**  
   *(routine/expected in italics)*
   - Oral hydration
   - IV hydration
   - Dialysis

5. **Increased Nursing Care and/or Monitoring**
   - Develops AKI postadmit

6. **Extends LOS**
   - AKI delays discharge
   - Discharge delayed due to postprocedure AKI
<table>
<thead>
<tr>
<th>Condition</th>
<th>Evidence</th>
<th>Coding Guideline</th>
<th>Physician/Other Qualified Health Care Professional Documentation</th>
<th>ICD-10-CM*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine/Expected/Integral/Incidental (italics only)</strong></td>
<td>1, 2</td>
<td>OCG: I.B.5; I.C.18.a; III.B</td>
<td>- IP Admit Note: Admitted due to persistent vomiting x two days; requires work-up; mild dehydration with mild AKI; BUN/Cr is 38/1.3 with baseline creatinine 0.9; push fluid intake. (Query clinical significance of BUN/creatinine increase and if AKI represents acute kidney failure, acute kidney insufficiency, azotemia or hemoconcentration of dehydration.)</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Principal Diagnosis</strong></td>
<td>1, 2, 3, 4, 6</td>
<td>OCG: II.C; II.G; I.B.5; I.C.18.a; III.B</td>
<td>- IP Discharge Summary: AKI due to bladder neck obstruction associated with BPH. Treated with dialysis.</td>
<td></td>
</tr>
<tr>
<td><strong>Comorbidity</strong></td>
<td>1, 2, 3, 4, 5, 6</td>
<td>OCG: I.B.5; I.C.18.a; III.B</td>
<td>- IP Discharge Summary: Final diagnosis: AKI due to SLE nephritis.</td>
<td></td>
</tr>
<tr>
<td><strong>Complication of Care</strong></td>
<td>1, 2, 3, 4, 5, 6</td>
<td>OCG: II.G; I.B.5; I.C.18.a; III.B</td>
<td>- IP Admit Note: Admit due to AKI, decompensated CHF from noncompliance in ESRD by missing dialysis appointment, perform dialysis today.</td>
<td></td>
</tr>
<tr>
<td><strong>Poisoning or Adverse Effect of Medication/Chemical</strong></td>
<td>1, 2, 3, 4, 5, 6</td>
<td>OCG: I.B.5; I.C.18.a; III.B</td>
<td>- IP Admit Note: Admit due to AKI from renal artery thrombosis, s/p kidney transplant (affecting the function of the transplanted organ).</td>
<td></td>
</tr>
</tbody>
</table>

*ICD-10-CM codes referenced pertain only to those indicated at the beginning of this diagnosis.