Patient Safety Indicator 10 (PSI 10) Postoperative Acute Kidney Injury Requiring Dialysis Rate
June 2018
Provider-Level Indicator
Type of Score: Rate

Prepared by:
Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
www.qualityindicators.ahrq.gov

DESCRIPTION
Postoperative acute kidney failure requiring dialysis per 1,000 elective surgical discharges for patients ages 18 years and older. Excludes cases with principal diagnosis of acute kidney failure; cases with secondary diagnosis of acute kidney failure present on admission; cases with secondary diagnosis of acute kidney failure and dialysis procedure before or on the same day as the first operating room procedure; cases with acute kidney failure, cardiac arrest, severe cardiac dysrhythmia, cardiac shock, chronic kidney failure; a principal diagnosis of urinary tract obstruction and obstetric cases.

[NOTE: The software provides the rate per hospital discharge. However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report events per 1,000 hospital discharges.]

NUMERATOR
Discharges, among cases meeting the inclusion and exclusion rules for the denominator, with:
• any secondary ICD-10-CM diagnosis codes for acute kidney failure (PHYSIDB*) and any listed ICD-10-PCS procedure codes for dialysis (DIALYIP*)
DENOMINATOR
Elective surgical discharges (Appendix E: SURGI2R), for patients ages 18 years and older, with any listed ICD-10-PCS procedure codes for an operating room procedure (Appendix A: ORPROC). Elective surgical discharges are defined by specific MS-DRG codes with admission type recorded as elective (ATYPE=3).

Appendix A - Operating Room Procedure Codes
Appendix E - Surgical Discharge MS-DRGs

DENOMINATOR EXCLUSIONS
Exclude cases:
• with a principal ICD-10-CM diagnosis code (or secondary diagnosis present on admission) for acute kidney failure (PHYSIDB*), among patients otherwise qualifying for numerator
• with any dialysis procedure that occurs before or on the same day as the first operating room procedure** (DIALYIP*)
• with any dialysis access procedure occurring before or on the same day as the first operating room procedure** (DIALY2P*)
• with a principal ICD-10-CM diagnosis code (or secondary diagnosis present on admission) for cardiac arrest (CARDIID*), among patients otherwise qualifying for numerator
• with a principal ICD-10-CM diagnosis code (or secondary diagnosis code present on admission) for cardiac dysrhythmia (CARDRID*), among patients otherwise qualifying for numerator
• with a principal ICD-10-CM diagnosis code (or secondary diagnosis present on admission) for shock (SHOCKID*), among patients otherwise qualifying for numerator
• with a principal ICD-10-CM diagnosis code (or secondary diagnosis present on admission) for chronic kidney failure (CRENLFD*), and among patients otherwise qualifying for numerator
• with a principal ICD-10-CM diagnosis code for urinary tract obstruction (URINARYOBSID*)
• With any ICD-10-CM diagnosis present on admission of solitary kidney disease (SOLKIDD*) and any ICD-10-PCS procedure code for partial nephrectomy (PNEPHREP*)

• MDC 14 (pregnancy, childbirth and the puerperium)
• with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), or principal diagnosis (DX1=missing)

**If day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available

* See below for code list
### Acute kidney (renal) failure diagnosis codes: (PHYSIDB)

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<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>N170</td>
<td>Acute kidney failure with tubular necrosis</td>
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<td>N171</td>
<td>Acute kidney failure with acute cortical necrosis</td>
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<td>Unspecified kidney failure</td>
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<td>Postprocedural (acute) (chronic) kidney failure</td>
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<td>N178</td>
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### Dialysis procedure codes: (DIALYIP)

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<td>3E1M39Z</td>
<td>Irrigation of Peritoneal Cavity using Dialysate, Percutaneous Approach</td>
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<td>Performance of Urinary Filtration, Intermittent, Less than 6 Hours Per Day</td>
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<td>5A1D00Z</td>
<td>Performance of Urinary Filtration, Single</td>
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<td>Performance of Urinary Filtration, Prolonged Intermittent, 6-18 hours Per Day</td>
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<td>Performance of Urinary Filtration, Multiple</td>
<td>5A1D90Z</td>
<td>Performance of Urinary Filtration, Continuous, Greater than 18 hours Per Day</td>
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### Dialysis access procedure codes: (DIALY2P)

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Cardiac arrest diagnosis codes: (CARDIID)

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<td>Cardiac arrest due to underlying cardiac condition</td>
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<tr>
<td>I468</td>
<td>Cardiac arrest due to other underlying condition</td>
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<tr>
<td>I469</td>
<td>Cardiac arrest, cause unspecified</td>
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**Cardiac arrhythmia diagnosis codes: (CARDRID)**

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<td>I442</td>
<td>Atrioventricular block, complete</td>
<td>I4901</td>
<td>Ventricular fibrillation</td>
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<td>I470</td>
<td>Re-entry ventricular arrhythmia</td>
<td>I4902</td>
<td>Ventricular flutter</td>
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<tr>
<td>I472</td>
<td>Ventricular tachycardia</td>
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### Shock diagnosis codes: *(SHOCKID)*

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<td>Shock following incomplete spontaneous abortion</td>
<td>T782XXA</td>
<td>Anaphylactic shock, unspecified, initial encounter</td>
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<td>O0381</td>
<td>Shock following complete or unspecified spontaneous abortion</td>
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<td>O0481</td>
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<td>Shock following ectopic and molar pregnancy</td>
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<td>O751</td>
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<td>Postprocedural cardiogenic shock, initial encounter</td>
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<td>R578</td>
<td>Other shock</td>
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<td>R579</td>
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<td>N401</td>
<td>Benign prostatic hyperplasia with lower urinary tract symptoms</td>
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<td>N138</td>
<td>Other obstructive and reflux uropathy</td>
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<td>Nodular prostate with lower urinary tract symptoms</td>
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<td>N139</td>
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<td>Bladder-neck obstruction</td>
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<td>Urethral stricture due to childbirth</td>
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<td>Congenital posterior urethral valves</td>
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<tr>
<td>N35028</td>
<td>Other post-traumatic urethral stricture, female</td>
<td>Q6431</td>
<td>Congenital bladder neck obstruction</td>
</tr>
<tr>
<td>N35111</td>
<td>Postinfective urethral stricture, not elsewhere classified, male, meatal</td>
<td>Q6432</td>
<td>Congenital stricture of urethra</td>
</tr>
<tr>
<td>N35112</td>
<td>Postinfective bulbous urethral stricture, not elsewhere classified</td>
<td>Q6433</td>
<td>Congenital stricture of urinary meatus</td>
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</tbody>
</table>
N35113  Postinfective membranous urethral stricture, not elsewhere classified  Q6439  Other atresia and stenosis of urethra and bladder neck
**Chronic kidney (renal) failure diagnosis codes: (CRENLFD)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I120</td>
<td>Hypertensive chronic kidney disease with stage 5 chronic kidney disease or</td>
<td>N185</td>
<td>Chronic kidney disease, stage 5</td>
</tr>
<tr>
<td></td>
<td>end stage renal disease</td>
<td></td>
<td></td>
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<tr>
<td>I1311</td>
<td>Hypertensive heart and chronic kidney disease without heart failure, with</td>
<td>N186</td>
<td>End stage renal disease</td>
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<tr>
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<td>stage 5 chronic kidney disease, or end stage renal disease</td>
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<tr>
<td>I132</td>
<td>Hypertensive heart and chronic kidney disease with heart failure and with</td>
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</tr>
<tr>
<td></td>
<td>stage 5 chronic kidney disease, or end stage renal disease</td>
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</table>
Partial nephrectomy procedure codes: (PNEPHREP)

<table>
<thead>
<tr>
<th>Code</th>
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<th>Code</th>
<th>Procedure Description</th>
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</thead>
<tbody>
<tr>
<td>0TB00ZZ</td>
<td>Excision of Right Kidney, Open Approach</td>
<td>0TB10ZZ</td>
<td>Excision of Left Kidney, Open Approach</td>
</tr>
<tr>
<td>0TB04ZZ</td>
<td>Excision of Right Kidney, Percutaneous Endoscopic Approach</td>
<td>0TB14ZZ</td>
<td>Excision of Left Kidney, Percutaneous Endoscopic Approach</td>
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### Solitary kidney disease: (SOLKIDD)

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>Q600</td>
<td>Renal agenesis, unilateral</td>
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<tr>
<td>Q602</td>
<td>Renal agenesis, unspecified (i.e. whether unilateral or bilateral)</td>
</tr>
<tr>
<td>Q606</td>
<td>Potter's syndrome (i.e. Unilateral Renal Agenesis type)</td>
</tr>
<tr>
<td>Z905</td>
<td>Acquired absence of kidney</td>
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</tbody>
</table>