Patient Safety Indicator 10 (PSI 10) Postoperative Acute Kidney Injury Requiring Dialysis

July 2016
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, shock, urinary tract obstruction or chronic kidney failure; 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 and any-listed ICD-10-PCS procedure codes for dialysis

**Acute kidney (renal) failure diagnosis codes: (PHYSIDB)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N170</td>
<td>Acute kidney failure with tubular necrosis</td>
<td>N171</td>
<td>Acute kidney failure with acute cortical necrosis</td>
</tr>
<tr>
<td>N171</td>
<td>Acute kidney failure with acute cortical necrosis</td>
<td>N19</td>
<td>Unspecified kidney failure</td>
</tr>
<tr>
<td>N172</td>
<td>Acute kidney failure with medullary necrosis</td>
<td>N990</td>
<td>Postprocedural (acute) (chronic) kidney failure</td>
</tr>
<tr>
<td>N178</td>
<td>Other acute kidney failure</td>
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</tbody>
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**Dialysis procedure codes: (DIALYIP)**

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>3E1M39Z</td>
<td>Irrigation of Peritoneal Cavity using Dialysate, Percutaneous Approach</td>
</tr>
<tr>
<td>5A1D60Z</td>
<td>Performance of Urinary Filtration, Multiple</td>
</tr>
<tr>
<td>5A1D00Z</td>
<td>Performance of Urinary Filtration, Single</td>
</tr>
</tbody>
</table>
DENOMINATOR
Elective surgical discharges, for patients ages 18 years and older, with any-listed ICD-10-PCS procedure codes for an operating room procedure. Elective surgical discharges are defined by specific MS codes with admission type recorded as elective (SID ATYPE=3).

Appendix A - Operating Room Procedure Codes

Appendix E - Surgical Discharge MS-DRGs (for discharges on or after October 1, 2007)
DENOMINATOR EXCLUSIONS

Exclude cases:
• with a principal ICD-10-CM diagnosis code (or secondary diagnosis present on admission*) for acute kidney failure
• with any dialysis procedure that occurs before or on the same day as the first operating room procedure**
• with a principal ICD-10-CM diagnosis code (or secondary diagnosis present on admission) for cardiac arrest
• with a principal ICD-10-CM diagnosis code (or secondary diagnosis present on admission) for shock
• with a principal ICD-10-CM diagnosis code for urinary tract obstruction
• with a principal ICD-10-CM diagnosis code (or secondary diagnosis present on admission) for chronic kidney failure
• 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)

*Only for cases that otherwise qualify for the numerator
**If day of procedure is not available in the input data file, the rate may be slightly lower than if the information was available

Cardiac arrest diagnosis codes: (CARDIID)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I462</td>
<td>Cardiac arrest due to underlying cardiac condition</td>
</tr>
<tr>
<td>I468</td>
<td>Cardiac arrest due to other underlying condition</td>
</tr>
<tr>
<td>I469</td>
<td>Cardiac arrest, cause unspecified</td>
</tr>
</tbody>
</table>

Shock diagnosis codes: (SHOCKID)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>O0331</td>
<td>Shock following incomplete spontaneous abortion</td>
</tr>
<tr>
<td>T782XXA</td>
<td>Anaphylactic shock, unspecified, initial encounter</td>
</tr>
<tr>
<td>O0381</td>
<td>Shock following complete or unspecified spontaneous abortion</td>
</tr>
<tr>
<td>T8051XA</td>
<td>Anaphylactic reaction due to administration of blood and blood products, initial encounter</td>
</tr>
<tr>
<td>O0481</td>
<td>Shock following (induced) termination of pregnancy</td>
</tr>
<tr>
<td>T8052XA</td>
<td>Anaphylactic reaction due to vaccination, initial encounter</td>
</tr>
<tr>
<td>O0731</td>
<td>Shock following failed attempted termination of pregnancy</td>
</tr>
<tr>
<td>T8059XA</td>
<td>Anaphylactic reaction due to other serum, initial encounter</td>
</tr>
</tbody>
</table>
O083  Shock following ectopic and molar pregnancy  T8110XA  Postprocedural shock unspecified, initial encounter

O751  Shock during or following labor and delivery  T8111XA  Postprocedural cardiogenic shock, initial encounter

R570  Cardiogenic shock  T8112XA  Postprocedural septic shock, initial encounter

R571  Hypovolemic shock  T8119XA  Other postprocedural shock, initial encounter

R578  Other shock  T882XXA  Shock due to anesthesia, initial encounter

R579  Shock, unspecified  T886XXA  Anaphylactic reaction due to adverse effect of correct drug or medicament properly administered, initial encounter

R6521  Severe sepsis with septic shock

Urinary tract obstruction codes: (URINARYOBSID)

N138  Other obstructive and reflux uropathy  N35014  Post-traumatic urethral stricture, male, unspecified

N13721  Vesicoureteral-reflux with reflux nephropathy without hydroureter, unilateral  N35021  Urethral stricture due to childbirth

N13731  Vesicoureteral-reflux with reflux nephropathy with hydroureter, unilateral  N35028  Other post-traumatic urethral stricture, female

N13722  Vesicoureteral-reflux with reflux nephropathy without hydroureter, bilateral  N99110  Postprocedural urethral stricture, male, meatal

N13732  Vesicoureteral-reflux with reflux nephropathy with hydroureter, bilateral  N99111  Postprocedural bulbous urethral stricture

N13729  Vesicoureteral-reflux with reflux nephropathy without hydroureter, unspecified  N99112  Postprocedural membranous urethral stricture

N13739  Vesicoureteral-reflux with reflux nephropathy with hydroureter, unspecified  N99113  Postprocedural anterior urethral stricture
N139 Obstructive and reflux uropathy, unspecified
N320 Bladder-neck obstruction
N35111 Postinfective urethral stricture, not elsewhere classified, male, meatal
N35112 Postinfective bulbous urethral stricture, not elsewhere classified
N35113 Postinfective membranous urethral stricture, not elsewhere classified
N35114 Postinfective anterior urethral stricture, not elsewhere classified
N35119 Postinfective urethral stricture, not elsewhere classified, male, unspecified
N3512 Postinfective urethral stricture, not elsewhere classified, female
N35010 Post-traumatic urethral stricture, male, meatal
N35011 Post-traumatic bulbous urethral stricture
N35012 Post-traumatic membranous urethral stricture
N35013 Post-traumatic anterior urethral stricture

Chronic kidney (renal) failure diagnosis codes: (CRENLFD)

I120 Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease
I1311 Hypertensive heart and chronic kidney disease without heart failure, with stage 5 chronic kidney disease, or end stage renal disease
I132 Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease

Q642 Congenital posterior urethral valves
Q6431 Congenital bladder neck obstruction
Q6432 Congenital stricture of urethra
Q6433 Congenital stricture of urinary meatus
Q6439 Other atresia and stenosis of urethra and bladder neck

N99114 Postprocedural urethral stricture, male, unspecified
N9912 Postprocedural urethral stricture, female
N358 Other urethral stricture
N359 Urethral stricture, unspecified
N401 Enlarged prostate with lower urinary tract symptoms
N403 Nodular prostate with lower urinary tract symptoms
Q642 Congenital posterior urethral valves
Q6431 Congenital bladder neck obstruction
Q6432 Congenital stricture of urethra
Q6433 Congenital stricture of urinary meatus
Q6439 Other atresia and stenosis of urethra and bladder neck

I185 Chronic kidney disease, stage 5
I186 End stage renal disease

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