

**Abstraction Instrument for Validation of Selected AHRQ
Quality Indicators**

**PSI 10: Post-operative Physiologic and Metabolic Derangement
(December 6, 2007; draft 6.4)**

Public reporting burden for this collection of information is estimated to average 60 minutes per response, the estimated time required to complete the survey. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Form Approved: OMB Number 0935-0124 Exp. Date xx/xx/20xx. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: AHRQ Reports Clearance Officer Attention: PRA, Paperwork Reduction Project (0935-0124) AHRQ, 540 Gather Road, Room #5036, Rockville, MD 20850.

Section 1: Abstractor details

1.1 Date abstraction completed

__/__/____

1.2 Abstractor identification number

Section 2: Record identification/validation

2.1 AHRQ Study identification number

2.2 Medical record number/Patient control number

2.3 Date of birth

__/__/____

2.4 Gender

- Male
- Female

2.5 Date of admission

__/__/____

2.6 Date of discharge

__/__/____

Section 3: Ascertainment of event

3.1 Did this patient have a surgical procedure performed in the operating room during this hospitalization?

- Yes
- No → IF NO, explain why this chart was most likely selected for review in the TEXT BOX provided and then END the form.

3.2 Was the surgery performed emergently or as a non-scheduled procedure?

- Yes → IF YES, explain the circumstances surrounding the urgency of the surgery in the TEXT BOX provided and then END the form.

- No

3.3 Was the admission related to pregnancy, childbirth and or to the puerperium (MDC 14)?

- Yes → IF YES, describe the condition in the TEXT BOX and then END the form.

- No

3.4 During this admission, was the patient diagnosed prior to first elective surgery of having any of the following medical conditions? Check all that apply.

- Chronic renal failure (CRF)
- Acute renal failure receiving dialysis
- Acute myocardial infarction
- Cardiac dysrhythmias
- Shock
- Hemorrhage
- Gastrointestinal hemorrhage or varicies
- Diabetes with either ketoacidosis, hyperosmolarity or other coma
- Cardiac arrest
- None of the above

If yes to any of the above, describe in the **TEXT BOX** and then **END** form.

Section 4: Diabetes

4.1 Did the patient have diabetes?

- Yes, type I, known prior to admission
- Yes, type II or unspecified, known prior to admission
- Yes (new), diagnosed during hospitalization
- No → IF NO, skip to Q 5.1

4.2 Which of the following post-operative events did the patient experience during **THIS** hospitalization? Select all that apply.

Diabetes with ketoacidosis

If YES, note the time and date of the first event:

__|__|____ Date
__:__ Time

Did the patient the patient have an additional post-operative ketoacidotic event?

- Yes → How many additional events? __
- No

Diabetes with hyperosmolarity

If YES, note the time and date of the first event:

__|__|____ Date
__:__ Time

Did the patient the patient have an additional postoperative hyperosmolar event?

- Yes → How many additional events? __
- No

Diabetes with other coma (hypoglycemic coma)

If YES, note the time and date of the first event:

__|__|____ Date
__:__ Time

Did the patient the patient have an additional postoperative diabetic coma event?

- Yes → How many additional events? __

No

No event → If NO, skip to Q 5.1

4.3 Did the patient have any of the following? Select all that apply.

- Chronic steroid use at the time of hospitalization
- History of gastric surgery (gastrectomy, gastrojejunostomy, pyloroplasty, gastric bypass or vagotomy)
- None of the above

If YES to any of the above, explain in the TEXT BOX.

4.4 State the patient's normal (routine) medications prehospitalization: Select all that apply. For combination medications, select the individual components.

	Total dose per day
Oral medications	
<input type="checkbox"/> Chlorpropamide (e.g., Diabinese)	_____ mg
<input type="checkbox"/> Glipizide (e.g., Glucotrol, Glucotrol XL),	_____ mg
<input type="checkbox"/> Glyburide (e.g., Micronase, Glynase, and Diabeta),	_____ mg
<input type="checkbox"/> Glimepiride (Amaryl)	_____ mg
<input type="checkbox"/> Repaglinide (Prandin)	_____ mg
<input type="checkbox"/> Nateglinide (Starlix)	_____ mg
<input type="checkbox"/> Metformin (Glucophage)	_____ mg
<input type="checkbox"/> Rosiglitazone (Avandia)	_____ mg
<input type="checkbox"/> Pioglitazone (ACTOS)	_____ mg
<input type="checkbox"/> Acarbose (Precose)	_____ mg
<input type="checkbox"/> Miglitol (Glyset)	_____ mg
<input type="checkbox"/> Pramlintide (Symlin)	_____ mg
<input type="checkbox"/> Exenatide (Byetta)	_____ mg
Rapid-acting insulin	
<input type="checkbox"/> Insulin lispro (Humalog)	_____ units
<input type="checkbox"/> Insulin aspart (Novolog)	_____ units
<input type="checkbox"/> Insulin glulisine (Apidra)	_____ units
Short-acting insulin	
<input type="checkbox"/> Regular (R) insulin (Humulin-R)	_____ units
Intermediate-acting	
<input type="checkbox"/> NPH (N) or Lente (L) insulin (Humulin-N, Humulin-L,	_____ units

Novolin N)	
Long-acting	
<input type="checkbox"/> Ultralente (U) insulin	_____ units
<input type="checkbox"/> Humulin-U	_____ units
<input type="checkbox"/> Detemir (Levemir)	_____ units
<input type="checkbox"/> Insulin glargine (Lantus)	_____ units
Insulin Analog Premixed	
<input type="checkbox"/> Premixed NPH and Regular insulin mixture75/25	_____ units
<input type="checkbox"/> Premixed NPH and Regular insulin mixture70/30 (Humulin or Novolin 70/30)	_____ units
<input type="checkbox"/> Humulin 50/50	_____ units
<input type="checkbox"/> Inhaled	_____ units
Other	
<input type="checkbox"/> Other	
<input type="checkbox"/> Other	
<input type="checkbox"/> Not on medication	
<input type="checkbox"/> Critical documentation missing	

4.5 Select all diabetic medications that the patient received within 24-hours of event diagnosis and state the total dose given during the 24-hour period. For combination medications, select the individual components.

	Total dose per day
Oral medications	
<input type="checkbox"/> Chlorpropamide (e.g., Diabinese)	_____ mg
<input type="checkbox"/> Glipizide (e.g., Glucotrol, Glucotrol XL),	_____ mg
<input type="checkbox"/> Glyburide (e.g., Micronase, Glynase, and Diabeta),	_____ mg
<input type="checkbox"/> Glimepiride (Amaryl)	_____ mg
<input type="checkbox"/> Repaglinide (Prandin)	_____ mg
<input type="checkbox"/> Nateglinide (Starlix)	_____ mg
<input type="checkbox"/> Metformin (Glucophage)	_____ mg
<input type="checkbox"/> Rosiglitazone (Avandia)	_____ mg
<input type="checkbox"/> Pioglitazone (ACTOS)	_____ mg
<input type="checkbox"/> Acarbose (Precose)	_____ mg
<input type="checkbox"/> Miglitol (Glyset)	_____ mg
<input type="checkbox"/> Pramlintide (Symlin)	_____ mg
<input type="checkbox"/> Exenatide (Byetta)	_____ mg
Rapid-acting insulin	
<input type="checkbox"/> Insulin lispro (Humalog)	_____ units
<input type="checkbox"/> Insulin aspart (Novolog)	_____ units
<input type="checkbox"/> Insulin glulisine (Apidra)	_____ units

Short-acting insulin	
<input type="checkbox"/> Regular (R) insulin (Humulin-R)	___ units
Intermediate-acting	
<input type="checkbox"/> NPH (N) or Lente (L) insulin (Humulin-N, Humulin-L, Novolin N)	___ units
Long-acting	
<input type="checkbox"/> Ultralente (U) insulin	___ units
<input type="checkbox"/> Humulin-U	___ units
<input type="checkbox"/> Detemir (Levemir)	___ units
<input type="checkbox"/> Insulin glargine (Lantus)	___ units
Insulin Analog Premixed	
<input type="checkbox"/> Premixed NPH and Regular insulin mixture 75/25	___ units
<input type="checkbox"/> Premixed NPH and Regular insulin mixture 70/30 (Humulin or Novolin 70/30)	___ units
<input type="checkbox"/> Humulin 50/50	___ units
<input type="checkbox"/> Inhaled	___ units
Other	
<input type="checkbox"/> Other	
<input type="checkbox"/> Other	
<input type="checkbox"/> Not on medication	
<input type="checkbox"/> Critical documentation missing	

4.6 Did the patient receive a beta blocker (beta-adrenergic blocking agents, beta-adrenergic antagonists, or beta antagonists) within 24-hours of the event?

- Yes
- No

4.7 Did the patient suffer or have any other following known conditions 24-hours prior to the event?

- Acute myocardial infarction (AMI)
- Ileus or intestinal obstruction
- Pancreatitis
- Peritonitis
- Sepsis
- Infection → If YES, state type:
 - o Urinary tract infection
 - o Pneumonia
 - o Wound
 - o Other (state)

- Other inflammatory response related condition → If YES, state type:
- None of the above

4.8 What best describes the patient's nutritional intake in the 24-hours prior to diagnosis of the event? Check all that apply.

- NPO

If Yes, date started: __ | __ | _____

- Clear liquids

If Yes, date started: __ | __ | _____

Amount consumed in 24 hours _____ cc's

- Regular (including diabetic, puree or other special need diet)

If Yes, date started: __ | __ | _____

Percentage of meals consumed

___ % Breakfast ___ % Lunch ___ % Dinner

- Tube feeding

If Yes, date started: __ | __ | _____

Amount infused in 24 hours _____ cc's

- Parenteral nutrition (PPN or TPN)

If Yes, date started: __ | __ | _____

Amount infused in 24 hours _____ cc's

- Other _____

4.9 What type and amount of IV fluid solution did the patient receive in the 24-hours prior to diagnosis?

- Lactated Ringer's (LR) _____ cc/24 hours
- 10% Dextrose in water (D₁₀W) _____ cc/24 hours
- 5% Dextrose in water (D₅W) _____ cc/24 hours
- D₅W NS _____ cc/24 hours
- D₅W ½ NS _____ cc/24 hours
- D₅W ¼ NS _____ cc/24 hours
- 0.9% Normal saline (NS) _____ cc/24 hours
- 0.45% Normal saline (NS) _____ cc/24 hours
- Colloids (e.g., hydroxyethyl starch, albumin, dextrans) _____ cc/24 hours
- Fresh frozen plasma _____ cc/24 hours
- Other (state in TEXT BOX) _____ cc/24 hours
- None

For hypoglycemia answer the following two questions.

Hypo.1 Lowest plasma glucose level (any method)

___ mg/dL or ___ mmol/L laboratory

___ mg/dL or for too low to register [LLL] per glucometer

Hypo.2 Did the patient have any of the following signs and symptoms associated with their hypoglycemic event?

- Seizure
- Coma
- Confusion or delirium
- None of the above

For hyperglycemia (DKA), answer the following eight questions.

DKA 1: Highest plasma glucose level (any method)

___ mg/dL or ___ mmol/L laboratory

___ mg/dL or for too high [HHH] per glucometer

DKA 2: Highest serum ketone level

___ . ___ mmol/L

DKA 3: Serum sodium closest to highest blood sugar

___ . _ mEq

DKA 4: Serum chloride closest to highest blood sugar

___ . _ mEq

DKA 5: Serum blood bicarbonate (CO₂) closest to highest blood sugar

__ . _ mEq/L

DKA 6: Lowest blood pH

__ . __

DKA 7: Urine ketones (nitroprusside method)

None 1+ small 2+ moderate 3+ large

DKA 8: What symptoms did the patient manifest?

- Altered level of consciousness, confusion or delirium
- Coma or severe lethargy
- None of the above

For Hyperosmolar Nonketotic Syndrome (HNKS) or state, answer the following three questions.

HNKS 1: Highest plasma glucose level (any method)

___ mg/dL or __ . _ mmol/L

HNKS 2: Highest osmolarity

___ mOsm/L

If serum osmolarity was not performed, please include the patient's sodium, BUN, and glucose drawn at the same time closest to the time of diagnosis OR the highest serum osmolality if drawn:

___ mEq/L Na (sodium)

___ mg/dL BUN (blood urea nitrogen)

___ mg/dL Glucose

OR

___ mOsm/kg Serum osmolality

HNKS 3 What symptoms did the patient manifest?

- Altered level of consciousness, confusion or delirium
- Coma or severe lethargy
- None of the above

For all diabetic related events, answer the next two questions.

4.10 Where in the hospital did the event take place?

- Post-anesthesia care unit (e.g., PACU or recovery room)
- Critical care or intensive care unit (e.g., CCU or ICU)
- Step-down, transitional care, special observation or telemetry unit
- General medical-surgical unit
- Special procedure lab including diagnostic radiology
- Other (state in the TEXT BOX)

4.11 Because of the event, was the patient moved to a higher level of care?

- Yes
 - Critical care
 - Step-down, transitional care, special observation or telemetry unit
 - General medical-surgical unit
 - Other (state in the TEXT BOX) _____
- No

Section 5: Renal Failure

5.1 Did the patient experience new onset of renal failure post-operatively that required dialysis?

- Yes
- No → If no and the patient had a diabetic complication (Q4.2 = YES), skip to section 6. If Q4.2 and Q5.1 are no (no metabolic derangement), then describe why this chart was most likely flagged for review in the TEXT BOX below and then end the form.

5.2 Type of dialysis and date started: Select all that apply.

- Hemodialysis __|__|__ date __: __ time
- Peritoneal dialysis __|__|__ date __: __ time
- Other (Explain in TEXT BOX) __|__|__ date __: __ time
- Critical documentation missing

5.3 What date was renal insufficiency or failure first suspected in the medical record?

__|__|__ date

5.4 What was the most likely cause of the renal failure (physician documentation)?

- Decrease in effective blood volume (e.g., hemorrhage, burns, gastrointestinal losses, renal losses, fluid pooling)
- Relative decrease in blood volume (e.g., ineffective arterial volume such as in CHF, sepsis, anaphylaxis, and liver failure)
- Arterial occlusion (e.g., bilateral thromboembolism)
- Nephrotoxin (e.g., antibiotics, iodinated contrast, chemotherapeutic agents, solvent)
- Acute interstitial nephritis (e.g., drug-associated acute interstitial nephritis such as from methicillin)
- Acute glomerulonephritis (e.g., postinfectious glomerulonephritis, anti-basement membrane antibody disease)
- Endogenous nephrotoxicity (e.g., intratubular pigments such as hemoglobinuria, myoglobinuria), intratubular proteins (e.g., myeloma), intratubular crystals (e.g., uric acid, oxalate, tumor lysis syndrome)
- Obstruction of collecting system
- Other → If Yes, describe

- Reason unknown or not stated

5.5 Did the patient have any of the following at the time of admission?

- Recent trauma
- Congestive heart failure
- Renal insufficiency

- Acute renal failure
- Chronic renal failure not requiring dialysis
- Renal transplant
- Rhabdomyolysis
- Lymphoblastic leukemia or poorly differentiated lymphomas
- None of the above

5.6 Did the patient receive any of the following during hospitalization?

- Succinylcholine
- N-acetylcysteine
- Cisplatin
- Aminoglycoside antibiotics (e.g., tobramycin, gentamicin, amikacin)
- Angiotensin Converting Enzyme (ACE) Inhibitors
- Angiotensin II Receptor Blockers (**ARB**)
- Nonsteroidal anti-inflammatory (NSAIDS)/ Cyclooxygenase-2 inhibitors (COX-2)
- Other cytotoxic medication
- None of the above

5.7 Did the patient receive any contrast medium? If YES, state the type and amount. Include contrast medium that may have been given during surgery.

- Yes → If YES, state the type.
 - o Ionic: _____ total CC
 - o Non-ionic _____ total CC
 - o Barium sulfate _____ total CC
 - o Gadolinium (MRI) _____ total CC
 - o Unsure of type _____ total CC
- No

5.8 Highest plasma creatinine

__ . __ mg/dL __|__|____ date __ : __ time (24-hr clock)

5.9 Highest Blood Urea Nitrogen (BUN)

____ mg/dL __|__|____ date __ : __ time (24-hr clock)

5.10 Did the discharge plan include dialysis post-discharge?

- Yes
- No
- Critical documentation missing

Section 6: Operative factors

For ALL patients

6.1 Pre-operative height ___ . ___ (cm) or ___ (ft) ___ (inches)

6.2 Pre-operative dry weight ___ . ___ (kg) or ___ (lbs)

6.3 ICD-9-CM principal procedure name, code and date

Name: _____ Code _____ Date ___ | ___ | _____

6.4 ICD-9-CM other procedure code(s) and date(s)

Name: _____ Code _____ Date ___ | ___ | _____

Name: _____ Code _____ Date ___ | ___ | _____

Name: _____ Code _____ Date ___ | ___ | _____

Name: _____ Code _____ Date ___ | ___ | _____

6.5 Anesthesia start date and time of index surgery:

___ | ___ | _____ date ___ : ___ time

6.6 Surgical incision date and time of index surgery:

___ | ___ | _____ date ___ : ___ time

6.7 Surgical closure date and time of index surgery:

___ | ___ | _____ date ___ : ___ time

6.8 Anesthesia end date and time of index surgery

___ | ___ | _____ date ___ : ___ time

6.9 Method of anesthesia of index surgery:

- General
- Spinal
- Epidural
- Other _____
- Critical documentation missing

6.10 Was the surgery performed completely by laparoscopy?

- Yes
- No
- ND

6.11 Fluid intake and output during surgery

_____ cc in _____ cc out

Section 7: Outcomes

7.1 Deposition at discharge

- Home
- Assisted living
- Skilled nursing facility (SNF)
- Non-acute care hospital/rehabilitation
- Expired → If YES, was the death related to the metabolic derangement?
 - Yes
 - No
- Other (state)

- ND

7.2 Was the patient readmitted to your facility within 30 days of discharge?

- Yes
- No
- Critical documentation missing

7.4 If yes to Q7.3, was the reason for re-admission related to metabolic derangement?

- Yes, diabetes related
- Yes, related to renal disease, failure or dysfunction
- No
- Not applicable
- Critical documentation missing

7.5 Did the patient expire within 30 days of discharge?

- Yes, diabetes related
- Yes, related to renal disease, failure or dysfunction
- Yes, due to other reasons or unknown
- No or unknown
- Critical documentation missing

7.6 If there are special circumstances or comments related to this case that you feel are important that were not captured in the survey, please state these in the TEXT BOX provided [limit 200 characters]:
