



Patient Safety and Adverse Events Composite Technical Specifications

Patient Safety Indicator 90 (PSI 90) AHRQ Quality Indicators™, Version 2019

July 2019

Hospital-Level Indicator

Type of Score: Ratio

Description

The weighted average of the observed-to-expected ratios for the following component indicators:

- PSI 03 Pressure Ulcer Rate
- PSI 06 Iatrogenic Pneumothorax Rate
- PSI 08 In-Hospital Fall With Hip Fracture Rate
- PSI 09 Perioperative Hemorrhage or Hematoma Rate
- PSI 10 Postoperative Acute Kidney Injury Requiring Dialysis Rate
- PSI 11 Postoperative Respiratory Failure Rate
- PSI 12 Perioperative Pulmonary Embolism (PE) or Deep Vein Thrombosis (DVT) Rate
- PSI 13 Postoperative Sepsis Rate
- PSI 14 Postoperative Wound Dehiscence Rate
- PSI 15 Unrecognized Abdominopelvic Accidental Puncture/Laceration Rate

PSI 90 combines the smoothed (empirical Bayes shrinkage) indirectly standardized morbidity ratios (observed/expected ratios) from selected AHRQ Patient Safety Indicators (PSIs). The weights of the individual component indicators are based on two concepts: the volume of the adverse event and the harm associated with the adverse event. The volume weights were calculated based on the number of safety-related events for the component indicators in the all-payer reference population. The harm weights were calculated by multiplying empirical estimates of the probability of excess harms associated with each patient safety event by the corresponding utility weights (1–disutility). Disutility is the measure of the severity of the adverse events associated with each of the harms (i.e., outcome severity, or least preferred states from the patient perspective). The harm weights were calculated using linked claims data for two years of Medicare Fee for Service beneficiaries.

Table 1. Composite Weights for PSI 90 v2019

INDICATOR	HARM WEIGHT	VOLUME WEIGHT	COMPONENT WEIGHT
PSI 3 Pressure Ulcer Rate	0.3080	0.0860	0.1373
PSI 6 Iatrogenic Pneumothorax Rate	0.1381	0.0538	0.0385
PSI 8 In Hospital Fall With Hip Fracture Rate	0.1440	0.0172	0.0128



INDICATOR	HARM WEIGHT	VOLUME WEIGHT	COMPONENT WEIGHT
PSI 9 Perioperative Hemorrhage or Hematoma Rate	0.0570	0.1598	0.0472
PSI 10 Postoperative Acute Kidney Injury Requiring Dialysis Rate	0.3584	0.0280	0.0520
PSI 11 Postoperative Respiratory Failure Rate	0.2219	0.1821	0.2094
PSI 12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate	0.1557	0.2543	0.2052
PSI 13 Postoperative Sepsis Rate	0.3102	0.1550	0.2491
PSI 14 Postoperative Wound Dehiscence Rate	0.1441	0.0138	0.0103
PSI 15 Unrecognized Abdominopelvic Accidental Puncture or Laceration Rate	0.1474	0.0500	0.0382

Source: 2016 State Inpatient Databases, Healthcare Cost and Utilization Program, Agency for Healthcare Research and Quality. 2012-2013 Medicare Fee-for-Service claims data.

For more information, see Quality Indicator Empirical Methods and Composite User Guide.