

**PSI # 11: Postoperative Respiratory Failure**

**NQF#:** 0533

**Developer:** Agency for Healthcare Research and Quality (AHRQ)

**Data Source:** CMS

**Description:** This measure is used to assess the number of cases of acute postoperative respiratory failure per 1,000 elective surgical discharges with an operating room procedure.

**Rationale:** Widespread consensus exists that health care organizations can reduce patient injuries by improving the environment for safety from implementing technical changes, such as electronic medical record systems, to improving staff awareness of patient safety risks. Clinical process interventions also have strong evidence for reducing the risk of adverse events related to a patient's exposure to hospital care. Patient Safety Indicators (PSIs), which are based on computerized hospital discharge abstracts from the AHRQ's Healthcare Cost and Utilization Project (HCUP), can be used to better prioritize and evaluate local and national initiatives. Analyses of these and similar inexpensive, readily available administrative data sets may provide a screen for potential medical errors and a method for monitoring trends over time. The postoperative respiratory failure indicator is intended to flag cases of postoperative respiratory failure. This indicator limits the code for respiratory failure to secondary diagnosis codes to eliminate respiratory failure that was present on admission. It further excludes patients who have major respiratory or circulatory disorders and limits the population at risk to elective surgery patients.

**Evidence for Rationale:**

- AHRQ quality indicators. Guide to patient safety indicators [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ);2007 mar 12. 76 p. (AHRQ Pub; no.03-R203).
- Kohn LT, Corrigan JM, Donaldson MS, editor(s). To err is human: building a safer health system. Washington (DC): National Academy Press; 2000.

**Numerator:** Discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD-9-CM codes for acute respiratory failure in any secondary diagnosis field; or discharges among cases meeting the inclusion and exclusion rules for the denominator with ICD-9-CM codes as follows: mechanical ventilation for 96 consecutive hours or more—zero or more days after the major operating room procedure; mechanical ventilation for less than 96 consecutive hours or undetermined—two or more days after the major operating room procedure code; reintubation—one or more days after the major operating room procedure code.

**Denominator:** All elective surgical discharges, for patients aged 18 and over, defined by specific DRGs or MS-DRGs and an ICD-9-CM code for an operating room procedure. Exclude cases: with principal diagnosis acute respiratory failure or secondary diagnosis present on admission; with an ICD-9-CM diagnosis code of neuromuscular disorder; where a procedure for tracheostomy is the only operating procedure; where a procedure for tracheostomy occurs before the first operating room procedure; with any diagnosis code of craniofacial anomalies with 1) a procedure code for laryngeal or pharyngeal surgery or 2) a procedure on face; with any-listed ICD-9-CM procedure codes for esophageal resection; with any-listed ICD-9-CM procedure codes for lung cancer; any-listed ICD-9-CM diagnosis codes for degenerative neurological disorder; with any-listed ICD-9-CM procedure codes for lung transplant; MDC 4 (diseases/disorders of the respiratory system); MDC 5 (diseases/disorders of the circulatory system); MDC 14 (pregnancy, childbirth, and puerperium); with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), or principal diagnosis (DX1=missing)

**Impact:**

- Affects all elective surgical inpatients.

**Opportunity:**

- Opportunity for improvement exists, based on the coefficient of variation for the measure.

**Evidence:**

- The evidence has not been formally assessed.

[http://www.qualityindicators.ahrq.gov/Downloads/Modules/PSI/V60-ICD09/TechSpecs/PSI\\_11\\_Postoperative\\_Respiratory\\_Failure\\_Rate.pdf](http://www.qualityindicators.ahrq.gov/Downloads/Modules/PSI/V60-ICD09/TechSpecs/PSI_11_Postoperative_Respiratory_Failure_Rate.pdf)