

PSI 18: Postoperative Sepsis	
Origin: Review of a common OECD/AHRQ PSI (3;33)	
Dimension	Description
Description of Specific Aspects of Patient Safety	The occurrence of sepsis following surgery is a severe complication with a mortality rate of up to 30%. Even less severe cases will require prolonged ICU treatment for organ failure. As many cases of postoperative sepsis can be prevented through the appropriate use of prophylactic antibiotics, good surgical site preparation, careful and sterile surgical techniques and good post-op care this postoperative sepsis is a suitable measure of patient safety.
Aim of the PSI	This PSI is intended to flag cases of nosocomial postoperative sepsis.
Level of Determination of Patient Safety	Safety is assessed at the aggregated patient level.
Source(s)	This indicator was originally proposed by Iezzoni et al. as part of the Complications Screening Program: CSP 7 “Septicemia” Needleman and Buerhaus identified sepsis as an “Outcome Potential Sensitive to Nursing” using the same CSP definition (3;33).
Extent of Clinically Testing	<p>The OECD Health Care Quality Indicators (HCQI) Project was initiated to implement quality measures for international benchmarking of medical care at the health system level. Five priority areas including patient safety were selected. International expert panels were formed to identify clinically important, scientifically sound, and feasible measures based on a structured consensus process. The consensus process lead to a recommendation of 86 indicators of which 21 covers aspects of patient safety (34).</p> <p>The project team developing the AHRQ PSI conducted extensive empirical analyses on this PSI. The team concluded that this PSI generally performs well on several different dimensions, including reliability, bias, relatedness of indicators, and persistence over time (3).</p> <p>The AHRQ PSI software was applied to Veteran Affairs (VA) administrative data to identify potential instances of compromised patient safety; determine occurrence rates of PSI events in the VA; and examine the construct validity of the PSIs. The study population was 97% male, with a mean age of 65 years, 54% were age 65 and older. All together 11411 PSI events were identified, 46% of PSI events occurred in surgical hospitalisation and 54% in medical hospitalisation. The observed PSI rate per 1000 discharges was 6.13 for postoperative sepsis. This PSI was significantly associated with the AHRQ PSI for postoperative respiratory failure. Statistical significantly</p>

	<p>differences were found for hospitalisations with PSI events and those without PSI events for longer lengths of stay, mortality and higher costs (4).</p> <p>The performance of the AHRQ PSIs was analysed to: 1) provide a descriptive analysis of the incidence of PSI events from 2001 to 2004 in the VA; 2) examine trends in national PSI rates at the hospital discharge level over time; and 3) assess whether hospital characteristics (teaching status, number of beds, and degree of quality improvement implementation) and baseline safety-related hospital performance predict future hospital safety-related performance. Risk-adjusted rates of the PSI for iatrogenic pneumothorax and failure to rescue demonstrated a consistent rate over time. After accounting for patient and hospital characteristics, hospitals' baseline risk-adjusted PSI rates were the most important predictors of the 2004 risk-adjusted rates for eight PSIs. It was concluded, that the PSIs are useful tools for tracking and monitoring patient safety events. Future research should investigate whether trends reflect better or worse care or increased attention to documenting patient safety events (5).</p> <p>Administrative data from community hospitals in 16 US states with reliable race/ethnicity measures using the AHRQ PSIs was analysed to determine whether racial and ethnic differences in patient safety events disappear when income (a proxy for socioeconomic status) is taken into account. Postoperative sepsis occurs significantly more often among other races than among white. It was concluded that: "The AHRQ PSIs are a broad screen for potential safety events that point to needed improvement in the quality of care for specific populations" (7).</p> <p>AHRQ is determining the feasibility and practicality in a project concerning validation of selected AHRQ Quality Indicators (8).</p> <p>The results suggest that this PSI may be useful as a measure of patient safety (3-5;7;8;33;34).</p>
Evidence of Clinically use of Standards	No evidence of clinically use of standards was found.
PSI category	Theme Related PSI: "Surgical Complication".
Data definitions	Cases of sepsis per 1000 elective surgery patients with an operating room procedure and a length of stay of four days or more.
Numerator Description	Discharges with ICD-9-CM code for sepsis in any secondary diagnosis field
Denominator Description	<p>All elective* surgical discharges age 18 and older defined by specific DRGs and an ICD-9-CM code for an operating room procedure. *Elective - Admission type # is recorded as elective (Admission Type = 3)</p> <p>Exclude cases:</p> <ul style="list-style-type: none"> - with ICD-9-CM codes for sepsis in the principal diagnosis field - with a principal diagnosis of infection, or any code for

	<p>immunocompromised state, or cancer</p> <ul style="list-style-type: none"> – MDC 14 (pregnancy, childbirth, and puerperium) – with a length of stay of less than 4 days
Data Source	Administrative data.
Identifying the institutional context	This PSI is relevant to both quality improvement and cost containment.
Care Setting	The PSI applies for high quality nursing care.
Professionals Responsible for Health Care	Surgeons and nurses.
Lowest Level of Health Care Delivery Addressed	Individual clinical units or departments.
Allowance for Patient Factors	Risk adjustment for age, sex, DRG, comorbidity categories.
Stratification by Vulnerable Populations	No stratification.
Standard of Comparison	No specific standards given.