

SCIP-INF-2: Prophylactic antibiotic selection for surgical patients

NQF# 0528

Developer: Centers for Medicare & Medicaid Services/The Joint Commission

Data Source: [CMS Hospital Compare](#)

Description: This measure is used to assess the percent of surgical patients who received prophylactic antibiotics consistent with current guidelines (specific to each type of surgical procedure).

Rationale: A goal of prophylaxis with antibiotics is to use an agent that is safe, cost-effective, and has a spectrum of action that covers most of the probably intraoperative contaminants for the operation. First or second-generation cephalosporins satisfy these criteria for most operations, although anaerobic coverage is needed for colon surgery. Vancomycin is not recommended for routine use because of the potential for development of antibiotic resistance, but is acceptable if a patient is allergic to beta-lactams, as are fluoroquinolones and clindamycin in selected situations.

Evidence for Rationale:

- [Specifications manual](#) for national hospital inpatient quality measures, version 3.1a. Centers for Medicare and Medicaid Services (CMS), The Joint Commission; 2010 Apr 1. Various p.

Numerator: Number of surgical patients who received prophylactic antibiotics recommended* for their specific surgical procedure
*refer to the table, “[Prophylactic Antibiotic Regimen Selection for Surgery](#),” in the original measure documentation for specific antibiotic regimens.

Denominator: All selected surgical patients with no evidence of prior infection (see related Appendix A, Table 5.10 AND Tables 5.01-5.08 of the [Specifications Manual](#) for the list of selected surgeries)

Impact:

- Affects large number of patients, frequently performed procedure.
- Surgical site infections (SSIs) are the second most common cause of healthcare associated infections. SSIs account for 14-16% of all hospital-acquired infections and are among the most common complications of care, occurring in 2 to 5% of patients after clean extra-abdominal operations and up to 20% of intra-abdominal procedures. Among surgical patients, SSIs account for 40% of all such hospital-acquired infections. By reducing SSIs, hospitals on average could recognize a reduction in extended length of stay by seven days on each patient developing an infection.

Evidence of High Impact:

- Delgado-Rodriguez M, Sillero-Arenas M, Medina-Cuadros M, Martinez-Gallego G. Nonsocomial infections in surgical patients: comparison of two measures of intrinsic patient risk. *Infect Control Hosp Epidemiol* 1997; 18:19-23.
- Polk HC, Christmas AB. Prophylactic antibiotics in surgery and surgical wound infections. *Am Surg* 2000; 66:105-111.
- Zhan C, Miller MR. Excess length of stay, charges and mortality attributable to medical injuries during hospitalization. *JAMA* 2003; 290:1868-1874.

Opportunity:

- Opportunity for improvement exists, as demonstrated by the coefficient of variation for the measure.

Evidence:

- The measure is strongly supported by evidence. Evidence-based guideline, randomized controlled trial, systematic synthesis of research
- Category IA: Strongly recommended for implementation and supported by well-designed experimental, clinical or epidemiological studies.
- The lowest incidence of postoperative infection is associated with antibiotic administration according to guidelines.

Citations for Evidence:

- Bratzler DS, Houck PM for the Surgical Infection Prevention Guideline Writers Workgroup. Antimicrobial prophylaxis for surgery: An advisory statement from the National Surgical Infection Prevention Project. *CID* 2004; 38:1706-1715.
- Dellinger EP, Gross PA, Barrett TL, et al. Quality standard for antimicrobial prophylaxis in surgical procedures. *Clin Inf Dis* 1994; 18:422-427.

<http://www.qualityforum.org/.../MeetingSummary0803042011.aspx>

<http://www.qualityforum.org/Projects/s-z/Surgery/0528.aspx>

<http://qualitymeasures.ahrq.gov/content.aspx?id=27412&search=antibiotic+selection>