



## Complete Summary

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### TITLE

Surgical infection prevention: percent of patients whose prophylactic antibiotics were discontinued within 24 hours after surgery end time.

### SOURCE(S)

Centers for Medicare and Medicaid Services (CMS). 7th statement of work (SOW). Quality of care measure specifications: Surgical infection prevention (SIP). Baltimore (MD): Centers for Medicare and Medicaid Services (CMS); 2002 Aug 1. Various p.

## Brief Abstract

### DESCRIPTION

Surgical patients whose prophylactic antibiotics were discontinued within 24 hours after surgery end time

### RATIONALE

A goal of prophylaxis with antibiotics is to provide benefit to the patient with as little risk as possible. It is important to maintain therapeutic serum and tissue levels throughout the operation. Intraoperative re-dosing may be needed for long operations. However, administration of antibiotics for more than a few hours after the incision is closed offers no additional benefit to the surgical patient. Prolonged administration does increase the risk of *Clostridium difficile* infection and the development of antimicrobial resistant pathogens.

### PRIMARY CLINICAL COMPONENT

Surgical infection prevention; discontinuation of prophylactic antibiotics

### DENOMINATOR DESCRIPTION

All selected surgical patients (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary)

### NUMERATOR DESCRIPTION

Number of surgical patients whose prophylactic antibiotics were discontinued within 24 hours after surgery end time

## Evidence Supporting the Measure

### PRIMARY MEASURE DOMAIN

Process

### SECONDARY MEASURE DOMAIN

Not applicable

### EVIDENCE SUPPORTING THE MEASURE

A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence

A systematic review of the clinical literature

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

### NATIONAL GUIDELINE CLEARINGHOUSE LINK

- [Guideline for prevention of surgical site infection, 1999.](#)
- [ASHP therapeutic guidelines on antimicrobial prophylaxis in surgery.](#)

## Evidence Supporting Need for the Measure

### NEED FOR THE MEASURE

Overall poor quality for the performance measured

### EVIDENCE SUPPORTING NEED FOR THE MEASURE

Bratzler DW. (Principal Clinical Coordinator, Oklahoma Foundation for Medical Quality, Oklahoma City). Personal Communication. 2003 Mar 5. 1 p.

## State of Use of the Measure

### STATE OF USE

Current routine use

### CURRENT USE

Collaborative inter-organizational quality improvement  
Internal quality improvement

## Application of Measure in its Current Use

### CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Measure is not provider specific

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

Unspecified

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

See "Burden of Illness" field.

ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

BURDEN OF ILLNESS

Surgical site infections occur in 2-5% of clean extra-abdominal surgeries and up to 20% of intra-abdominal surgeries. Each infection is estimated to increase a hospital stay by an average of 7 days and add over \$3,000 in charges (1992 data). Patients who develop surgical site infections are sixty percent more likely to spend time in an ICU, five times more likely to be readmitted to the hospital and have twice the incidence of mortality. Despite advances in infection control practices, surgical site infections remain a substantial cause of morbidity and mortality among hospitalized patients. Studies indicate that appropriate preoperative administration of antibiotics is effective in preventing infection. Systemic and process changes that promote compliance with established guidelines and standards can decrease infectious morbidity.

EVIDENCE FOR BURDEN OF ILLNESS

Auerbach AD. Prevention of surgical site infections. In: University of California at San Francisco (USCF) Stanford University Evidence-based Practice Center. Making health care safer: a critical analysis of patient safety practices. Online ed. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2002. p. 221-230. (Evidence Report/Technology Assessment; no. 43).

Delgado-Rodriguez M, Sillero-Arenas M, Medina-Cuadros M, Martinez-Gallego G. Nosocomial infections in surgical patients: comparison of two measures of intrinsic patient risk. *Infect Control Hosp Epidemiol* 1997 Jan;18(1):19-23. [PubMed](#)

Horan TC, Culver DH, Gaynes RP, Jarvis WR, Edwards JR, Reid CR. Nosocomial infections in surgical patients in the United States, January 1986-June 1992. National Nosocomial Infections Surveillance (NNIS) System. *Infect Control Hosp Epidemiol* 1993 Feb;14(2):73-80. [PubMed](#)

Kirkland KB, Briggs JP, Trivette SL, Wilkinson WE, Sexton DJ. The impact of surgical-site infections in the 1990s: attributable mortality, excess length of hospitalization, and extra costs. *Infect Control Hosp Epidemiol* 1999 Nov;20(11):725-30. [PubMed](#)

Mangram AJ, Horan TC, Pearson ML, Silver LC, Jarvis WR. Guideline for prevention of surgical site infection, 1999. Hospital Infection Control Practices Advisory Committee. *Infect Control Hosp Epidemiol* 1999;20(4):250-78; quiz 279-80.

Marton WJ, Jarvis WR, Culver DH, Haley RW. Incidence and nature of endemic and epidemic nosocomial infections. In: Bennett JV, Brachman PS, editor(s). *Hospital infections*. 3rd ed. Boston (MA): Little, Brown and Co.; 1992. p. 577-96.

Scheel O, Stormark M. National prevalence survey on hospital infections in Norway. *J Hosp Infect* 1999 Apr;41(4):331-5. [PubMed](#)

Wallace WC, Cinat M, Gornick WB, Lekawa ME, Wilson SE. Nosocomial infections in the surgical intensive care unit: a difference between trauma and surgical patients. *Am Surg* 1999 Oct;65(10):987-90. [PubMed](#)

## UTILIZATION

See "Burden of Illness" field.

## COSTS

See "Burden of Illness" field.

Institute of Medicine National Healthcare Quality Report Categories

## IOM CARE NEED

Staying Healthy

## IOM DOMAIN

Effectiveness  
Timeliness

## Data Collection for the Measure

### CASE FINDING

Users of care only

### DESCRIPTION OF CASE FINDING

Medicare discharges with a principal or secondary procedure code of selected surgeries (see the related "Denominator Inclusions/Exclusions" field)

### DENOMINATOR SAMPLING FRAME

Patients associated with provider

### DENOMINATOR (INDEX) EVENT

Therapeutic Intervention

### DENOMINATOR INCLUSIONS/EXCLUSIONS

#### Inclusions

Medicare discharges with a principal or secondary procedure code of selected surgeries:

- Coronary artery bypass graft (CABG)
- Other cardiac surgery
- Colon surgery
- Hip arthroplasty
- Knee arthroplasty
- Abdominal hysterectomy
- Vaginal hysterectomy
- Vascular surgery

Refer to the Appendix in the original measure documentation for International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes.

#### Exclusions

- Patients who had a principal or admission diagnosis suggestive of preoperative infectious diseases (refer to the Appendix in the original measure documentation for ICD-9-CM codes)
- Patients who were receiving antibiotics at the time of admission (except colon surgery patients taking oral prophylactic antibiotics)
- Patients whose medical records do not include antibiotic start date/time, incision date/time, antibiotic end date/time, or surgery end date/time

- Patients who were receiving antibiotics more than 24 hours prior to surgery (except colon surgery patients taking oral prophylactic antibiotics)
- Patients who did not receive any antibiotics before or during surgery, or within 24 hours after surgery end time (i.e., patient did not receive prophylactic antibiotics)
- Patients who were diagnosed with and treated for infections within two days after surgery date
- Patients who did not receive any antibiotics during this hospitalization

#### NUMERATOR INCLUSIONS/EXCLUSIONS

##### Inclusions

Number of surgical patients whose prophylactic antibiotics were discontinued within 24 hours after surgery end time

##### Exclusions

Unspecified

#### DENOMINATOR TIME WINDOW

Time window is a single point in time

#### NUMERATOR TIME WINDOW

Fixed time period

#### DATA SOURCE

Administrative and medical records data

#### LEVEL OF DETERMINATION OF QUALITY

Individual Case

#### PRE-EXISTING INSTRUMENT USED

Unspecified

### Computation of the Measure

#### SCORING

Rate

#### INTERPRETATION OF SCORE

Better quality is associated with a higher score

#### ALLOWANCE FOR PATIENT FACTORS

Unspecified

#### STANDARD OF COMPARISON

External comparison at a point in time  
External comparison of time trends

### Evaluation of Measure Properties

#### EXTENT OF MEASURE TESTING

Unspecified

### Identifying Information

#### ORIGINAL TITLE

Prophylactic antibiotics discontinued within 24 hours after surgery end time.

#### MEASURE COLLECTION

[7th Statement of Work Quality of Care Measure Specifications](#)

#### MEASURE SET NAME

[Surgical Infection Prevention \(SIP\)](#)

#### DEVELOPER

Centers for Medicare and Medicaid Services

#### ENDORSER

National Quality Forum

#### ADAPTATION

Measure was not adapted from another source.

#### RELEASE DATE

2002 Aug

#### MEASURE STATUS

This is the current release of the measure.

#### SOURCE(S)

Centers for Medicare and Medicaid Services (CMS). 7th statement of work (SOW).  
Quality of care measure specifications: Surgical infection prevention (SIP).  
Baltimore (MD): Centers for Medicare and Medicaid Services (CMS); 2002 Aug 1.  
Various p.

#### MEASURE AVAILABILITY

The individual measure, "SIP-3: Prophylactic Antibiotics Discontinued Within 24 Hours After Surgery End Time," is published in "Centers for Medicare/Medicaid Services, 7th Statement of Work, Quality of Care Measure Specifications: Surgical Infection Prevention (SIP)."

For more information, e-mail CMS PROINQUIRIES at [proinquiries@cms.hhs.gov](mailto:proinquiries@cms.hhs.gov).

#### COMPANION DOCUMENTS

A software application designed for the collection and analysis of quality improvement data, the CMS Abstraction and Reporting Tool (CART), is available from the [CMS CART Web site](#). Supporting documentation is also available.

For more information, e-mail CMS PROINQUIRIES at [proinquiries@cms.hhs.gov](mailto:proinquiries@cms.hhs.gov).

#### NQMC STATUS

This NQMC summary was completed by ECRI on January 6, 2003. The information was verified by the Centers for Medicare/Medicaid Services on March 14, 2003.

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