

**Quality ID #165 (NQF 0130): Coronary Artery Bypass Graft (CABG): Deep Sternal Wound Infection Rate
– National Quality Strategy Domain: Effective Clinical Care**

2018 OPTIONS FOR INDIVIDUAL MEASURES:
REGISTRY ONLY

MEASURE TYPE:
Outcome

DESCRIPTION:
Percentage of patients aged 18 years and older undergoing isolated CABG surgery who, within 30 days postoperatively, develop deep sternal wound infection involving muscle, bone, and/or mediastinum requiring operative intervention

INSTRUCTIONS:
This measure is to be submitted **each time** an isolated CABG procedure is performed during the performance period. It is anticipated that eligible clinicians who provide services for isolated CABG will submit this measure. This measure is intended to reflect the quality of the surgical services provided for isolated CABG or isolated reoperation CABG patients. Isolated CABG refers to CABG using arterial and/or venous grafts only.

Measure Submission:

The listed denominator criteria is used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions allowed by the measure. The quality-data codes listed do not need to be submitted for registry-based submissions; however, these codes may be submitted for those registries that utilize claims data.

DENOMINATOR:
All patients undergoing isolated CABG surgery

Denominator Criteria (Eligible Cases):

All patients aged 18 years and older on date of encounter

AND

Patient procedure during the performance period (CPT): 33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33521, 33522, 33523, 33533, 33534, 33535, 33536

OR

Patient procedure during the performance period (CPT): 33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33521, 33522, 33523, 33533, 33534, 33535, 33536

AND

Patient procedure during the performance period (CPT): 33530

NUMERATOR:

Patients who, within 30 days postoperatively, develop deep sternal wound infection involving muscle, bone, and/or mediastinum requiring operative intervention. Patient must have **ALL** of the following conditions: 1.) wound opened with excision of tissue (incision and drainage) or re-exploration of mediastinum, 2.) positive culture unless patient is on antibiotics at time of culture or no culture obtained, and 3.) treatment with antibiotics beyond perioperative prophylaxis

Numerator Instructions:

INVERSE MEASURE - A lower calculated performance rate for this measure indicates better clinical care or control. The "Performance Not Met" numerator option for this measure is the representation of the better clinical quality or control. Submitting that numerator option will produce a performance rate that trends closer to 0%, as quality increases. For inverse measures, a rate of 100% means all of the denominator eligible patients did not receive the appropriate care or were not in proper control.

Numerator Options:

Performance Met:

Development of deep sternal wound infection/mediastinitis within 30 days postoperatively (G8571)

OR

Performance Not Met:

No deep sternal wound infection/mediastinitis (G8572)

RATIONALE:

The most serious hospital-acquired infection associated with coronary artery bypass graft (CABG) surgery is deep sternal wound or deep surgical site infection. The most common bacteria involved are *S. aureus* including increasingly more common methicillin resistant Staph (MRS). For CABG only outcomes 1997-1999 the STS dataset reported 0.63% deep sternal wound infection rate in 503,478 records. A report from an academic hospital reported 1.9% deep surgical site infections (Centers for Disease Control and Prevention National Nosocomial Infection Surveillance [CDC NNIS] criteria) in 1,980 patients undergoing isolated CABG or CABG+ procedures from 1996-1999. The Northern New England Cardiovascular Disease Study Group reported an incidence rate for mediastinitis of 1.25% and noted a marked increase in mortality during the first year post-CABG and a threefold increase during a 4-year follow-up period.

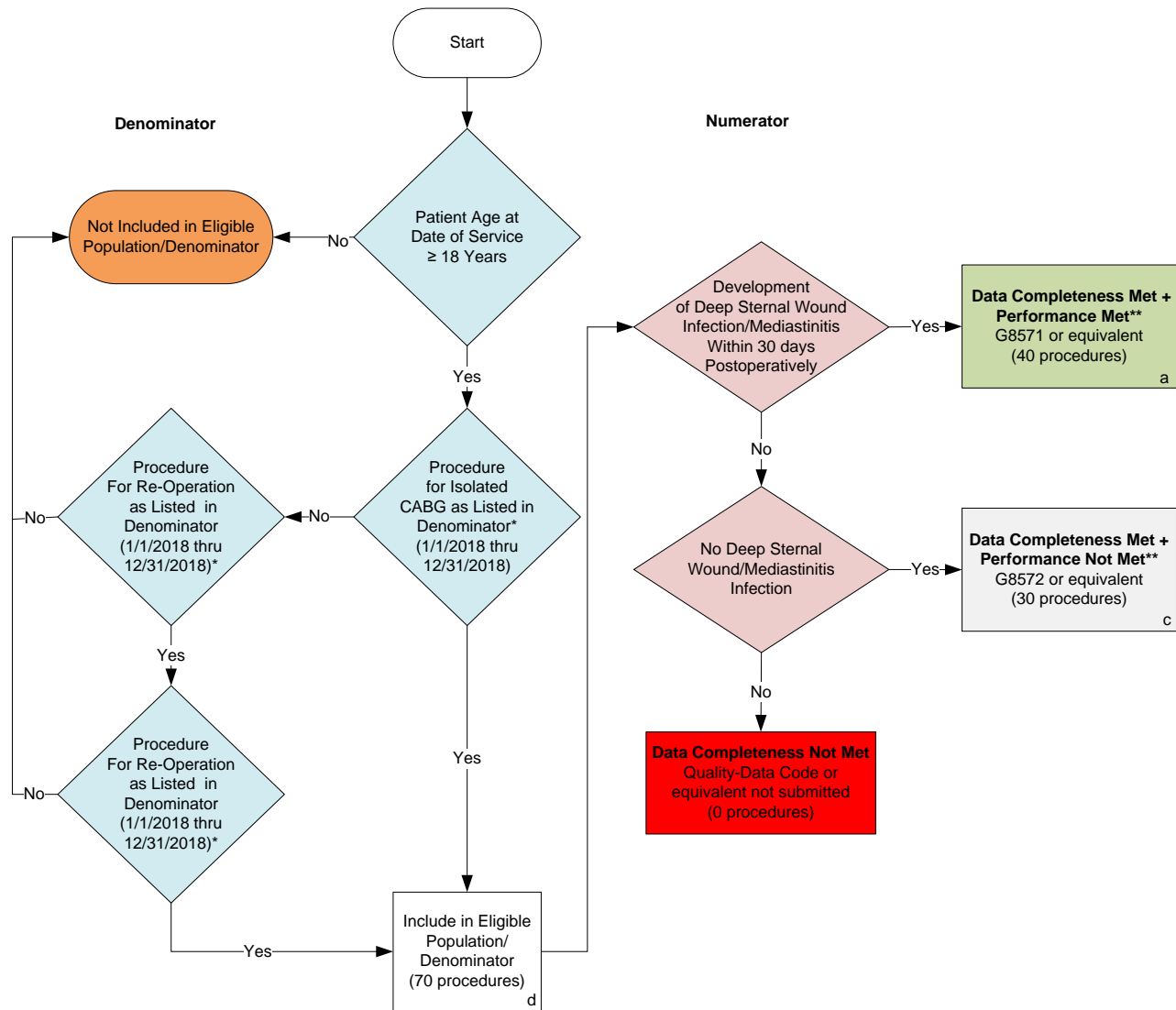
CLINICAL RECOMMENDATION STATEMENTS:

Several risk factors for sternal wound infection have been identified that can be optimized with good care practices: prophylactic antibiotics within 1 hour before incision time (odds ratio 5.3) [see antibiotic timing process measure] and avoiding elevated blood glucose levels (odds ratio 10.2). Surveillance for surgical site infections is a critical hospital function to monitor infection control practices and direct improvement activity.

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2018 Registry Flow for Quality ID #165 NQF #0130: Coronary Artery Bypass Graft (CABG): Deep Sternal Wound Infection Rate



SAMPLE CALCULATIONS:

Data Completeness=

$$\frac{\text{Performance Met (a=40 procedures)} + \text{Performance Not Met (c=30 procedures)}}{\text{Eligible Population / Denominator (d=70 procedures)}} = \frac{70 \text{ procedures}}{70 \text{ procedures}} = 100.00\%$$

Performance Rate=**

$$\frac{\text{Performance Met (a=40 procedures)}}{\text{Data Completeness Numerator (70 procedures)}} = \frac{40 \text{ procedures}}{70 \text{ procedures}} = 57.14\%$$

*See the posted Measure Specification for specific coding and instructions to submit this measure.
 **A lower calculated performance rate for this measure indicates better clinical care or control.

NOTE: Submission Frequency – Procedure

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 The measure diagrams were developed by CMS as a supplemental resource to be used in conjunction with the measure specifications. They should not be used alone or as a substitution for the measure specification.

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2018 Registry Flow For Quality ID

#165 NQF #0130: Coronary Artery Bypass Graft (CABG): Deep Sternal Wound Infection Rate

Please refer to the specific section of the specification to identify the denominator and numerator information for use in submitting this Individual Specification. This flow is for registry data submission.

1. Start with Denominator
2. Check Patient Age:
 - a. If the Age is greater than or equal to 18 years of age on Date of Service and equals No during the measurement period, do not include in Eligible Patient Population. Stop Processing.
 - b. If the Age is greater than or equal to 18 years of age on Date of Service and equals Yes during the measurement period, proceed to check Patient Undergoing Isolated CABG.
3. Check Procedure Performed:
 - a. If Procedure for Isolated CABG as Listed in Denominator equals No, proceed to Procedure for Re-Operation as Listed in Denominator.
 - b. If Procedure for CABG as Listed in Denominator equals Yes, include in the Eligible Population.
4. Check Procedure for Re-Operation as Listed in Denominator:
 - a. If Procedure for Re-Operation as Listed in Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If Procedure for Re-Operation as Listed in Denominator equals Yes, proceed to Procedure for Re-Operation as Listed in Denominator include in the Eligible Population.
5. Check Procedure for Re-Operation as Listed in Denominator:
 - a. If Procedure for Re-Operation as Listed in Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If Procedure for Re-Operation as Listed in Denominator equals Yes, include in the Eligible Population.
6. Denominator Population
 - a. Denominator population is all Eligible Patients in the denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 70 procedures in the Sample Calculation.
7. Start Numerator
8. Check Development of Deep Sternal Wound Infection/Mediastinitis within 30 Days Postoperatively:
 - a. If Development of Deep Sternal Wound Infection/Mediastinitis within 30 Days Postoperatively equals Yes, include in Data Completeness Met and Performance Met.
 - b. Data Completeness Met and Performance Met letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 40 procedures in the Sample Calculation.

- c. If Development of Deep Sternal Wound Infection/Mediastinitis within 30 Days Postoperatively equals No, proceed to No Deep Sternal Wound/Mediastinitis Infection.
9. Check if No Deep Sternal Wound/Mediastinitis Infection:
- a. If No Deep Sternal Wound/Mediastinitis Infection equals Yes, include in Data Completeness Not Met and Performance Not Met.
 - b. Data Completeness Met and Performance Not Met letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter c equals 30 procedures in the Sample Calculation.
 - c. If No Deep Sternal Wound/Mediastinitis Infection equals No, proceed to Data Completeness Not Met.
10. Check Data Completeness Not Met:
- a. If Data Completeness Not Met equals No, Quality Data Code or equivalent not submitted. 0 patients have been subtracted from the Data Completeness Numerator in the Sample Calculation.

SAMPLE CALCULATIONS:

Data Completeness=

$$\frac{\text{Performance Met (a=40 procedures)} + \text{Performance Not Met (c=30 procedures)}}{\text{Eligible Population / Denominator (d=70 procedures)}} = \frac{70 \text{ procedures}}{70 \text{ procedures}} = 100.00\%$$

Performance Rate=**

$$\frac{\text{Performance Met (a=40 procedures)}}{\text{Data Completeness Numerator (70 procedures)}} = \frac{40 \text{ procedures}}{70 \text{ procedures}} = 57.14\%$$