

Measure #446 (NQF 0733): Operative Mortality Stratified by the Five STS-EACTS Mortality Categories – National Quality Strategy Domain: Patient Safety

2017 OPTIONS FOR INDIVIDUAL MEASURES:
REGISTRY ONLY

MEASURE TYPE:
Outcome

DESCRIPTION:

Percent of patients undergoing index pediatric and/or congenital heart surgery who die, including both 1) all deaths occurring during the hospitalization in which the procedure was performed, even if after 30 days (including patients transferred to other acute care facilities), and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STS-EACTS Mortality Levels, a multi-institutional validated complexity stratification tool

INSTRUCTIONS:

This measure is to be reported for all pediatric and/or congenital heart patients **each time** a surgery is performed during the **performance period**.

This measure is intended to reflect the quality of services provided for patients with congenital heart disease. This measure may be reported by eligible clinicians who perform the quality actions described in the measure based on the services provided and the measure-specific denominator coding.

Measure Reporting:

The listed denominator criteria is used to identify the intended patient population. The numerator quality-data codes included in this specification are used to submit the quality actions allowed by the measure. All measure-specific coding should be reported on the claim(s) representing the eligible encounter.

THERE ARE TWO REPORTING CRITERIA FOR THIS MEASURE:

- 1) Patients who undergo pediatric and/or congenital heart surgery that experience death during hospitalization

OR

- 2) Patients who undergo pediatric and/or congenital heart surgery that experience death 30 days post procedure

REPORTING CRITERIA 1: ALL DEATHS DURING HOSPITALIZATION

DENOMINATOR (REPORTING CRITERIA 1):

Number of index cardiac operations in each level of complexity stratification using the five STS-EACTS Mortality Levels, a multi-institutional validated complexity stratification tool

DENOMINATOR NOTE: *Signifies that this CPT Category I code is a non-covered service under the Medicare Part B Physician Fee Schedule (PFS). These non-covered services should be counted in the denominator population for registry-based measures.

Denominator Criteria (Eligible Cases) 1:

Diagnosis for congenital heart disease (ICD-10-CM):

| Clinical Condition | Corresponding ICD-10-CM Codes |
|--------------------|-----------------------------------|
| ASD | Q21.1, Q21.2, Q21.8, Q21.9, Q24.9 |
| VSD | Q21.0, Q21.8, Q21.9 |

| Clinical Condition | Corresponding ICD-10-CM Codes |
|--|--|
| Atrioventricular Canal Defect | Q21.2 |
| Aortopulmonary Window | Q21.4 |
| Truncus Arteriosus | Q20.0, Q24.8, Q25.4 |
| Partial Anomalous Pulmonary Venous Connection | Q26.3, Q26.4 |
| Total Anomalous Pulmonary Venous Connection | Q26.2, Q26.4 |
| Cor Tritrium | Q27.2 |
| Pulmonary Venous Stenosis | Q26.8 |
| Tetralogy of Fallot | Q21.2, Q21.3, Q22.0, Q22.1 |
| Pulmonary Atresia | Q21.1, Q22.0, Q25.4 |
| Tricuspid Valve Disease and Ebstein's Anomaly | Q22.5, Q22.4, Q22.8, Q22.9 |
| Right Ventricular Outflow Tract (RVOT) Obstruction and/or Pulmonary Stenosis | Q20.1, Q22.1, Q22.2, Q22.3, Q25.5, Q25.6, Q25.79 |
| Pulmonary Valve Disease | Q25.79 |
| Aortic Valve Disease | Q23.0, Q23.1, Q23.8, Q25.2, Q25.3 |
| Sinus of Valsalva Fistula/Aneurysm | Q25.4 |
| Left Ventricular to Aorta Tunnel | Q20.8 |
| Mitral Valve Disease | Q23.2, Q23.3 |
| Hypoplastic Left Heart Syndrome | Q23.4 |
| Shone's Syndrome | Q24.8 |
| Single Ventricle | Q20.4, Q20.4 |
| Congenitally Correction of the Great Arteries (TGA) | Q20.3 |
| Transposition of the Great Arteries | Q20.3 |
| Double Outlet Right Ventricle | Q20.1 |
| Double Outlet Left Ventricle | Q20.2 |
| Coarctation of Aorta and Aortic Arch Hypoplasia | Q25.1, Q25.4 |
| Coronary Artery Anomalies | Q24.5 |
| Interrupted Arch | Q25.4 |
| Patent Ductus Arteriosus | Q25.0 |
| Vascular Rings and Slings | Q25.4, Q25.79 |
| Aortic Aneurysm | Q25.4 |
| Tracheal Disorder | Q32.0, Q32.1, Q32.2 |
| Pectus Excavatum | Q67.6, Q67.7 |

AND

Patient procedure during performance period (CPT): 15732, 15734, 19271, 19272, 21550, 21555, 21552, 21556, 21554, 21557, 21558, 21600, 21615, 21616, 21620, 21627, 21630, 21632, 21685, 21705, 21740, 21742, 21743, 21750, 21899, 31612, 31613, 31614, 31622, 31623, 31624, 31625, 31626, 31627, 31628, 31629, 31630, 31631, 31634, 31635, 31636, 31638, 31640, 31641, 31643, 31645, 31646, 31647, 31648, 31652, 31653, 31786, 32096, 32097, 32100, 32110, 32120, 32124, 32140, 32141, 32150, 32151, 32160, 32200, 32215, 32220, 32225, 32310, 32320, 32400, 32405, 32503, 32504, 32601, 32604, 32606, 32607, 32608, 32609, 32850*, 32851, 32852, 32853, 32854, 32855, 32856, 32900, 33010, 33011, 33015, 33025, 33030, 33031, 33050, 33120, 33130, 33206, 33207, 33208, 33212, 33213, 33214, 33221, 33230, 33231, 33240, 33249, 33250, 33251, 33254, 33255, 33256, 33257, 33258, 33259, 33261, 33265, 33266, 33270, 33271, 33390, 33391, 33404, 33405, 33406, 33410, 33411, 33412, 33413, 33414, 33415, 33416, 33417, 33418, 33419, 33420, 33422, 33425, 33426, 33427, 33430, 33460, 33463, 33464, 33465, 33468, 33470, 33471, 33474, 33475, 33476, 33477, 33478, 33494, 33496, 33500, 33501, 33502, 33503, 33504, 33505, 33506, 33507, 33542, 33545, 33548, 33600, 33602, 33606, 33608, 33610, 33611, 33612, 33615, 33617, 33619, 33620, 33621, 33622, 33641, 33645, 33646, 33647, 33660, 33665, 33670, 33675, 33676, 33677, 33681, 33684, 33688, 33690, 33692, 33694, 33697, 33702, 33710, 33720, 33722, 33724, 33726, 33730, 33732, 33735, 33736, 33737, 33750, 33755, 33762, 33764, 33766, 33767, 33770, 33771, 33774, 33775, 33776, 33777, 33778, 33779, 33780, 33781, 33782, 33783, 33786, 33788, 33800, 33802, 33803, 33813, 33814, 33820, 33822, 33824, 33840, 33845, 33851, 33852, 33853, 33860, 33863, 33864, 33870, 33875, 33877, 33910, 33915, 33916, 33917, 33920, 33922, 33924, 33925, 33926, 33930*, 33933, 33935, 33940*, 33944, 33945, 33946, 33947, 33948, 33967, 33970, 33971, 33973, 33974, 33975, 33976, 33977, 33978, 33979, 33980, 33981, 33982, 33983, 33987, 33988, 33989, 33990, 33991, 33992, 33993, 33999, 59076, 59897, 71275, 74175, 75557, 75559, 75561, 75563, 75565, 75572, 75573, 75574, 76825, 76826, 76825, 92992, 92993, 93303, 93304, 93315, 93316, 93317, 93355, 93530, 93531, 93532, 93533, 93563, 93564, 93580, 93581, 93582, 93583

AND

STS-EACTS Mortality Level Tool Utilized

NUMERATOR (REPORTING CRITERIA 1):

All deaths occurring during the hospitalization in which the procedure was performed stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool

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. Reporting 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:

| | |
|------------------|---|
| <u>OR</u> | <p><i>Performance Met:</i> Death occurring during hospitalization (G9814)</p> <p><i>Performance Not Met:</i> Death did not occur during hospitalization (G9815)</p> |
|------------------|---|

OR

REPORTING CRITERIA 2: DEATHS OCCURRING WITHIN 30 DAYS AFTER PROCEDURE

DENOMINATOR (REPORTING CRITERIA 2):

Number of index cardiac operations in each level of complexity stratification using the five STS-EACTS Mortality Levels, a multi-institutional validated complexity stratification tool

Denominator Criteria (Eligible Cases) 2:**Diagnosis for congenital heart disease (ICD-10-CM):**

| Clinical Condition | Corresponding ICD-10-CM Codes |
|--|--|
| ASD | Q21.1, Q21.2, Q21.8, Q21.9, Q24.9 |
| VSD | Q21.0, Q21.8, Q21.9 |
| Atrioventricular Canal Defect | Q21.2 |
| Aortopulmonary Window | Q21.4 |
| Truncus Arteriosus | Q20.0, Q24.8, Q25.4 |
| Partial Anomalous Pulmonary Venous Connection | Q26.3, Q26.4 |
| Total Anomalous Pulmonary Venous Connection | Q26.2, Q26.4 |
| Cor Triatriatum | Q27.2 |
| Pulmonary Venous Stenosis | Q26.8 |
| Tetralogy of Fallot | Q21.2, Q21.3, Q22.0, Q22.1 |
| Pulmonary Atresia | Q21.1, Q22.0, Q25.4 |
| Tricuspid Valve Disease and Ebstein's Anomaly | Q22.5, Q22.4, Q22.8, Q22.9 |
| Right Ventricular Outflow Tract (RVOT) Obstruction and/or Pulmonary Stenosis | Q20.1, Q22.1, Q22.2, Q22.3, Q25.5, Q25.6, Q25.79 |
| Pulmonary Valve Disease | Q25.79 |
| Aortic Valve Disease | Q23.0, Q23.1, Q23.8, Q25.2, Q25.3 |
| Sinus of Valsalva Fistula/Aneurysm | Q25.4 |
| Left Ventricular to Aorta Tunnel | Q20.8 |
| Mitral Valve Disease | Q23.2, Q23.3 |
| Hypoplastic Left Heart Syndrome | Q23.4 |
| Shone's Syndrome | Q24.8 |
| Single Ventricle | Q20.4 |
| Congenitally Correction of the Great Arteries (TGA) | Q20.3 |
| Transposition of the Great Arteries | Q20.3 |
| Double Outlet Right Ventricle | Q20.1 |
| Double Outlet Left Ventricle | Q20.2 |
| Coarctation of Aorta and Aortic Arch Hypoplasia | Q25.1, Q25.4 |
| Coronary Artery Anomalies | Q24.5 |
| Interrupted Arch | Q25.4 |
| Patent Ductus Arteriosus | Q25.0 |
| Vascular Rings and Slings | Q25.4, Q25.79 |

| Clinical Condition | Corresponding ICD-10-CM Codes |
|--------------------|-------------------------------|
| Aortic Aneurysm | Q25.4 |
| Tracheal Disorder | Q32.0, Q32.1, Q32.2 |
| Pectus Excavatum | Q67.6, Q67.7 |

AND

Patient procedure during performance period (CPT): 15732, 15734, 19271, 19272, 21550, 21555, 21552, 21556, 21554, 21557, 21558, 21600, 21615, 21616, 21620, 21627, 21630, 21632, 21685, 21705, 21740, 21742, 21743, 21750, 21899, 31612, 31613, 31614, 31622, 31623, 31624, 31625, 31626, 31627, 31628, 31629, 31630, 31631, 31634, 31635, 31636, 31638, 31640, 31641, 31643, 31645, 31646, 31647, 31648, 31652, 31653, 31786, 32096, 32097, 32100, 32110, 32120, 32124, 32140, 32141, 32150, 32151, 32160, 32200, 32215, 32220, 32225, 32310, 32320, 32400, 32405, 32503, 32504, 32601, 32604, 32606, 32607, 32608, 32609, 32850*, 32851, 32852, 32853, 32854, 32855, 32856, 32900, 33010, 33011, 33015, 33025, 33030, 33031, 33050, 33120, 33130, 33206, 33207, 33208, 33212, 33213, 33214, 33221, 33230, 33231, 33240, 33249, 33250, 33251, 33254, 33255, 33256, 33257, 33258, 33259, 33261, 33265, 33266, 33270, 33271, 33400, 33401, 33403, 33404, 33405, 33406, 33410, 33411, 33412, 33413, 33414, 33415, 33416, 33417, 33418, 33419, 33420, 33422, 33425, 33426, 33427, 33430, 33460, 33463, 33464, 33465, 33468, 33470, 33471, 33474, 33475, 33476, 33477, 33478, 33494, 33496, 33500, 33501, 33502, 33503, 33504, 33505, 33506, 33507, 33542, 33545, 33548, 33600, 33602, 33606, 33608, 33610, 33611, 33612, 33615, 33617, 33619, 33620, 33621, 33622, 33641, 33645, 33646, 33647, 33660, 33665, 33670, 33675, 33676, 33677, 33681, 33684, 33688, 33690, 33692, 33694, 33697, 33702, 33710, 33720, 33722, 33724, 33726, 33730, 33732, 33735, 33736, 33737, 33750, 33755, 33762, 33764, 33766, 33767, 33770, 33771, 33774, 33775, 33776, 33777, 33778, 33779, 33780, 33781, 33782, 33783, 33786, 33788, 33800, 33802, 33803, 33813, 33814, 33820, 33822, 33824, 33840, 33845, 33851, 33852, 33853, 33860, 33863, 33864, 33870, 33875, 33877, 33910, 33915, 33916, 33917, 33920, 33922, 33924, 33925, 33926, 33930*, 33933, 33935, 33940*, 33944, 33945, 33946, 33947, 33948, 33967, 33970, 33971, 33973, 33974, 33975, 33976, 33977, 33978, 33979, 33980, 33981, 33982, 33983, 33987, 33988, 33989, 33990, 33991, 33992, 33993, 33999, 59076, 59897, 71275, 74175, 75557, 75559, 75561, 75563, 75565, 75572, 75573, 75574, 76825, 76826, 76825, 92992, 92993, 93303, 93304, 93315, 93316, 93317, 93355, 93530, 93531, 93532, 93533, 93563, 93564, 93580, 93581, 93582, 93583

AND

STS-EACTS Mortality Level Tool Utilized

NUMERATOR (REPORTING CRITERIA 2):

Those deaths occurring after discharge from the hospital, but within 30 days of the procedure, stratified by the five STAT Mortality Levels, a multi-institutional validated complexity stratification tool

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. Reporting 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:

Death occurring 30 days post procedure (**G9816**)

OR

Performance Not Met:

Death did not occur 30 days post procedure (**G9817**)

RATIONALE:

Intended to promote quality assessment and improvement in congenital heart surgery

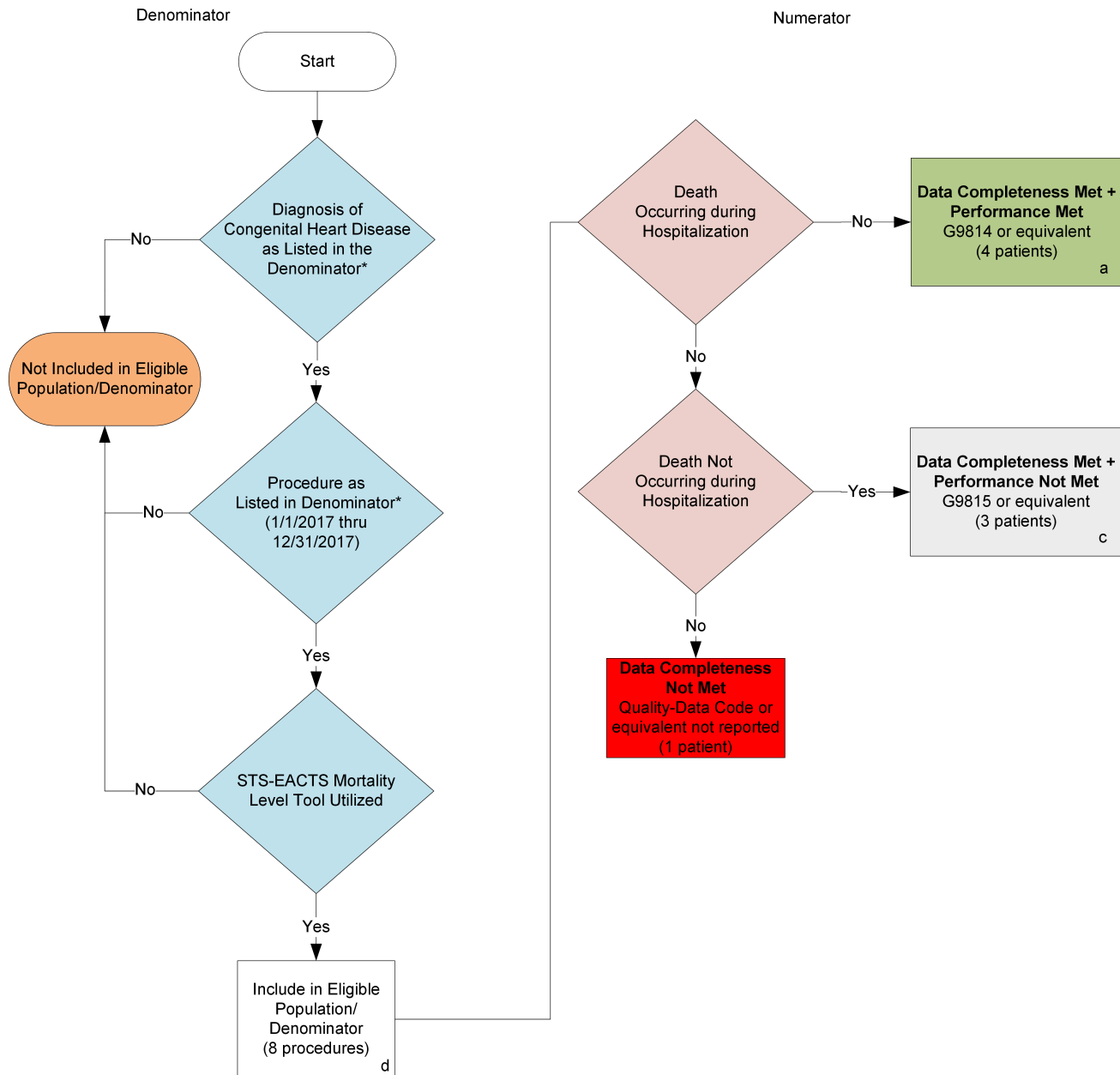
CLINICAL RECOMMENDATION STATEMENTS:

Congenital heart disease is a common birth defect that affects approximately 1 in 125 live births. Pediatric and congenital heart surgery is a subspecialty of high resource utilization that has the potential to repair or palliate the majority of patients with pediatric and congenital cardiac disease. Mortality is likely the single most important negative outcome that can be associated with a surgical procedure. Critical evaluation of operative mortality allows one to evaluate the risk associated with a given procedure for various patient characteristics, and more importantly, aggressively search for ways to minimize that risk. Over the past decade, mortality after pediatric cardiac surgery has been declining and currently stands at 3.4%.

COPYRIGHT:

This measure is owned by the Society of Thoracic Surgeons (STS)

2017 Registry Individual Measure Flow
#446 NQF #0773: Operative Mortality Stratified by the Five STS-EACTS Mortality Categories
Reporting Criteria One



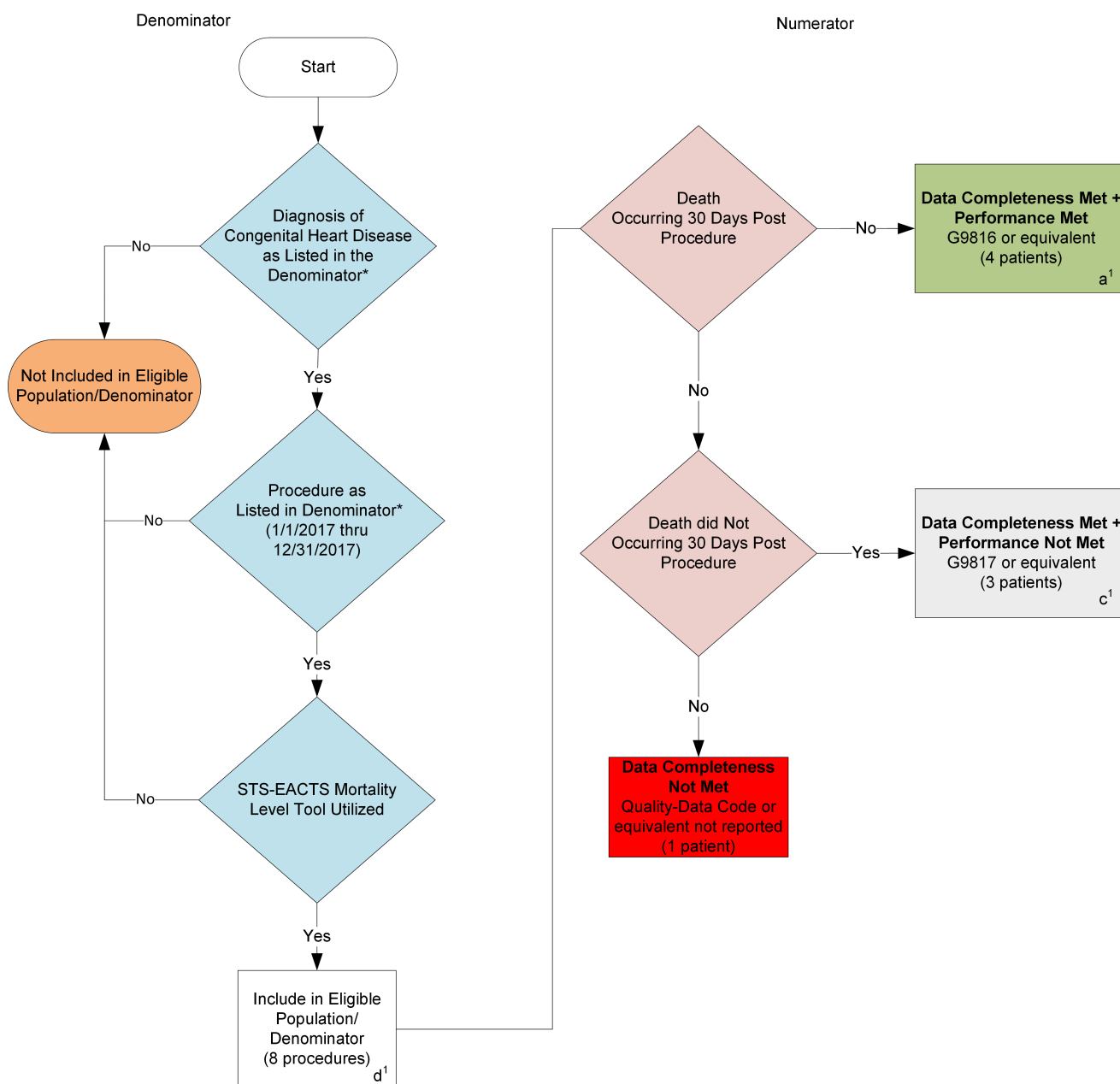
*See the posted Measure Specification for specific coding and instructions to report this measure.

NOTE: Reporting Frequency: Procedure

CPT only copyright 2016 American Medical Association. All rights reserved.
 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.

v1

2017 Registry Individual Measure Flow **#446 NQF #0773: Operative Mortality Stratified by the Five STS-EACTS Mortality Categories** **Reporting Criteria Two**



*See the posted Measure Specification for specific coding and instructions to report this measure.

NOTE: Reporting Frequency: Procedure

CPT only copyright 2016 American Medical Association. All rights reserved.
 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.

v1

2017 Registry Individual Measure Flow
#446 NQF #0773: Operative Mortality Stratified by the Five STS-EACTS Mortality Categories

SAMPLE CALCULATIONS:

Data Completeness=

| | | |
|--|---|--------------------------------------|
| <u>Performance Met (a+a1=8 patients) + Performance Not Met (c+c1=6 procedures)</u> | = | <u>14 procedures</u> = 87.50% |
| Eligible Population / Denominator (d=16 procedures) | = | 16 procedures |

Performance Rate=

| | | |
|---|---|-------------------------------------|
| <u>Performance Met (a+a1=8 procedures)</u> | = | <u>8 procedures</u> = 57.14% |
| Data Completeness Numerator (14 procedures) | = | 14 procedures |

*See the posted Measure Specification for specific coding and instructions to report this measure.

NOTE: Reporting Frequency: Procedure

CPT only copyright 2016 American Medical Association. All rights reserved.
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.

v1

2017 Registry Individual Measure Flow
#446 NQF #0773: Operative Mortality Stratified by the Five STS-EACTS Mortality Categories

Please refer to the specific section of the Measure Specification to identify the denominator and numerator information for use in reporting this Individual Measure.

Reporting Criteria 1

1. Start with Denominator
2. Check Diagnosis of Congenital Heart Disease:
 - a. If Diagnosis of Congenital Heart Disease as Listed in Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If Diagnosis of Congenital Heart Disease as Listed in Denominator equals Yes, proceed to check Procedure as listed in Denominator.
3. Check Procedure as Listed in Denominator:
 - a. If Procedure as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If Procedure as Listed in the Denominator equals Yes, proceed to STS-EACTS mortality Level Tool Utilized.
4. Check STS-EACTS Mortality Level Tool Utilized:
 - a. If STS-EACTS Mortality Level Tool Utilized equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If STS-EACTS Mortality Level Tool Utilized equals Yes, include in Eligible Patient Population.
5. 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 8 patients in the sample calculation.
6. Start Numerator
7. Check Death Occurring During Hospitalization:
 - a. If Death Occurring During Hospitalization equals No, 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 4 patients in Sample Calculation.

- c. If Death Occurring During Hospitalization equals Yes, proceed to Death Not Occurring During Hospitalization.
- 8. Check Death Not Occurring During Hospitalization:
 - a. If Death Not Occurring During Hospitalization equals Yes, include in Data Completeness Met and Performance Not Met.
 - b. Data Completeness Met and Performance Not Met letter is represented in the Data Completeness in the Sample Calculation listed at the end of this document. Letter c equals 3 patients in Sample Calculation.
 - c. If Death Not Occurring During Hospitalization equals No, proceed to Data Completeness Not Met.
- 9. Check Data Completeness Not Met:
 - a. If Data Completeness Not Met equals No, Quality Data Code or equivalent not reported. 1 patient has been subtracted from the reporting numerator in the sample calculation.

2017 Registry Individual Measure Flow
#446 NQF #0773: Operative Mortality Stratified by the Five STS-EACTS Mortality Categories

Please refer to the specific section of the Measure Specification to identify the denominator and numerator information for use in reporting this Individual Measure.

Reporting Criteria 2

1. Start with Denominator
2. Check Diagnosis of Congenital Heart Disease:
 - a. If Diagnosis of Congenital Heart Disease as Listed in Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If Diagnosis of Congenital Heart Disease as Listed in Denominator equals Yes, proceed to check Procedure as listed in Denominator.
3. Check Procedure as Listed in Denominator:
 - a. If Procedure as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If Procedure as Listed in the Denominator equals Yes, proceed to STS-EACTS mortality Level Tool Utilized.
4. Check STS-EACTS Mortality Level Tool Utilized:
 - a. If STS-EACTS Mortality Level Tool Utilized equals No, do not include in Eligible Patient Population. Stop Processing.
 - b. If STS-EACTS Mortality Level Tool Utilized equals Yes, include in Eligible Patient Population.
5. 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 d1 equals 8 patients in the sample calculation.
6. Start Numerator
7. Check Death Occurring 30 Days Post Procedure:
 - a. If Death Occurring 30 Days Post Procedure equals No, 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 a1 equals 4 patients in Sample Calculation.

- c. If Death Occurring 30 Days Post Procedure equals Yes, proceed to Death Did Not Occur 30 Days Post Procedure.
8. Check Death Did Not Occur 30 Days Post Procedure:
 - a. If Death Did Not Occur 30 Days Post Procedure equals Yes, include in Data Completeness Met and Performance Not Met.
 - b. Data Completeness Met and Performance Not Met letter is represented in the Data Completeness in the Sample Calculation listed at the end of this document. Letter c1 equals 3 patients in Sample Calculation.
 - c. If Death Did Not Occur 30 Days Post Procedure equals No, proceed to Data Completeness Not Met.
9. Check Data Completeness Not Met:
 - a. If Data Completeness Not Met equals No, Quality Data Code or equivalent not reported. 1 patient has been subtracted from the data completeness numerator in the sample calculation.

SAMPLE CALCULATIONS:

Data Completeness=

$$\frac{\text{Performance Met (a+a1=8 patients)} + \text{Performance Not Met (c+c1=6 patients)}}{\text{Eligible Population / Denominator (d=16 patients)}} = \frac{14 \text{ patients}}{16 \text{ patients}} = 87.50\%$$

Performance Rate=

$$\frac{\text{Performance Met (a+a1=8 patients)}}{\text{Data Completeness Numerator (14 patients)}} = \frac{8 \text{ patients}}{14 \text{ patients}} = 57.14\%$$