

NATIONAL QUALITY FORUM

Measure Evaluation 4.1 December 2009

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the [evaluation criteria](#) are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

TAP/Workgroup (if utilized): Complete all **yellow highlighted** areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: If there is no TAP or workgroup, the SC also evaluates the subcriteria (**yellow highlighted areas**).

Steering Committee: Complete all **pink** highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met

C = Completely (unquestionably demonstrated to meet the criterion)

P = Partially (demonstrated to partially meet the criterion)

M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)

N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)

NA = Not applicable (only an option for a few subcriteria as indicated)

(for NQF staff use) NQF Review #: 1534	NQF Project: Surgery Endorsement Maintenance 2010
MEASURE DESCRIPTIVE INFORMATION	
De.1 Measure Title: In-hospital mortality following elective EVAR of AAAs	
De.2 Brief description of measure: Percentage of patients undergoing elective endovascular repair of asymptomatic abdominal aortic aneurysms (AAA) who die while in hospital. This measure is proposed for both hospitals and individual providers.	
1.1-2 Type of Measure: Outcome	
De.3 If included in a composite or paired with another measure, please identify composite or paired measure Submitted SVS measure: In-hospital mortality following elective open repair of AAAs	
De.4 National Priority Partners Priority Area: Population health, Safety, Overuse	
De.5 IOM Quality Domain: Effectiveness, Efficiency, Safety	
De.6 Consumer Care Need: Staying healthy	

CONDITIONS FOR CONSIDERATION BY NQF	
Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards:	NQF Staff
<p>A. The measure is in the public domain or an intellectual property (measure steward agreement) is signed. <i>Public domain only applies to governmental organizations. All non-governmental organizations must sign a measure steward agreement even if measures are made publicly and freely available.</i></p> <p>A.1 Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)? Yes</p> <p>A.2 Indicate if Proprietary Measure (as defined in measure steward agreement):</p> <p>A.3 Measure Steward Agreement: Agreement will be signed and submitted prior to or at the time of measure submission</p> <p>A.4 Measure Steward Agreement attached: Agreement With Measure Stewards_Agreement</p>	<p>A</p> <p>Y <input type="checkbox"/></p> <p>N <input type="checkbox"/></p>

Between_National Quality Forum (12-6-2010).pdf	
B. The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least every 3 years. Yes, information provided in contact section	B Y <input type="checkbox"/> N <input type="checkbox"/>
C. The intended use of the measure includes <u>both</u> public reporting <u>and</u> quality improvement. ► Purpose: Payment Program	C Y <input type="checkbox"/> N <input type="checkbox"/>
D. The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement. D.1 Testing: Yes, fully developed and tested D.2 Have NQF-endorsed measures been reviewed to identify if there are similar or related measures? Yes	D Y <input type="checkbox"/> N <input type="checkbox"/>
(for NQF staff use) Have all conditions for consideration been met? Staff Notes to Steward (<i>if submission returned</i>):	Met Y <input type="checkbox"/> N <input type="checkbox"/>
Staff Notes to Reviewers (<i>issues or questions regarding any criteria</i>):	
Staff Reviewer Name(s):	

TAP/Workgroup Reviewer Name:	
Steering Committee Reviewer Name:	
1. IMPORTANCE TO MEASURE AND REPORT	
Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance. <i>Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria.</i> (evaluation criteria) 1a. High Impact	Eval Rating
(for NQF staff use) Specific NPP goal :	
1a.1 Demonstrated High Impact Aspect of Healthcare: Affects large numbers, Frequently performed procedure, Leading cause of morbidity/mortality, High resource use, Severity of illness, Patient/societal consequences of poor quality 1a.2 1a.3 Summary of Evidence of High Impact: An international population-based study found that an aneurysm was present in 8.9% of men and 2.2% women (p < 0.001).(1) In the United States, ruptured AAAs are the 15th leading casue of death overall and the 10th leading casue of death in males over 55 years, a rate than has held steady for the past 2 decades. (2) Ruptured aneurysms are fatal in about 80% of cases. (3) 1a.4 Citations for Evidence of High Impact: (1) Singh K et al. Am. J. Epidemiol. (2001) 154 (3): 236-244. (2) Fillinger M. (2010) Abdominal Aortic Aneurysms: Evaluation and Decision Making. In J. Cronenewett & KW. Johnston (Eds.), Rutherford’s Vascular Surgery (1928-1948) Saunders Elsevier. Philadelphia. (3) May J, White GH, Stephen MS, Harris JP. J Vasc Surg. 2004 Nov;40(5):860-6.	1a C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/>
1b. Opportunity for Improvement	1b C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/>
1b.1 Benefits (improvements in quality) envisioned by use of this measure: Elective AAA repair is offered to prolong life by avoiding AAA rupture, which is fatal in more than 85% of cases. Rupture risk is primarily	P <input type="checkbox"/> M <input type="checkbox"/>

<p>assess by AAA diameter, with larger AAAs more prone to rupture. Surgical treatment carries risk, however, of mortality and morbidity, which must be balanced against the risk of rupture in order to determine which patients will benefit from elective repair.</p> <p>Based on the UK aneurysm trial, the accepted diameter threshold for elective AAA repair is 5.5 cm, although women have a slightly higher risk than men, so a threshold of 5 cm is usually recommended for women. The key concept of this proposed measure is that patients who are at low risk for AAA rupture (<6cm dia in men and <5.5 cm dia in women) should ONLY be offered elective AAA repair if their predicted operative mortality is low. This concept avoids the need for risk adjustment, since this is implicit in the decision to offer elective repair of AAAs. This measure will highlight variation in proper patient selection by reporting unadjusted mortality rates for surgery in patients with small AAAs in whom this rate should be universally low. Providers or hospitals with high mortality rates are either not performing safe surgery or are not properly selecting low risk patients. The measure specifically excludes patients with larger AAAs because risk adjustment would be needed for such cases, and accepted risk adjustment algorithms are not available.</p> <p>1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers: There is significant regional variation in rates of AAA repair, indicating a performance gap. In 27 hospital referral regions, rates of AAA repair were at least 30% higher than the United States average of 1.0 per 1,000 Medicare enrollees. In 44 hospital referral regions, rates were more than 25% lower than the national average.(1)</p> <p>Where these data have been monitored and reported to providers in VSGNE since 2003, among 11 centers and 48 providers treating 1380 patients since 2003, the median mortality rate for men and women with AAAs as defined above is 0%, but the range is 0-6%, indicating both a performance gap and opportunity for further improvement.</p> <p>1b.3 Citations for data on performance gap: (1)Dartmouth-CMS-FDA Collaborative, "Trends and Regional Variation in Abdominal Aortic Aneurysm Repair, February 1, 2006.</p> <p>1b.4 Summary of Data on disparities by population group: Such data will become available if this measure is adopted for reporting and used by more centers with more varied population demographics than found in the New England region.</p> <p>1b.5 Citations for data on Disparities: not available</p>	<p>N <input type="checkbox"/></p>
<p>1c. Outcome or Evidence to Support Measure Focus</p> <p>1c.1 Relationship to Outcomes (<i>For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population</i>): discussed above</p> <p>1c.2-3. Type of Evidence: Cohort study, Expert opinion, Meta-analysis</p> <p>1c.4 Summary of Evidence (<i>as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome</i>): The endpoint of inhospital mortality is the accepted primary endpoint for both elective AAA repair. Variation in outcome has been established in randomized trials, cohort studies and meta analyses. This outcome measure has face validity among all providers of this service. Studies cited above have shown substantial variation in outcomes by provider when elective AAA repair is performed in patients with AAAs.</p> <p>1c.5 Rating of strength/quality of evidence (<i>also provide narrative description of the rating and by whom</i>): Motality is the reporting standard recommended by the Society for Vascular Surgery, and has been used in multiple trials.</p>	<p>1c C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>

<p>1c.6 Method for rating evidence: Expert opinion.</p> <p>1c.7 Summary of Controversy/Contradictory Evidence: None</p> <p>1c.8 Citations for Evidence (other than guidelines): (2) Fillinger M. (2010) Abdominal Aortic Aneurysms: Evaluation and Decision Making. In J. Cronenewett & KW. Johnston (Eds.), Rutherford's Vascular Surgery (1928-1948) Saunders Elsevier. Philadelphia.</p> <p>1c.9 Quote the Specific guideline recommendation (including guideline number and/or page number): None</p> <p>1c.10 Clinical Practice Guideline Citation: None</p> <p>1c.11 National Guideline Clearinghouse or other URL: None</p> <p>1c.12 Rating of strength of recommendation (also provide narrative description of the rating and by whom): N/A</p> <p>1c.13 Method for rating strength of recommendation (If different from USPSTF system, also describe rating and how it relates to USPSTF): N/A</p> <p>1c.14 Rationale for using this guideline over others: Mortality is the accepted endpoint used in all trials. Restricting the AAA risk by confining the analysis to small and moderate AAAs is explained above.</p>	
<p>TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for <i>Importance to Measure and Report</i>?</p>	<p>1</p>
<p>Steering Committee: Was the threshold criterion, <i>Importance to Measure and Report</i>, met? Rationale:</p>	<p>1 Y <input type="checkbox"/> N <input type="checkbox"/></p>
<p style="text-align: center;">2. SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES</p>	
<p>Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. (evaluation criteria)</p>	<p>Eval Rating</p>
<p style="text-align: center;">2a. MEASURE SPECIFICATIONS</p>	
<p>S.1 Do you have a web page where current detailed measure specifications can be obtained? S.2 If yes, provide web page URL:</p> <p>2a. Precisely Specified</p>	
<p>2a.1 Numerator Statement (Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome): Mortality following elective endovascular AAA repair of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs</p> <p>2a.2 Numerator Time Window (The time period in which cases are eligible for inclusion in the numerator): Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report).</p> <p>2a.3 Numerator Details (All information required to collect/calculate the numerator, including all codes, logic, and definitions): ANY registry that includes hospitalization details, AAA diameter and discharge status is required to identify</p>	<p>2a-specs C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>

<p>patients for numerator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information, but the measure is not limited to these registries. Patients who died in hospital following elective endovascular infrarenal AAA repair if their aneurysm was asymptomatic (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging (CT, MR or ultrasound)).</p>
<p>2a.4 Denominator Statement (<i>Brief, text description of the denominator - target population being measured</i>): All elective endovascular repairs of asymptomatic AAAs in men with < 6 cm dia and women with < 5.5 cm dia AAAs</p>
<p>2a.5 Target population gender: Female, Male 2a.6 Target population age range: 18 years or older</p>
<p>2a.7 Denominator Time Window (<i>The time period in which cases are eligible for inclusion in the denominator</i>): Since hospitals have sufficient annual volume to generate accurate reporting levels, these are proposed for reporting every 12 months for hospital. Since surgeons have lower individual volume, we recommend annual reporting of the last 50 consecutive procedures, which may span more than one year, with suppression if < 10 procedures (ie, reported as too low volume to report).</p>
<p>2a.8 Denominator Details (<i>All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions</i>): ANY registry that includes hospitalization details, AAA diameter and discharge status is required to identify patients for denominator inclusion. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) are examples of registries that record such information, but the measure is not limited to these registries. Patients who died in hospital following elective endovascular infrarenal AAA repair if their aneurysm was asymptomatic (< 6cm dia in men, <5.5 cm dia in women, judged by preoperative imaging (CT, MR or ultrasound)).</p>
<p>2a.9 Denominator Exclusions (<i>Brief text description of exclusions from the target population</i>): = 6 cm diameter - men = 5.5 cm diameter - women Symptomatic AAAs that required urgent/emergent (non-elective) repair</p>
<p>2a.10 Denominator Exclusion Details (<i>All information required to collect exclusions to the denominator, including all codes, logic, and definitions</i>): Patients undergoing non-elective open repair of symptomatic AAAs or those with AAAs larger than the diameters noted above.</p>
<p>2a.11 Stratification Details/Variables (<i>All information required to stratify the measure including the stratification variables, all codes, logic, and definitions</i>): NA</p>
<p>2a.12-13 Risk Adjustment Type: No risk adjustment necessary</p>
<p>2a.14 Risk Adjustment Methodology/Variables (<i>List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method</i>): See "Scientific Acceptability" section for rationale</p>
<p>2a.15-17 Detailed risk model available Web page URL or attachment:</p>
<p>2a.18-19 Type of Score: Rate/proportion 2a.20 Interpretation of Score: Better quality = Lower score 2a.21 Calculation Algorithm (<i>Describe the calculation of the measure as a flowchart or series of steps</i>): Identify denominator, exclude non-elective repair of symptomatic or ruptured patients and men with AAA >6 cm, and women with AAA >5.5, find number of deaths Outcome = deaths/ # cases</p>
<p>2a.22 Describe the method for discriminating performance (<i>e.g., significance testing</i>):</p>

<p>Standard statistical comparison of rates to provide confidence levels to discriminate meaningful differences from the mean.</p>	
<p>2a.23 Sampling (Survey) Methodology <i>If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate):</i> N/A</p>	
<p>2a.24 Data Source <i>(Check the source(s) for which the measure is specified and tested)</i> Electronic Clinical Data : Registry</p>	
<p>2a.25 Data source/data collection instrument <i>(Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.):</i> Society for Vascular Surgery Vascular Quality Initiative Registry Vascular Study Group of New England Registry</p>	
<p>2a.26-28 Data source/data collection instrument reference web page URL or attachment: Attachment Endo_AAA_Repair_v1.9.xls</p>	
<p>2a.29-31 Data dictionary/code table web page URL or attachment: Attachment EVAR defs v.01.09.doc</p>	
<p>2a.32-35 Level of Measurement/Analysis <i>(Check the level(s) for which the measure is specified and tested)</i> Clinician : Group/Practice, Clinician : Individual, Facility</p>	
<p>2a.36-37 Care Settings <i>(Check the setting(s) for which the measure is specified and tested)</i> Hospital/Acute Care Facility</p>	
<p>2a.38-41 Clinical Services <i>(Healthcare services being measured, check all that apply)</i> Clinicians: Physicians (MD/DO)</p>	
TESTING/ANALYSIS	
<p>2b. Reliability testing</p>	
<p>2b.1 Data/sample <i>(description of data/sample and size):</i> A random sample of 100 patient records representing 5 procedures relevant to the measure from 5 different hospitals based on data collected during the past 2 years. In addition, in-hospital mortality was examined by claims based analysis of 7,205 patients discharged and recorded in the VSGNE registry between 2003 to 2007.</p>	
<p>2b.2 Analytic Method <i>(type of reliability & rationale, method for testing):</i> A nurse abstractor completed a form based on medical record review for the variables relevant to this measure. The results of this chart review were then compared with the original registry data. The Kappa statistic was used to judge reliability of the data. For mortality validation, claims data from each of 12 hospitals were matched to patient identified data within the VSGNE registry to compare discharge status (alive vs. dead). Any discrepancies were then further evaluated based on a medical record audit.</p>	
<p>2b.3 Testing Results <i>(reliability statistics, assessment of adequacy in the context of norms for the test conducted):</i> The key variables for this measure and testing results were:</p> <ol style="list-style-type: none"> 1. Correct procedure (endovascular infrarenal AAA repair) performed. Kappa =1.0 2. AAA diameter: Based on 60 measurement, the mean diameter was 56.7 mm in the registry, 56.6 mm in the chart audit, no significant difference. Further, in on cases was the category of size based on the cut points of 6 cm in men and 5.5 cm in women different, Kappa = 1.0 for these categories. 3. Hospital mortality: Kappa = .91 (SE .01) 4. Elective(vs urgent or emergent); Kappa=1.0 	<p>2b C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>
<p>2c. Validity testing</p>	<p>2c C <input type="checkbox"/></p>

<p>2c.1 Data/sample (<i>description of data/sample and size</i>): See reliability testing</p> <p>2c.2 Analytic Method (<i>type of validity & rationale, method for testing</i>): comparison of rates with published literature</p> <p>2c.3 Testing Results (<i>statistical results, assessment of adequacy in the context of norms for the test conducted</i>): In VSGNE, in hospital mortality for EVAR is 2-5%, and shows appropriate variation among hospitals, using this measure. This corresponds well to the published literature for elective AAA repair.</p>	<p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p>
<p>2d. Exclusions Justified</p> <p>2d.1 Summary of Evidence supporting exclusion(s): Large clinical trials have demonstrated the relative safety of observation AAAs with a minimum diameter of less than 5.5 cm.(1) Most of these data were from men, and the same studies show that for women, AAAs rupture risk is higher, such that a minimum 5 cm threshold for women is generally recommended (1). In this measure, we are proposing that elective open AAA repair in men with AAAs < 6 cm dia and women with AAAs < 5.5 cm dia should only be recommended when the operative risk is low, because the AAA rupture risk is low (at a size less than 0.5 greater than the minimum rupture risk). This means that risk adjustment is considered as part of the surgical decision making, and does not need to be otherwise controlled for, as discussed further in 2.e.1.</p> <p>2d.2 Citations for Evidence: (1) Fillinger M. (2010) Abdominal Aortic Aneurysms: Evaluation and Decision Making. In J. Cronenewett & KW. Johnston (Eds.), Rutherford’s Vascular Surgery (1928-1948) Saunders Elsevier. Philadelphia.</p> <p>2d.3 Data/sample (<i>description of data/sample and size</i>): 1380 patients undergoing elective EVAR in VSGNE, all patients, 2003-2010. 1120 men, 260 women</p> <p>2d.4 Analytic Method (<i>type analysis & rationale</i>): rate calculation based on AAA dia size. AAAs were analyzed with 6 cm dia cutpoint in men and a 5.5 cm dia cutpoint in women, as described below.</p> <p>2d.5 Testing Results (<i>e.g., frequency, variability, sensitivity analyses</i>): Men, < 6cm AAA, mdn 0% mortality, range 0-5.5% among 12 centers Men, >= 6 cm dia, mdn 0% mortality, range 0-9.5% among 12 centers Women, < 5.5 cm dia AAAs, mdn mortality 0%, range 0-5.3% among 11 centers Women, >= 5.5 cm dia AAAs, mdn mortality 0.9%, range 0-9.4% among 11 centers</p>	<p>2d</p> <p>C <input type="checkbox"/></p> <p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p> <p>NA <input type="checkbox"/></p>
<p>2e. Risk Adjustment for Outcomes/ Resource Use Measures</p> <p>2e.1 Data/sample (<i>description of data/sample and size</i>): This measure was designed to avoid the need for risk adjustment, because risk adjustment is complex for AAA repair, and accepted algorithms do not yet exist. In patients with AAAs, with low rupture risk, it is incumbent on the surgeon to factor in the risk-benefit of elective, prophylactic repair, since a high operative mortality will eliminate any benefit of AAA repair. Women have higher rupture risk than men, so by focusing this measure on AAAs < 5.5 cm in women and < 6 cm in men, the non-risk-adjusted mortality is a fair comparison of surgical outcome in the opinion of the sponsor, the Society for Vascular Surgery, and it represents a very important outcome to measure</p> <p>2e.2 Analytic Method (<i>type of risk adjustment, analysis, & rationale</i>): N/A</p> <p>2e.3 Testing Results (<i>risk model performance metrics</i>): N/A</p> <p>2e.4 If outcome or resource use measure is not risk adjusted, provide rationale: N/A</p>	<p>2e</p> <p>C <input type="checkbox"/></p> <p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p> <p>NA <input type="checkbox"/></p>
<p>2f. Identification of Meaningful Differences in Performance</p>	<p>2f</p>

<p>2f.1 Data/sample from Testing or Current Use (<i>description of data/sample and size</i>): see section 1.b.3 and above 2,d,5</p> <p>2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance (<i>type of analysis & rationale</i>): Standard statistical analysis to determine 95% confidence interval for hospitals and providers to determine practical difference from mean</p> <p>2f.3 Provide Measure Scores from Testing or Current Use (<i>description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance</i>):</p>	<p>C <input type="checkbox"/></p> <p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p>
<p>2g. Comparability of Multiple Data Sources/Methods</p> <p>2g.1 Data/sample (<i>description of data/sample and size</i>): no other data sources available</p> <p>2g.2 Analytic Method (<i>type of analysis & rationale</i>): N/A</p> <p>2g.3 Testing Results (<i>e.g., correlation statistics, comparison of rankings</i>): N/A</p>	<p>2g</p> <p>C <input type="checkbox"/></p> <p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p> <p>NA <input type="checkbox"/></p>
<p>2h. Disparities in Care</p> <p>2h.1 If measure is stratified, provide stratified results (<i>scores by stratified categories/cohorts</i>): N/A</p> <p>2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans: Disparities have not been reported.</p>	<p>2h</p> <p>C <input type="checkbox"/></p> <p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p> <p>NA <input type="checkbox"/></p>
<p>TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for <i>Scientific Acceptability of Measure Properties</i>?</p>	<p>2</p>
<p>Steering Committee: Overall, to what extent was the criterion, <i>Scientific Acceptability of Measure Properties</i>, met? Rationale:</p>	<p>2</p> <p>C <input type="checkbox"/></p> <p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p>
3. USABILITY	
<p>Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria)</p>	<p>Eval Rating</p>
<p>3a. Meaningful, Understandable, and Useful Information</p> <p>3a.1 Current Use: In use</p> <p>3a.2 Use in a public reporting initiative (disclosure of performance results to the public at large) (<i>If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years</i>): Data from SVS VQI and VSGNE are reported to each hospital and provider in a format that can be transmitted to an appropriate public reporting mechanism.</p> <p>3a.3 If used in other programs/initiatives (<i>If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years</i>): Vascular Study Group of New England www.vsgne.org Data have been successfully collected in this quality registry since 2003, and reports provided to participating physicians and hospitals about their rates of outcomes. These results are used by the regional</p>	<p>3a</p> <p>C <input type="checkbox"/></p> <p>P <input type="checkbox"/></p> <p>M <input type="checkbox"/></p> <p>N <input type="checkbox"/></p>

<p>quality group to provide benchmark reporting, and to stimulate regional quality improvement projects.</p> <p>Testing of Interpretability (Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement)</p> <p>3a.4 Data/sample (description of data/sample and size): VSGNE samples previously described</p> <p>3a.5 Methods (e.g., focus group, survey, QI project): Semi-annual meetings of providers in VSGNE</p> <p>3a.6 Results (qualitative and/or quantitative results and conclusions): Benchmark reports of this outcome measure have been provided to VSGNE member physician and hospitals since 2003, and discussed at semi-annual meetings. There have been no questions about interpretability.</p>	
<p>3b/3c. Relation to other NQF-endorsed measures</p> <p>3b.1 NQF # and Title of similar or related measures:</p>	
<p>(for NQF staff use) Notes on similar/related <u>endorsed</u> or submitted measures:</p>	
<p>3b. Harmonization If this measure is related to measure(s) already <u>endorsed by NQF</u> (e.g., same topic, but different target population/setting/data source <u>or</u> different topic but same target population):</p> <p>3b.2 Are the measure specifications harmonized? If not, why?</p>	<p>3b C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/></p>
<p>3c. Distinctive or Additive Value</p> <p>3c.1 Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:</p> <p>5.1 If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:</p>	<p>3c C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/></p>
<p>TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for Usability?</p>	<p>3</p>
<p>Steering Committee: Overall, to what extent was the criterion, Usability, met? Rationale:</p>	<p>3 C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>
4. FEASIBILITY	
<p>Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (<u>evaluation criteria</u>)</p>	<p><u>Eval Rating</u></p>
<p>4a. Data Generated as a Byproduct of Care Processes</p> <p>4a.1-2 How are the data elements that are needed to compute measure scores generated? Data generated as byproduct of care processes during care delivery (Data are generated and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition), Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry)</p>	<p>4a C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>
<p>4b. Electronic Sources</p> <p>4b.1 Are all the data elements available electronically? (elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims)</p>	<p>4b C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/></p>

<p>Yes</p> <p>4b.2 If not, specify the near-term path to achieve electronic capture by most providers.</p>	<p>N <input type="checkbox"/></p>
<p>4c. Exclusions</p> <p>4c.1 Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications? No</p> <p>4c.2 If yes, provide justification.</p>	<p>4c C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/></p>
<p>4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences</p> <p>4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results. Size measurements of AAA should not significantly impact the measure, and symptom status is easily validated during chart review. We have not found inaccuracy in this measure.</p>	<p>4d C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>
<p>4e. Data Collection Strategy/Implementation</p> <p>4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues: In the VSGNE experience which has been tracking hospital mortality as a major endpoint since 2003, we have not experienced any difficulty with obtaining data related to this endpoint. Our percent missing for this variable has been less than 1%.</p> <p>4e.2 Costs to implement the measure (costs of data collection, fees associated with proprietary measures): In the context of the VSGNE and SVS VQI registries, there is no additional cost as all of these data are already collected.</p> <p>4e.3 Evidence for costs: N/A</p> <p>4e.4 Business case documentation: N/A</p>	<p>4e C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>
<p>TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for <i>Feasibility</i>?</p>	<p>4</p>
<p>Steering Committee: Overall, to what extent was the criterion, <i>Feasibility</i>, met? Rationale:</p>	<p>4 C <input type="checkbox"/> P <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/></p>
<p style="text-align: center;">RECOMMENDATION</p>	
<p>(for NQF staff use) Check if measure is untested and only eligible for time-limited endorsement.</p>	<p>Time-limited <input type="checkbox"/></p>
<p>Steering Committee: Do you recommend for endorsement? Comments:</p>	<p>Y <input type="checkbox"/> N <input type="checkbox"/> A <input type="checkbox"/></p>
<p style="text-align: center;">CONTACT INFORMATION</p>	

<p>Co.1 Measure Steward (Intellectual Property Owner) Co.1 Organization Society for Vascular Surgery, 633 N. St. Clair, 22nd Floor, Chicago, Illinois, 60611</p> <p>Co.2 Point of Contact Sarah, Murphy, Staff, smurphy@vascularsociety.org, 312-334-2305-</p>
<p>Measure Developer If different from Measure Steward Co.3 Organization Society for Vascular Surgery, 633 N. St. Clair, 22nd Floor, Chicago, Illinois, 60611</p> <p>Co.4 Point of Contact Sarah, Murphy, Staff, smurphy@vascularsociety.org, 312-334-2305-</p>
<p>Co.5 Submitter If different from Measure Steward POC Sarah, Murphy, Staff, smurphy@vascularsociety.org, 312-334-2305-, Society for Vascular Surgery</p>
<p>Co.6 Additional organizations that sponsored/participated in measure development</p>
<p>ADDITIONAL INFORMATION</p>
<p>Workgroup/Expert Panel involved in measure development Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development. N/A</p>
<p>Ad.2 If adapted, provide name of original measure: Ad.3-5 If adapted, provide original specifications URL or attachment</p>
<p>Measure Developer/Steward Updates and Ongoing Maintenance Ad.6 Year the measure was first released: 2010 Ad.7 Month and Year of most recent revision: 12, 2010 Ad.8 What is your frequency for review/update of this measure? Ad.9 When is the next scheduled review/update for this measure?</p>
<p>Ad.10 Copyright statement: N/A</p>
<p>Ad.11 Disclaimers:</p>
<p>Ad.12 -14 Additional Information web page URL or attachment:</p>
<p>Date of Submission (MM/DD/YY): 12/14/2010</p>

Vascular Quality Initiative - Endo AAA Repair

Last Name First Name Middle Initial
 Date of Birth Medical Record Number Social Security Number

General Information

Patient Data
 Zip/Postal Code Gender male; female
 Ethnicity Not Hispanic or Latino; Hispanic or Latino Race White; Black or African American; Asian;
 Height inches or cm More than 1 race; American Indian or Alaskan Native;
 Weight lbs or kg Native Hawaiian or other Pacific Islander; Unknown/other

Admission Data
 Visit code (not required)
 Admit Date Discharge Date
 Surgeon Surgery Date
 Discharge Status home; rehab unit; nursing home;
 dead; other hospital; skilled nursing facility
 Does the patient have Medicare Part B? no; yes
 If dead, date of death
 Transferred from? no; hospital; rehab unit

Demographics
 Smoking never; prior (>1 yr); current (within yr) Hypertension no; yes (>=140/90 or history)
 Diabetes none; diet; oral med; insulin Beta blockers no; op day only; pre-op 1-30 days;
 chronic >30 days; no-intolerant
 CAD symptoms none; hx MI but no sx; stable angina; unstable angina or MI < 6 mos CABG/PTCA none; <5yr; >=5yrs ago
 CHF none; asymp, hx CHF; mild; severe COPD no; not treated; on meds; on home oxygen
 Dialysis no; functioning transplant; on dialysis Creatinine mg/dl OR µmol/L
 Stress Test normal; (+) ischemia; (+) MI; (+)both; not done Pre-adm Living home; nursing home
 ASA Class 1 normal/healthy; 2 w/mild systemic dx; 3 w/severe systemic dx; 4 w/severe systemic dx that is a constant threat to life;
 5 moribund, not expectd to survive w/o op Pre-op Hemoglobin g/dl OR g/L

Previous arterial
 Bypass no; yes CEA no; yes
 Aneurysm Repair no; yes PTA/Stent no; yes
 Major Amp no; yes
Pre-Op Medications
 ASA no; yes; intolerant Plavix no; yes; intolerant
 Statin no; yes; intolerant

History
 Family History of AAA no; yes Prior Aortic Surgery none; AAA; SAAA; bypass; other
 Ejection Fraction <30%; 30-50%; >50%; not done; unknown Maximum AP AAA Diam mm
 Iliac Aneurysm no; unilateral; bilateral Maximum Diameter mm
 Urgency elective; symptomatic; ruptured
Fill out the fields below if Urgency equals ruptured.
 Lowest pre-intubation BP Systolic- mmHg Mental Status normal; disoriented; unconscious
 Cardiac Arrest no; yes Time: Symptoms to Incision hours
 Time: Admission to Incision hours Abdomen Explored no; yes

Procedure
 Unfit for Open AAA Repair no; yes Unfit for gen. anesthesia no; yes Anesthesia local; regional; general
 Graft Type AneurRx; Excluder; Talent; Zenith; Powerlink; Endurant; Aorfix; Unifit; Zenith Low Profile; Aptus; Other; Depends on Graft Configuration; Graft Configuration aorto-bi-iliac; aorto-uni-iliac right; aorto-uni-iliac left; aorto-aortic Total Procedure Time minutes
 Graft Body Diameter mm Right Limb Diameter mm Left Limb Diameter mm
 Hypogastric Intentionally Covered none; unilateral; bilateral Hypogastric Unintentionally Covered none; unilateral; bilateral Skin Prep chlorhexadine; alcohol; iodine; chlor+iodine; chlor+alcohol; iodine+alcohol; all 3
 Arterial Injury no; femoral; iliac; renal; aorta; multiple If Arterial Injury Intervention none; stent/PTA; stent-graft; open repair
 Endoleak at Completion no; attachment site(type I); branch(type II); mid graft(type III); indeterminate Conversion to Open no; yes
 If yes, Reason (If yes, also complete an Open AAA Form) unable to deploy appropriately; endoleak; rupture
 Iodinated Contrast ml Crystalloid ml
 EBL ml PRBC (in OR) units (during the procedure)
Heart Rate
 On Arrival in OR bpm Highest intra-op bpm

Vascular Quality Initiative - Endo AAA Repair

Procedure (continued)

Concomitant Procedure

Hypogastric Coil Pre-Op	<input type="checkbox"/> no; <input type="checkbox"/> unilateral; <input type="checkbox"/> bilateral	Hypogastric Coil Intra-Op	<input type="checkbox"/> no; <input type="checkbox"/> unilateral; <input type="checkbox"/> bilateral	Unplanned Graft Extension	<input type="checkbox"/> no; <input type="checkbox"/> yes
Femoral Endarterectomy	<input type="checkbox"/> no; <input type="checkbox"/> yes	Fem-Fem Bypass	<input type="checkbox"/> no; <input type="checkbox"/> yes	Ilio-Femoral Bypass	<input type="checkbox"/> no; <input type="checkbox"/> yes
Thromboembolectomy	<input type="checkbox"/> no; <input type="checkbox"/> yes	Iliac Angioplasty	<input type="checkbox"/> no; <input type="checkbox"/> yes	Iliac Stent Placement	<input type="checkbox"/> no; <input type="checkbox"/> yes
Renal PTA/Stent	<input type="checkbox"/> no; <input type="checkbox"/> yes	Other Arterial Reconstruction	<input type="checkbox"/> no; <input type="checkbox"/> planned; <input type="checkbox"/> arterial injury		

Post-Op Data

Time to Extubation	<input type="checkbox"/> in OR; <input type="checkbox"/> <12 hrs; <input type="checkbox"/> 12-24 hrs; <input type="checkbox"/> >=24 hrs	Vasopressors Req. Post-Op	<input type="checkbox"/> no; <input type="checkbox"/> yes	ICU Stay	<input type="text"/> days
Myocardial Infarction	<input type="checkbox"/> no; <input type="checkbox"/> troponin only; <input type="checkbox"/> EKG or clinical	Dysrhythmia (new)	<input type="checkbox"/> no; <input type="checkbox"/> yes	CHF	<input type="checkbox"/> no; <input type="checkbox"/> yes
Respiratory	<input type="checkbox"/> no; <input type="checkbox"/> pneumonia; <input type="checkbox"/> ventilator	Change of Renal Function	<input type="checkbox"/> none; <input type="checkbox"/> creat. increase > 0.5 mg/dl (44.2 μmol/L); <input type="checkbox"/> temp. dialysis; <input type="checkbox"/> permanent dialysis	Leg Ischemia/Embolism	<input type="checkbox"/> no; <input type="checkbox"/> yes, rx w/o surgery; <input type="checkbox"/> required surgery; <input type="checkbox"/> amputation
Bowel Ischemia	<input type="checkbox"/> no; <input type="checkbox"/> treated conservatively; <input type="checkbox"/> return to OR	Wound Complication	<input type="checkbox"/> no; <input type="checkbox"/> superficial separation/infection; <input type="checkbox"/> return to OR	Transfusion # Units PRBC	<input type="text"/> # of units
Return to OR	<input type="checkbox"/> n <input type="checkbox"/> yes	If yes, Bleeding	<input type="checkbox"/> no; <input type="checkbox"/> yes		
Stroke	<input type="checkbox"/> none; <input type="checkbox"/> minor; <input type="checkbox"/> major <input type="checkbox"/>				
Discharge Medications					
ASA	<input type="checkbox"/> no; <input type="checkbox"/> yes; <input type="checkbox"/> intolerant <input type="checkbox"/>	Statin	<input type="checkbox"/> no; <input type="checkbox"/> yes; <input type="checkbox"/> intolerant <input type="checkbox"/>		
Plavix	<input type="checkbox"/> no; <input type="checkbox"/> yes; <input type="checkbox"/> intolerant <input type="checkbox"/>	Beta Blocker	<input type="checkbox"/> no; <input type="checkbox"/> yes; <input type="checkbox"/> intolerant <input type="checkbox"/>		
Peri-Op Antibiotic Ordered					
Start <1hr Pre-op	<input type="checkbox"/> no; <input type="checkbox"/> yes; <input type="checkbox"/> no, for medical reason	Stop <24hr Post-op	<input type="checkbox"/> no; <input type="checkbox"/> yes; <input type="checkbox"/> no, for medical reason		
1st-2nd Gen Cephalosporin	<input type="checkbox"/> no; <input type="checkbox"/> yes; <input type="checkbox"/> no, for medical reason				

Vascular Quality Initiative - Endo AAA Repair Follow-Up

Last Name:
 MRN:
 Visit Code:

First Name:
 SSN:
 Surgeon:

DOB:
 Zip/Postal Code:
 Surgery Date:
 Side:

General Information

Date of Contact Contact By Office Visit Phone;
 Refused follow-up visit; Lost to follow-up Current Smoking No;
 Yes (within last 6 months)

Current Living Status Home; Nursing Home; Dead Date of Death Cause Operation Related;
 Non-Related; Unsure

Current Medications

ASA No; Yes; Intolerant Plavix No; Yes; Intolerant Coumadin No; Yes;
 Beta Blocker No; Yes; Intolerant Statin No; Yes; Intolerant Intolerant

Endo AAA Repair

Current Max AAA Diameter mm Current Endoleak No; Attachment site(type I); Branch(type II); Mid graft(type III);
 Indeterminate

Number New Interventions Conversion to Open Repair No; Yes; If yes, Date

Performed for:

Endoleak No; Yes; Sac Growth No; Yes; Migration No; Yes;
 Infection No; Yes; Symptom Rupture No; Yes;
 Other Op Related to Endo No; Yes;

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Version 1.9

ENDOVASCULAR AAA DEFINITIONS– v.01.09

If more than one response applies, select the most severe (highest number) response for each data field.

Pre-op Data

Smoking: Prior = quit \geq 1 year ago. Current = still smoking within last 12 months. Include cigarettes, pipe, or cigar.

HTN (Hypertension): Defined as \geq 140/90, either systolic or diastolic, at admission or within last 6 months, or clearly documented in medical record.

Beta-blockers: Peri-operative = started within one month before surgery or during surgery. Chronic = more than one month before surgery.

CAD Symptoms (Coronary artery disease): Stable angina = stable pattern or symptoms with or without antianginal medication.

Unstable angina = new onset, increasing frequency, lasting $>$ 20 min and/or rest angina.

CABG/PTCA: Coronary artery bypass, angioplasty, or stent.

CHF (Congestive Heart Failure): Documented CHF: Mild = SOB on exertion; Severe = SOB at rest, pulmonary edema, or pitting ankle edema. (Use 2 = mild if severity not documented.)

COPD: Not treated = COPD documented in record but not treated with medication. Meds include theophylline, aminophylline, inhalers or steroids

Dialysis: Transplant = patient has functioning kidney transplant; Dialysis = currently on hemo- or peritoneal dialysis.

Creatinine: Last available measurement taken before procedure. If multiple measurements, use highest within 30 days of surgery.

Stress Test: Includes stress EKG, stress echo, nuclear stress scans, within 2 years of surgery.

Pre-admin living: Use last living status before any current, acute hospitalization or rehab unit.

Previous Arterial:

Bypass - Any non-cardiac arterial bypass for occlusive disease

CEA - Carotid endarterectomy

Aneurysm Repair – Any known true arterial aneurysm repair (excluding cerebral or pseudo-aneurysm)

PTA/Stent – Of any non-cardiac artery

Major Amputation – Any amputation above the foot or hand

Pre-Op Medications: Taken within 36 hours of surgery. Statins include any HMG-CoA reductase inhibitor, such as Lipitor, Mevacor, Pravachol, Zocor, Lescol, etc. If Plavix is discontinued prior to surgery it should be coded = 0.

Pre-op Hemoglobin: Most recent pre-op hemoglobin within past 30 days.

Family history of AAA: First-degree relative (parents, sibling, aunt, uncle, child)

Prior Aortic Surgery: AAA = infrarenal aneurysm repair. SAAA = Suprarenal aneurysm repair. Bypass = A-1 or A-F for occlusive disease. Other = endarterectomy or other.

Ejection Fraction: Left ventricular ejection fraction (%), by Echo, nuclear scan, or cath estimate, within 6 months

Maximum AP AAA diameter: Largest AP diameter. If AP not specified, use largest diameter. If multiple imaging modalities, use most accurate in following hierarchy: CT>MRI>Echo>arteriogram.

Iliac aneurysm: Iliac diameter $>$ 1.5 cm. Use maximum diameter of largest iliac artery, common or internal.

Procedure

Urgency: Symptomatic = surgery within 24 hours of pain and/or tenderness without rupture. Ruptured = CT or angio evidence of rupture.

Unfit for open AAA repair: Endovascular repair performed because patient was considered too high risk by surgeon for open repair, i.e., mandatory endovascular repair.

Unfit for general anesthesia: Local or regional anesthesia used because patient was considered too high risk by surgeon or anesthesiologist for general anesthesia, i.e., mandatory regional/local anesthesia.

Anesthesia: Local includes IV sedation. Regional = epidural or spinal

Graft Diameter: Body size = diameter of most proximal portion of graft. Limb size = diameter of distal most graft or extension.

Hypogastric covered: Intentionally = planned prior to procedure to treat distal aneurysm extent. Unintentionally = inadvertent extension of graft not necessary to treat distal aneurysm extent.

Endoleak: Attachment site [type I] = proximal or distal attachment site leak. Branch [type II] = retrograde filling of sac via lumbar, IMA, or accessory renals.

Mid-graft [type III] = filling of sac via leak at component overlap sites or fabric tear.

Conversion to open: If yes, give reason. If yes, use Open AAA form also.

Total procedure time: From incision to closure.

Concomitant Procedure

Arterial Injury: Requiring intervention or resulting in occlusion. Use 5= multiple if $>$ 1 site.

Ruptured AAA Repairs Only

Lowest pre-intubation BP: After arrival at hospital (lowest prior to intubation)

Mental status: Normal alert and oriented; Disoriented to person, place, or time.

Abdomen explored: To evacuate hematoma but not to repair rupture (use OPEN AAA Repair form for conversion to open repair.)

Post-op Data

Time to extubation: In OR; otherwise, beginning upon departure from OR

Vasopressors required post-op: Dopamine \geq 5mcg/kg/min, or neosynephrine, levophed, epinephrine, vasopressin, or other IV vasopressor during hospitalization.

ICU stay: Any portion of 24 hours = 1 day.

Transfusion: Total of all PRBC transfusions pre-op, intra-op, and post-op during this hospitalization.

Myocardial Infarction: Troponin: by local standards for MI. EKG: new Q waves, new ST and T wave changes. Clinical: documentation of MI by clinical criteria or ECHO or other imaging modality.

Dysrhythmia: New rhythm disturbance requiring treatment with medications or cardioversion.

CHF: Pulmonary edema with requirement for monitoring or treatment in ICU.

Respiratory: Pneumonia = Lobar infiltrate on CXR and pure growth of recognized pathogen or 4+ growth of recognized pathogen in presence of mixed growth.

Ventilator = required after initially extubated (if applicable).

Change renal function: New increase in creatinine of 0.5mg/dl. New dialysis includes peritoneal dialysis, hemodialysis, and hemo-filtration. (Applies to dialysis only if not required pre-op.)

Leg ischemia/emboli: Loss of previously palpable pulses, loss of previously present Doppler signals, decrease of $>$ 0.15 in ABI, or blue toe.

Bowel ischemia: Diagnosed by colonoscopic evidence of ischemia, bloody stools in a patient who dies prior to colonoscopy or laparotomy, or presumptive diagnosis with conservative treatment.

Peri-operative Antibiotics: Use 0=no if antibiotic was not ordered. To use 1=yes, antibiotic must be ordered to be given within 1 hour prior to skin incision and must be ordered to be discontinued within 24 hrs of end of time of operation. To use 2=no for medical reason, a medical reason must be documented in the chart that antibiotic not given. **Acceptable antibiotics include:** Ampicilin/sulbactam, Aztreonam, Cefazolin, Cefmetazole, Cefotetan, Cefuroxime, Ciprofloxacin, Clindamycin, Ertapenem, Erythromycin base, Gatifloxacin, Gentamicin, Levofloxacin, Metronidazole, Moxifloxacin, Neomycin, and Vancomycin.

1st-2nd Generation Cephalosporin: (Cefazolin or Cefuroxime) Use response 1=yes, if ordered. If documented in medical record that not ordered for medical reason use 2. Otherwise use 0=no.