



## Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item 1b.1 relates to subcriterion 1b).

Brief Measure Information
<p><b>NQF #:</b> 0458</p> <p><b>Corresponding Measures:</b></p> <p><b>De.2. Measure Title:</b> Pulmonary Function Tests Before Major Anatomic Lung Resection (Pneumonectomy, Lobectomy, or Formal Segmentectomy)</p> <p><b>Co.1.1. Measure Steward:</b> The Society of Thoracic Surgeons</p> <p><b>De.3. Brief Description of Measure:</b> Percentage of thoracic surgical patients aged 18 years and older undergoing at least one pulmonary function test within 12 months prior to a major lung resection (pneumonectomy, lobectomy, or formal segmentectomy)</p> <p><b>1b.1. Developer Rationale:</b> Evaluation of lung function for patients being considered for lung cancer resection is critical to assessing suitability for resection, prediction of postoperative lung function, and assessing operative risk. Preoperative pulmonary function testing also provides a standardized measure to compare patient and treatment outcomes in order to provide continuing quality improvement.</p>
<p><b>S.4. Numerator Statement:</b> Number of thoracic surgical patients aged 18 years and older undergoing at least one pulmonary function test within 12 months prior to a major anatomic lung resection.</p> <p><b>S.7. Denominator Statement:</b> Number of patients undergoing a major anatomic lung resection</p> <p><b>S.10. Denominator Exclusions:</b> Patients who are unable to perform pulmonary function testing (tracheostomy, patient inability to cooperate with pulmonary function test) or those with urgent/emergent need of lung resection (lung abscess, massive hemoptysis, bronchopleural fistula, etc).</p>
<p><b>De.1. Measure Type:</b> Process</p> <p><b>S.23. Data Source:</b> Registry Data</p> <p><b>S.26. Level of Analysis:</b> Clinician : Group/Practice, Facility</p>
<p><b>IF Endorsement Maintenance – Original Endorsement Date:</b> Jul 31, 2008 <b>Most Recent Endorsement Date:</b> Jul 31, 2008</p>
<p><b>IF this measure is included in a composite, NQF Composite#/title:</b></p> <p><b>IF this measure is paired/grouped, NQF#/title:</b></p> <p><b>De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results?</b> N/A</p>

1. Evidence, Performance Gap, Priority – Importance to Measure and Report
<p>Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. <i>Measures must be judged to meet all subcriteria to pass this criterion and be evaluated against the remaining criteria.</i></p>
<p><b>1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form</b></p> <p>1a._Evidence_-_0458_Pulmonary_Function_Tests_Before_Major_Anatomic_Lung_Resection.docx</p>
<p><b>1b. Performance Gap</b></p>

#0458 Pulmonary Function Tests Before Major Anatomic Lung Resection (Pneumonectomy, Lobectomy, or Formal Segmentectomy), Last Updated: May 08, 2017

Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:

- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- disparities in care across population groups.

**1b.1. Briefly explain the rationale for this measure** (e.g., the benefits or improvements in quality envisioned by use of this measure)

Evaluation of lung function for patients being considered for lung cancer resection is critical to assessing suitability for resection, prediction of postoperative lung function, and assessing operative risk. Preoperative pulmonary function testing also provides a standardized measure to compare patient and treatment outcomes in order to provide continuing quality improvement.

**1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis.** (This is required for endorsement maintenance. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included). This information also will be used to address the subcriterion on improvement (4b.1) under Usability and Use.

Please see Appendix

**1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.**

N/A

**1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability.** (This is required for endorsement maintenance. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.) This information also will be used to address the subcriterion on improvement (4b.1) under Usability and Use.

Even though the measure is used to measure participant-level results, we understand it is of interest to see whether disparity exists between race and sex groups. We provide below the participant level distribution of the measure by race, ethnicity and sex.

Note that two time periods have one year overlap. We chose to report these time periods because in the five years from 2008 to 2013, the definition of the measure denominator was consistent in the database. The results are more comparable than if we included 2007 data.

Appropriate distribution of participant-specific observed rate in July 2010 - June 2013 and July 2008 - June 2011, by sex

Distribution	Male July 08 - June 11		Male July 10 - June 13		Female July 08 - June 11		Female July 10 - June 13	
# Participant	183	218	183	216				
# Operations	10091	13242	10838	14779				
Mean	0.92	0.94	0.91	0.94				
STD	0.12	0.10	0.15	0.11				
IQR	0.11	0.072	0.11	0.066				
0%	0.22	0.27	0.00	0.00				
10%	0.77	0.83	0.77	0.83				
20%	0.86	0.91	0.86	0.91				
30%	0.91	0.94	0.91	0.95				
40%	0.94	0.96	0.93	0.96				
50%	0.96	0.97	0.95	0.97				
60%	0.97	0.99	0.97	0.99				
70%	0.99	1.00	0.99	1.00				
80%	1.00	1.00	1.00	1.00				
90%	1.00	1.00	1.00	1.00				
100%	1.00	1.00	1.00	1.00				

Appropriate distribution of participant-specific observed rate in July 2010 - June 2013 and July 2008 - June 2011, by race

Distribution	White July 08 - June 11		White July 10 - June 13		Black July 08 - June 11		Black July 10 - June 13		Other	
July 08 - June 11	Other July 10 - June 13									
# Participant	185	217	151	178	107	147				
# Operations	18345	24549	1849	2446	735	1003				
Mean	0.91	0.94	0.90	0.93	0.92	0.90				

#0458 Pulmonary Function Tests Before Major Anatomic Lung Resection (Pneumonectomy, Lobectomy, or Formal Segmentectomy), Last Updated: May 08, 2017

STD	0.13	0.10	0.17	0.17	0.22	0.24
IQR	0.11	0.07	0.12	0.058	0.00	0.048
0%	0.00	0.35	0.00	0.00	0.00	0.00
10%	0.77	0.85	0.67	0.80	0.78	0.67
20%	0.86	0.91	0.83	0.90	0.93	0.92
30%	0.91	0.94	0.89	0.96	1.00	1.00
40%	0.94	0.96	0.95	1.00	1.00	1.00
50%	0.96	0.97	1.00	1.00	1.00	1.00
60%	0.97	0.98	1.00	1.00	1.00	1.00
70%	0.99	1.00	1.00	1.00	1.00	1.00
80%	1.00	1.00	1.00	1.00	1.00	1.00
90%	1.00	1.00	1.00	1.00	1.00	1.00
100%	1.00	1.00	1.00	1.00	1.00	1.00

Appropriate distribution of participant-specific observed rate in July 2010 - June 2013 and July 2008 - June 2011, by ethnicity  
 Distribution      Hispanic ethnicity July 08 - June 11    Hispanic ethnicity July 10 - June 13    Non-hispanic ethnicity July 08 - June 11  
    Non-hispanic ethnicity July 10 - June 13

# Participant	106	130	185	218
# Operations	440	709	20489	27330
Mean	0.90	0.93	0.91	0.94
STD	0.21	0.17	0.13	0.097
IQR	0.14	0.00	0.098	0.069
0%	0.00	0.00	0.00	0.30
10%	0.71	0.74	0.78	0.85
20%	0.80	0.90	0.87	0.91
30%	1.00	1.00	0.91	0.94
40%	1.00	1.00	0.94	0.96
50%	1.00	1.00	0.96	0.97
60%	1.00	1.00	0.97	0.98
70%	1.00	1.00	0.98	0.99
80%	1.00	1.00	1.00	1.00
90%	1.00	1.00	1.00	1.00
100%	1.00	1.00	1.00	1.00

**1b.5. If no or limited data on disparities from the measure as specified is reported in 1b4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations.**

N/A

**1c. High Priority** (previously referred to as High Impact)

The measure addresses:

- a specific national health goal/priority identified by DHHS or the National Priorities Partnership convened by NQF; OR
- a demonstrated high-priority (high-impact) aspect of healthcare (e.g., affects large numbers of patients and/or has a substantial impact for a smaller population; leading cause of morbidity/mortality; high resource use (current and/or future); severity of illness; and severity of patient/societal consequences of poor quality).

**1c.1. Demonstrated high priority aspect of healthcare**

Frequently performed procedure, Severity of illness

**1c.2. If Other:**

**1c.3. Provide epidemiologic or resource use data that demonstrates the measure addresses a high priority aspect of healthcare.**

List citations in 1c.4.

"Lung function tests were considered to be appropriate for patients undergoing spinal surgery, for ASA grade 3 patients having thoracic surgery, for patients having thoracotomies and for surgery in which the chest is opened in patients with respiratory disease, eg esophagectomy, lung excision or resection" [1].

In patients with lung cancer being considered for surgery, it is recommended that both forced expiratory volume in 1 second (FEV1) and diffusing capacity (DLCO) be measured in all patients and that both predicted postoperative (PPO) FEV1 and PPO DLCO are calculated (Grade 1B). In patients with lung cancer being considered for surgery, if both PPO FEV1 and PPO DLCO are >60% predicted, no further tests are recommended (Grade 1C). Values of both PPO FEV1 and PPO DLCO are >60% indicate low risk for perioperative death and cardiopulmonary complications following resection including pneumonectomy. In patients with lung cancer being considered for surgery, with either a PPO FEV1 <30% predicted or a PPO DLCO <30% predicted performance of a formal cardiopulmonary exercise test (CPET) with measurement of maximal oxygen consumption (Vo2max) is recommended (Grade 1B). Remark: Either a PPO FEV1 <30% predicted or a PPO DLCO <30% predicted indicate an increased risk for perioperative death and cardiopulmonary complications with anatomic lung resection.

#### 1c.4. Citations for data demonstrating high priority provided in 1a.3

1. Beckles MA, Spiro SG, Colice GL, Rudd RM. The physiologic evaluation of patients with lung cancer being considered for resectional surgery. Chest 2003 Jan;123(1 Suppl):105S-14S.
2. Preoperative tests: The use of routine preoperative tests for elective surgery. National Institute for Clinical Excellence, June 2003. Available at: <http://www.nice.org.uk/page.aspx?o=56818>
3. Brunelli A, Kim AW, Berger KI, Addrizzo-Harris D. Physiologic evaluation of the patient with lung cancer being considered for resectional surgery: Diagnosis and management of lung cancer, 3rd ed: American College of Chest Physicians evidence-based clinical practice guidelines. Chest. 2013 May;143(5 Suppl):e166S-90S
4. Brunelli A and Rocco G. Spirometry: predicting risk and outcome. ThoracSurgclin 2008; 18:1-8
5. Brunelli A and Fianchini A. Predicted postoperative FEV1 and complications in lung resection candidates. Chest. 1997; 111(4):1145-6.

1c.5. If a PRO-PM (e.g. HRQoL/functional status, symptom/burden, experience with care, health-related behaviors), provide evidence that the target population values the measured PRO and finds it meaningful. (Describe how and from whom their input was obtained.)

N/A

## 2. Reliability and Validity—Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. **Measures must be judged to meet the subcriteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.**

**2a.1. Specifications** The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

**De.5. Subject/Topic Area** (check all the areas that apply):

Cancer, Cancer : Lung, Esophageal, Respiratory, Surgery, Surgery : Thoracic Surgery

**De.6. Non-Condition Specific** (check all the areas that apply):

Safety

**S.1. Measure-specific Web Page** (Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)

[http://www.sts.org/sites/default/files/documents/STSThoracicAnnotatedDataCollectionFormV2\\_2\\_MajorProc\\_1%202012\\_0.pdf](http://www.sts.org/sites/default/files/documents/STSThoracicAnnotatedDataCollectionFormV2_2_MajorProc_1%202012_0.pdf) ;  
[http://www.sts.org/sites/default/files/documents/STSThoracicDataSpecsV2\\_2.pdf](http://www.sts.org/sites/default/files/documents/STSThoracicDataSpecsV2_2.pdf)

**S.2a. If this is an eMeasure**, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)

This is not an eMeasure Attachment:

**S.2b. Data Dictionary, Code Table, or Value Sets** (and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)

No data dictionary Attachment:

**S.3. For endorsement maintenance**, please briefly describe any changes to the measure specifications since last endorsement date and explain the reasons.

Denominator time window changed to three years due to sample size.

**S.4. Numerator Statement** (Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome)

IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm.

Number of thoracic surgical patients aged 18 years and older undergoing at least one pulmonary function test within 12 months prior to a major anatomic lung resection.

**S.5. Time Period for Data** (What is the time period in which data will be aggregated for the measure, e.g., 12 mo, 3 years, look back to August for flu vaccination? Note if there are different time periods for the numerator and denominator.)

Numerator – Performed within 12 months prior to the primary surgical procedure

Denominator – 36 months

**S.6. Numerator Details** (All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm.

Number of patients undergoing major anatomic lung resection who undergo at least one pulmonary function test; PFT (STS General Thoracic Surgery Database, Version 2.2, sequence number 760) is marked as "Yes"

**S.7. Denominator Statement** (Brief, narrative description of the target population being measured)

Number of patients undergoing a major anatomic lung resection

**S.8. Target Population Category** (Check all the populations for which the measure is specified and tested if any):

Elderly

**S.9. Denominator Details** (All information required to identify and calculate the target population/denominator such as definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

1. Primary procedure is one of the following CPT codes:

Removal of lung, total pneumonectomy; (32440)

Removal of lung, sleeve (carinal) pneumonectomy (32442)

Removal of lung, total pneumonectomy; extrapleural (32445)

Removal of lung, single lobe (lobectomy) (32480)

Removal of lung, two lobes (bilobectomy) (32482)

Removal of lung, single segment (segmentectomy) (32484)

Removal of lung, sleeve lobectomy (32486)

Removal of lung, completion pneumonectomy (32488)

Resection of apical lung tumor (e.g., Pancoast tumor), including chest wall resection, without chest wall reconstruction(s) (32503)

Resection of apical lung tumor (e.g., Pancoast tumor), including chest wall resection, with chest wall reconstruction (32504)

Thoracoscopy, surgical; with lobectomy (32663)

Thoracoscopy with removal of a single lung segment (segmentectomy) (32669)

Thoracoscopy with removal of two lobes (bilobectomy) (32670)

Thoracoscopy with removal of lung, pneumonectomy (32671)

2. Non-missing data on whether or not PFT was done

3. Status of Operation (Status - STS General Thoracic Surgery Database, Version 2.2, sequence number 1420) is marked as "Elective"

4. Only analyze the first operation of the hospitalization meeting criteria 1-3

**S.10. Denominator Exclusions** (Brief narrative description of exclusions from the target population)

Patients who are unable to perform pulmonary function testing (tracheostomy, patient inability to cooperate with pulmonary function test) or those with urgent/emergent need of lung resection (lung abscess, massive hemoptysis, bronchopleural fistula, etc).

**S.11. Denominator Exclusion Details** (All information required to identify and calculate exclusions from the denominator such as definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

Pulmonary function tests performed (PFT - STS General Thoracic Surgery Database, Version 2.2, sequence number 760) is marked as "No" and reason PFT not performed (PFT NotPerReas – STS GTSD, Version 2.2, sequence number 770) is marked "tracheostomy or ventilator," "patient unable to perform," or "urgent or emergent status."

**S.12. Stratification Details/Variables** (All information required to stratify the measure results including the stratification variables, definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b)

N/A

**S.13. Risk Adjustment Type** (Select type. Provide specifications for risk stratification in S.12 and for statistical model in S.14-15)

No risk adjustment or risk stratification

If other:

**S.14. Identify the statistical risk model method and variables** (Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development and testing should be addressed with measure testing under Scientific Acceptability)

N/A

**S.15. Detailed risk model specifications** (must be in attached data dictionary/code list Excel or csv file. Also indicate if available at measure-specific URL identified in S.1.)

Note: Risk model details (including coefficients, equations, codes with descriptors, definitions), should be provided on a separate worksheet in the suggested format in the Excel or csv file with data dictionary/code lists at S.2b.

**S.15a. Detailed risk model specifications** (if not provided in excel or csv file at S.2b)

**S.16. Type of score:**

Rate/proportion

If other:

**S.17. Interpretation of Score** (Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)

Better quality = Higher score

**S.18. Calculation Algorithm/Measure Logic** (Describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; aggregating data; risk adjustment; etc.)

Please refer to numerator and denominator sections for detailed information.

**S.19. Calculation Algorithm/Measure Logic Diagram URL or Attachment** (You also may provide a diagram of the Calculation Algorithm/Measure Logic described above at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

No diagram provided
<p><b>S.20. Sampling</b> (If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)          IF a PRO-PM, identify whether (and how) proxy responses are allowed.  <a href="#">N/A</a></p> <p><b>S.21. Survey/Patient-reported data</b> (If measure is based on a survey, provide instructions for conducting the survey and guidance on minimum response rate.)          IF a PRO-PM, specify calculation of response rates to be reported with performance measure results.  <a href="#">N/A</a></p> <p><b>S.22. Missing data</b> (specify how missing data are handled, e.g., imputation, delete case.)          Required for Composites and PRO-PMs.  <a href="#">Records submitted during the harvest with any of the required fields missing are not included in the analysis dataset</a></p>
<p><b>S.23. Data Source</b> (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).          If other, please describe in S.24.  <a href="#">Registry Data</a></p> <p><b>S.24. Data Source or Collection Instrument</b> (Identify the specific data source/data collection instrument e.g. name of database, clinical registry, collection instrument, etc.)          IF a PRO-PM, identify the specific PROM(s); and standard methods, modes, and languages of administration.  <a href="#">STS General Thoracic Surgery Database – Version 2.2</a></p> <p><b>S.25. Data Source or Collection Instrument</b> (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)  <a href="#">Available at measure-specific web page URL identified in S.1</a></p> <p><b>S.26. Level of Analysis</b> (Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)  <a href="#">Clinician : Group/Practice, Facility</a></p> <p><b>S.27. Care Setting</b> (Check ONLY the settings for which the measure is SPECIFIED AND TESTED)  <a href="#">Inpatient/Hospital</a>          If other:</p>
<p><b>S.28. COMPOSITE Performance Measure</b> - Additional Specifications (Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)  <a href="#">N/A</a></p>
<p><b>2a. Reliability</b> – See attached Measure Testing Submission Form</p> <p><b>2b. Validity</b> – See attached Measure Testing Submission Form</p> <p><a href="#">2.1_Testing_-_0458_Pulmonary_Function_Tests_Before_Major_Anatomic_Lung_Resection.docx</a></p>

<b>3. Feasibility</b>
Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.
<p><b>3a. Byproduct of Care Processes</b>          For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).</p> <p><b>3a.1. Data Elements Generated as Byproduct of Care Processes.</b>  <a href="#">Generated or collected by and used by healthcare personnel during the provision of care (e.g., blood pressure, lab value, diagnosis,</a></p>



depression score), Abstracted from a record by someone other than person obtaining original information (e.g., chart abstraction for quality measure or registry)

If other:

### 3b. Electronic Sources

The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.

**3b.1. To what extent are the specified data elements available electronically in defined fields?** (i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields)

Some data elements are in defined fields in electronic sources

**3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources.**

The STS General Thoracic Surgery Database has more than 240 participants, and local availability of data elements in electronic format will vary across institutions. Some institutions may have full EHR capability while others may have partial, or no availability. However, all data elements from participating institutions are submitted to STS General Thoracic Surgery Database in electronic format following a standard set of data specifications. The majority of participating institutions obtain data entry software products that are certified for the purposes of collecting STS General Thoracic Surgery Database data elements.

**3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL.**

No feasibility assessment Attachment:

### 3c. Data Collection Strategy

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

**3c.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 and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.**

**IF a PRO-PM, consider implications for both individuals providing PROM data (patients, service recipients, respondents) and those whose performance is being measured.**

Denominator time window changed to three years due to sample size. Three years is the standard time window used to analyze other measures in the General Thoracic Surgery Database

**3c.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm).**

Data Collection:

There are no direct costs to collect the data for this measure. Costs to develop the measure included volunteer cardiothoracic surgeon time, STS staff time, and Duke Clinical Research Institute statistician and project management time.

Other fees:

The participation fee for the General Thoracic Surgery Database is on a per surgeon basis. For each surgeon joining that is an STS member, the fee is \$550. For each surgeon joining that is not an STS member, the fee is \$700.

## 4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

### 4a. Accountability and Transparency



Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

#### 4.1. Current and Planned Use

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

Planned	Current Use (for current use provide URL)
Public Reporting	Quality Improvement (Internal to the specific organization) STS General Thoracic Surgery Database <a href="http://www.sts.org/sts-national-database/database-managers/general-thoracic-surgery-database">http://www.sts.org/sts-national-database/database-managers/general-thoracic-surgery-database</a>

#### 4a.1. For each CURRENT use, checked above, provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included

Please see above. Geographic area and number and percentage of accountable entities and patients included are addressed in other sections of the form

#### 4a.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?)

STS plans to publicly report general thoracic data in the future

#### 4a.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement. (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)

STS plans to publicly report general thoracic data in the future; likely to take place in 2015.

#### 4b. Improvement

Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

#### 4b.1. Progress on Improvement. (Not required for initial endorsement unless available.)

Performance results on this measure (current and over time) should be provided in 1b.2 and 1b.4. Discuss:

- Progress (trends in performance results, number and percentage of people receiving high-quality healthcare)
- Geographic area and number and percentage of accountable entities and patients included

Please see 1b.2 and 1b.4.

July 2008 to June 2011

id	Midwest	Northeast	South	West
# Participant	40	50	60	35
% Participant	21.6%	27.0%	32.4%	18.9%
# Operation	5135	5970	6664	3160
% Operation	24.5%	28.5%	31.8%	15.1%

July 2010 to June 2013

Midwest Northeast South West

#0458 Pulmonary Function Tests Before Major Anatomic Lung Resection (Pneumonectomy, Lobectomy, or Formal Segmentectomy), Last Updated: May 08, 2017

# Participant	45	58	77	38
% Participant	20.6%	26.6%	35.3%	17.4%
# Operation	6412	8085	9625	3917
% Operation	22.9%	28.8%	34.3%	14.0%

**4b.2. If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.**

N/A

**4c. Unintended Consequences**

The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

**4c.1. Were any unintended negative consequences to individuals or populations identified during testing; OR has evidence of unintended negative consequences to individuals or populations been reported since implementation? If so, identify the negative unintended consequences and describe how benefits outweigh them or actions taken to mitigate them.**

We are not aware of any unintended negative consequences

## 5. Comparison to Related or Competing Measures

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure.

**5. Relation to Other NQF-endorsed Measures**

Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.

No

**5.1a. List of related or competing measures (selected from NQF-endorsed measures)**

**5.1b. If related or competing measures are not NQF endorsed please indicate measure title and steward.**

**5a. Harmonization**

The measure specifications are harmonized with related measures;

**OR**

The differences in specifications are justified

**5a.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):**

**Are the measure specifications completely harmonized?**

**5a.2. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.**

**5b. Competing Measures**

The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);

**OR**

Multiple measures are justified.

**5b.1. If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s):**  
**Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)**  
[N/A](#)

## Appendix

**A.1 Supplemental materials may be provided in an appendix.** All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.  
[Attachment](#) **Attachment:** [0458\\_Pulmonary\\_Function\\_Tests\\_Appendix\\_-\\_1b.2.pdf](#)

## Contact Information

**Co.1 Measure Steward (Intellectual Property Owner):** [The Society of Thoracic Surgeons](#)  
**Co.2 Point of Contact:** [Mark, Antman, mantman@sts.org, 312-202-5856-](#)  
**Co.3 Measure Developer if different from Measure Steward:** [The Society of Thoracic Surgeons](#)  
**Co.4 Point of Contact:** [Jane, Han, jhan@sts.org, 312-202-5856-](#)

## Additional Information

**Ad.1 Workgroup/Expert Panel involved in measure development**  
**Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**  
[The STS Quality Measurement Task Force and General Thoracic Surgery Database Task Force are responsible for measure development. Rosters are available upon request.](#)

## Measure Developer/Steward Updates and Ongoing Maintenance

**Ad.2 Year the measure was first released:** [2008](#)  
**Ad.3 Month and Year of most recent revision:** [03, 2014](#)  
**Ad.4 What is your frequency for review/update of this measure?** [Annually](#)  
**Ad.5 When is the next scheduled review/update for this measure?** [2015](#)

**Ad.6 Copyright statement:**

**Ad.7 Disclaimers:**

**Ad.8 Additional Information/Comments:**