



## 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 sub criterion 1b).

### Brief Measure Information

**NQF #:** 2726

**Corresponding Measures:**

**De.2. Measure Title:** Prevention of Central Venous Catheter (CVC)-Related Bloodstream Infections

**Co.1.1. Measure Steward:** American Society of Anesthesiologists

**De.3. Brief Description of Measure:** Percentage of patients, regardless of age, who undergo central venous catheter (CVC) insertion for whom CVC was inserted with all elements of maximal sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques followed

**1b.1. Developer Rationale:** Hospital-acquired bloodstream infections are a common complication that leads to increased costs and mortality. It is estimated that approximately 51% of hospital-acquired bloodstream infections occur in an intensive care unit (ICU), with the presence of a central venous catheter being the largest risk factor for the development of a bloodstream infection in the hospital. Catheter-related bloodstream infections (CRBSIs) commonly occur when the catheter becomes contaminated by microbes on the skin during insertion. The use of maximal sterile barriers, including sterile gloves, long-sleeved sterile gown, mask, cap, and full-sized sterile drape, during insertion of the catheter has been shown to cost effectively reduce CRBSI rates compared to the use of less stringent precautions.

A 2002 survey found that only 28% of ICUs have written policies requiring all five components of maximum sterile-barrier (MSB) precautions during central venous catheter insertion and 20% of ICUs had no written policies addressing sterile barrier precautions. Similarly, a 2005 survey of physicians showed that only 28% used all components of MSB precautions. This survey showed that low usage was driven by the belief that MSB precautions would not have a significant impact on infection rates. One study demonstrated that a one-day course on proper sterile techniques during catheter insertion for physicians resulted in increased use of MSB precautions and reduced CRBSI rates.

**S.4. Numerator Statement:** Patients for whom central venous catheter (CVC) was inserted with all elements of maximal sterile barrier technique\*, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques\*\* followed

**Definitions:**

\*Maximal sterile barrier technique includes ALL of the following elements:

- cap
- mask
- sterile gown
- sterile gloves
- sterile full body drape

\*\* Sterile ultrasound techniques require sterile gel and sterile probe covers

**S.6. Denominator Statement:** All patients, regardless of age, who undergo CVC insertion

**S.8. Denominator Exclusions:** None

The measure includes a denominator exception as indicated by reporting 6030F-1P for the numerator: Documentation of medical reason(s) for not following all elements of maximal sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques during CVC insertion (including increased risk of harm to patient if adherence to aseptic technique would cause delay in CVC insertion)

**De.1. Measure Type:** Process

S.17. Data Source: [Registry Data](#)  
S.20. Level of Analysis: Clinician : Group/Practice, Clinician : Individual

IF Endorsement Maintenance – Original Endorsement Date: [Dec 10, 2015](#) Most Recent Endorsement Date: [Oct 23, 2019](#)

IF this measure is included in a composite, NQF Composite#/title:

IF this measure is paired/grouped, NQF#/title:

De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results? [NA](#)

## 1. Evidence, Performance Gap, Priority – Importance to Measure and Report

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. **Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.**

1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form  
[2726\\_evidence\\_attachment.docx](#)

1a.1 For Maintenance of Endorsement: Is there new evidence about the measure since the last update/submission?

Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. Please use the most current version of the evidence attachment (v7.1). Please use red font to indicate updated evidence.

[No](#)

### 1b. Performance Gap

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., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)

If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the composite questions.

Hospital-acquired bloodstream infections are a common complication that leads to increased costs and mortality. It is estimated that approximately 51% of hospital-acquired bloodstream infections occur in an intensive care unit (ICU), with the presence of a central venous catheter being the largest risk factor for the development of a bloodstream infection in the hospital. Catheter-related bloodstream infections (CRBSIs) commonly occur when the catheter becomes contaminated by microbes on the skin during insertion. The use of maximal sterile barriers, including sterile gloves, long-sleeved sterile gown, mask, cap, and full-sized sterile drape, during insertion of the catheter has been shown to cost effectively reduce CRBSI rates compared to the use of less stringent precautions.

A 2002 survey found that only 28% of ICUs have written policies requiring all five components of maximum sterile-barrier (MSB) precautions during central venous catheter insertion and 20% of ICUs had no written policies addressing sterile barrier precautions. Similarly, a 2005 survey of physicians showed that only 28% used all components of MSB precautions. This survey showed that low usage was driven by the belief that MSB precautions would not have a significant impact on infection rates. One study demonstrated that a one-day course on proper sterile techniques during catheter insertion for physicians resulted in increased use of MSB precautions and reduced CRBSI rates.

1b.2. Provide performance scores on the measure as specified (**current and over time**) at the specified level of analysis. (*This is required for maintenance of endorsement. 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 include.*) This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.

2016: MIPS Historical Benchmarks using 2016 Performance Data  
Average Performance Rate- 93.3%

Standard Deviation- 15.6%

Performance Deciles:

3: 91.85-96.14

4: 96.15-98.88

5: 98.89-99.99

6: --

7: --

8: --

9: --

10: 100.00

2017: MIPS Historical Benchmarks using 2017 Performance Data

# Measured Entities: 49, 715

Average Performance Rate- 94.2%

Standard Deviation- 15.7%

Performance Deciles:

3: 95.67-99.08

4: 99.09-99.99

5: --

6: --

7: --

8: --

9: --

10: 100.00

2018:Preliminary AQI NACOR Performance Data for MIPS

# of Measured Entities: 8,465

Average Performance Rate: 97.08%

Standard Deviation: 15.75%

**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.**

Not Applicable

**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 maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.) For measures that show high levels of performance, i.e., "topped out", disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.***

Calendar Year 2016 AQI NACOR Cases by Age and Gender

Percentage of Total Cases by Patient Age:

<15 years: 6.3% (42.8% female, 57.2% male)

15-24 years: 6.4% (66.8% female, 33.2% male)

25-44 years: 21.4% (73.4% female, 26.6% male)

45-64 years: 33.8% (55.4% female, 44.6% male)

65-74 years: 19.2% (53.4% female, 46.6% male)

75+ years: 12.9% (54.2% female, 45.8% male)

Calendar Year 2017 AQI NACOR Cases by Age and Gender

Percentage of Total Cases by Patient Age:

<15 years: 5.6% (43.0% female, 57.0% male)

15-24 years: 5.9% (67.8% female, 32.2% male)

25-44 years: 21.2% (73.3% female, 26.7% male)

45-64 years: 33.8% (55.0% female, 45.0% male)  
 65-74 years: 20.1% (53.2% female, 46.8% male)  
 75+ years: 12.3% (53.8% female, 46.2% male)

**1b.5. If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in 1b.4**  
 Disparities data provided in 1b.4

## 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 sub criteria 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 : Bladder, Cancer : Breast, Cancer : Colorectal, Cancer : Gynecologic, Cancer : Hematologic, Cancer : Liver, Cancer : Lung, Esophageal, Cancer : Prostate, Cardiovascular, Cardiovascular : Congestive Heart Failure, Gastrointestinal (GI), Musculoskeletal : Falls and Traumatic Injury, Musculoskeletal : Joint Surgery, Neurology : Brain Injury, Respiratory, Surgery, Surgery : Cardiac Surgery, Surgery : General Surgery, Surgery : Perioperative and Anesthesia, Surgery : Thoracic Surgery, Surgery : Vascular Surgery

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

Safety, Safety : Complications, Safety : Healthcare Associated Infections

**De.7. Target Population Category** (Check all the populations for which the measure is specified and tested if any):

Children, Elderly, Populations at Risk, Populations at Risk : Individuals with multiple chronic conditions, Populations at Risk : Veterans, Women

**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.)

[https://qpp.cms.gov/docs/QPP\\_quality\\_measure\\_specifications/CQM-Measures/2019\\_Measure\\_076\\_MIPSCQM.pdf](https://qpp.cms.gov/docs/QPP_quality_measure_specifications/CQM-Measures/2019_Measure_076_MIPSCQM.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.2c. Is this an instrument-based measure** (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

[No, this is not an instrument-based measure](#) Attachment:

**S.2d. Is this an instrument-based measure** (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

[Not an instrument-based measure](#)

**S.3.1. For maintenance of endorsement:** Are there changes to the specifications since the last updates/submission. If yes, update

the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.

No

**S.3.2. For maintenance of endorsement**, please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.

There have been no changes to the measure specifications since the previous measure update.

**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) DO NOT include the rationale for the measure.

IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Patients for whom central venous catheter (CVC) was inserted with all elements of maximal sterile barrier technique\*, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques\*\* followed

Definitions:

\*Maximal sterile barrier technique includes ALL of the following elements:

- cap
- mask
- sterile gown
- sterile gloves
- sterile full body drape

\*\* Sterile ultrasound techniques require sterile gel and sterile probe covers

**S.5. 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, time period for data collection, 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 (S.14).

Performance Met: CPT® II Code: 6030F- All elements of maximal sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques followed

Denominator Exception: CPT® II Code: 6030F-1P- Documentation of medical reason(s) for not following all elements of maximal sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques during CVC insertion (including increased risk of harm to patient if adherence to aseptic technique would cause delay in CVC insertion).

Performance Not Met: CPT® II Code: 6030F-8P- All elements of maximal sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques not followed, reason not otherwise specified.

**S.6. Denominator Statement** (Brief, narrative description of the target population being measured)

All patients, regardless of age, who undergo CVC insertion

**S.7. Denominator Details** (All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, 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 target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Patient procedure during the performance period (CPT): 36555, 36556, 36557, 36558, 36560, 36561, 36563, 36565, 36566, 36568, 36569, 36570, 36571, 36572, 36573, 36578, 36580, 36581, 36582, 36583, 36584, 36585, 93503

**S.8. Denominator Exclusions** (Brief narrative description of exclusions from the target population)

None

The measure includes a denominator exception as indicated by reporting 6030F-1P for the numerator: Documentation of medical reason(s) for not following all elements of maximal sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques during CVC insertion (including increased risk of harm to patient if adherence to aseptic technique would cause delay in CVC insertion)

**S.9. Denominator Exclusion Details** (All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, 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.)

NA

The measure includes denominator exception as indicated by reporting 6030F-1P for the numerator: Documentation of medical reason(s) for not following all elements of maximal sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques during CVC insertion (including increased risk of harm to patient if adherence to aseptic technique would cause delay in CVC insertion)

**S.10. Stratification Information** (Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – 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.)

The measure is not stratified.

**S.11. Risk Adjustment Type** (Select type. Provide specifications for risk stratification in measure testing attachment)

No risk adjustment or risk stratification

If other:

**S.12. Type of score:**

Rate/proportion

If other:

**S.13. 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.14. Calculation Algorithm/Measure Logic** (Diagram or 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; time period for data, aggregating data; risk adjustment; etc.)

1. Start with Denominator

2. Check Procedure Performed:

a. If Procedure as Listed in the Denominator equals No, do not include in Eligible Population. Stop Processing.

b. If Procedure as Listed in the Denominator equals Yes, include in the Eligible Population.

3. Denominator Population:

a. Denominator Population is all Eligible Procedures in the Denominator.

4. Start Numerator

5. Check All Elements of Maximal Sterile Barrier Technique Followed:

a. If All Elements of Maximal Sterile Barrier Technique Followed equals Yes, include in Data Completeness Met and Performance Met.

b. If All Elements of Maximal Sterile Barrier Technique Followed equals No, proceed to check Documentation of Medical Reasons for All Elements of Maximal Sterile Barrier Technique Not Followed.

6. Check Documentation of Medical Reasons for All Elements of Maximal Sterile Barrier Technique Not Followed:

a. If Documentation of Medical Reasons for All Elements of Maximal Sterile Barrier Technique Not Followed equals Yes, include in Data Completeness Met and Denominator Exception.

b. If Documentation of Medical Reasons for All Elements of Maximal Sterile Barrier Technique Not Followed equals No, proceed to check All Elements of Maximal Sterile Barrier Technique Not Followed, Reason Not Otherwise Specified.

7. Check All Elements of Maximal Sterile Barrier Technique Not Followed, Reason Not Otherwise Specified:

a. If All Elements of Maximal Sterile Barrier Technique Not Followed, Reason Not Otherwise Specified equals Yes, include in the Data

Completeness Met and Performance Not Met.

b. If All Elements of Maximal Sterile Barrier Technique Not Followed, Reason Not Otherwise Specified equals No, proceed to check Data Completeness Not Met.

8. Check Data Completeness Not Met:

a. If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted.

**S.15. Sampling** (If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)

IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed.

The measure is not based on a sample.

**S.16. Survey/Patient-reported data** (If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)

Specify calculation of response rates to be reported with performance measure results.

The measure is not based on a survey.

**S.17. Data Source** (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.18.

Registry Data

**S.18. Data Source or Collection Instrument** (Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)

IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration.

Measure data was collected from the Anesthesia Quality Institute (AQI) National Anesthesia Clinical Outcomes Registry (NACOR).

**S.19. Data Source or Collection Instrument** (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

No data collection instrument provided

**S.20. Level of Analysis** (Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)

Clinician : Group/Practice, Clinician : Individual

**S.21. Care Setting** (Check ONLY the settings for which the measure is SPECIFIED AND TESTED)

Inpatient/Hospital

If other:

**S.22. COMPOSITE Performance Measure** - Additional Specifications (Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)

The measure is not a composite performance measure

## 2. Validity – See attached Measure Testing Submission Form

2726\_testing\_attachment\_2019.04.09\_addition.docx

### 2.1 For maintenance of endorsement

Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

No

### 2.2 For maintenance of endorsement

Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

Yes

### 2.3 For maintenance of endorsement



*Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes social risk factors is not prohibited at present. Please update sections 1.8, 2a2, 2b1,2b4.3 and 2b5 in the Testing attachment and S.140 and S.11 in the online submission form. NOTE: These sections must be updated even if social risk factors are not included in the risk-adjustment strategy. You MUST use the most current version of the Testing Attachment (v7.1) -- older versions of the form will not have all required questions.*

No - This measure is not risk-adjusted

### 3. Feasibility

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.

#### 3a. Byproduct of Care Processes

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

##### 3a.1. Data Elements Generated as Byproduct of Care Processes.

Generated or collected by and used by healthcare personnel during the provision of care (e.g., blood pressure, lab value, diagnosis, depression score), Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims), 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)** Update this field for **maintenance of endorsement**.

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.** For **maintenance of endorsement**, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).

Electronic documentation of compliance with the maximal sterile barrier technique is not universally available in EHRs. Instead, the use of CPT II Codes to capture the process of care is needed in the interim to collect this measure. For those providers who use EHRs, components of the maximal barrier precautions for CVC placement are regularly included in those electronic systems. Therefore, ASA believes that this measure will easily transition into electronic health record capture in the future.

**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. Please also complete and attach the NQF Feasibility Score Card.**

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. Required for maintenance of endorsement.** Describe difficulties (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 instrument-based**, consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.

Some anesthesia billing vendors who work with AQI NACOR members to report this measure reported some difficulty in obtaining



the needed surgical data elements to report this measure. ASA and AQI staff conducted a range of educational activities as well as working one on one with practices to ensure they are able to appropriately collect and report the needed data elements. As a result of these activities, users no longer report difficulty in collecting and reporting this measure.

**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).**

Limited proprietary coding is contained in the measure specifications for convenience. Users of the proprietary code sets should obtain all necessary licenses from the owners of these code sets. The denominator of this measure does include the use of Current Procedural Terminology (CPT®), which is copyrighted by the American Medical Association (AMA). Use of CPT in Measure(s) is limited to Non-Commercial Use. Any commercial use of CPT beyond fair use requires a license from the AMA.

## 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.*

Specific Plan for Use	Current Use (for current use provide URL)
	<p>Public Reporting  <a href="http://www.cms.gov/pqrs">www.cms.gov/pqrs</a>  Physician Quality Reporting System</p> <p>Payment Program  Merit-based Incentive Payment System  <a href="https://qpp.cms.gov">https://qpp.cms.gov</a>  Merit-based Incentive Payment System  <a href="https://qpp.cms.gov">https://qpp.cms.gov</a></p> <p>Regulatory and Accreditation Programs  <a href="http://www.jointcommission.org">www.jointcommission.org</a>  Joint Commission</p> <p>Quality Improvement (external benchmarking to organizations)  Anesthesia Quality Institute National Anesthesia Clinical Outcomes Registry (AQI NACOR)  <a href="http://www.aqihq.org">www.aqihq.org</a></p>

**4a1.1 For each CURRENT use, checked above (update for maintenance of endorsement), provide:**

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

The Merit-based Incentive Payment System (MIPS) is sponsored by the Centers for Medicare & Medicaid Services (CMS)

- The purpose of this program is to reward value and outcomes in healthcare. This program was designed to tie payments to quality and cost efficient care, drive improvement in care processes and health outcomes, increase the use of healthcare information, and reduce the cost of care.
- The MIPS program is a national program that applies to eligible clinicians across the entire United States who provide Medicare-covered services.

The National Anesthesia Clinical Outcomes Registry (NACOR) is sponsored by the Anesthesia Quality Institute (AQI)

- The purpose of NACOR is to be the primary source of information for quality improvement in the clinical practice of anesthesia. Through education and quality feedback, AQI helps to improve the quality care of patients, lower anesthesia mortality, and lower anesthesia incidents.
- AQI NACOR includes participants from throughout the United States and U.S. territories. In 2017, more than 25,000 anesthesia providers reported data to NACOR.

**4a1.2. 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?)

The measure is currently in an accountability/payment program.

**4a1.3. 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.)

The measure is currently in an accountability/payment program.

**4a2.1.1. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.**

**How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.**

AQI NACOR makes data available to those being measured through the use of a measure data dashboard that is continuously accessible and reflects real-time data. AQI also assigns each participating practice an account manager to help a practice correctly capture and report data, as well as to correctly understand and interpret their data reports and to troubleshoot any issues with the data. AQI also hosts monthly office hours with users where they address relevant educational topics and address questions from users. In addition, AQI makes available various educational resources and webinars on their websites to support users in appropriately collecting and reporting data, as well as reviewing and interpreting data reports.

**4a2.1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.**

Measure data is available to users within 48 hours of submission to NACOR via an online dashboard. The dashboard includes information on performance and reporting rates, which can be viewed down to a individual provider/case level. Aggregate group-level reports are also available for users. Dedicated account managers then work with practices to trouble shoot any data reporting issues and to help them interpret their data reports.

**4a2.2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.**

**Describe how feedback was obtained.**

Stakeholder feedback, including feedback from those being measured, is obtained through a number of avenues including the submission of registry help-desk tickets, direct feedback to their account manager or other AQI staff via phone or email, and through participation in monthly office hours sessions.

**4a2.2.2. Summarize the feedback obtained from those being measured.**

In early implementation of this measure, some entities being measured expressed confusion on whether or not a provider who provides anesthesia for central line insertion is expected to report this measure. As a result ASA and AQI provided a number of

educational offerings to clarify reporting expectations for this measure.

**4a2.2.3. Summarize the feedback obtained from other users**

Some anesthesia billing vendors who partner with members to report this measure to NACOR have expressed difficulty in capturing surgical billing information.

**4a2.3. Describe how the feedback described in 4a2.2.1 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.**

To clarify questions on who is expected to report this measure, we have included explicit instructions in the specifications that it should be reported by ECs who perform CVC insertion. Additionally, ASA and AQL have conducted extensive user and vendor educational activities to clarify how the measure data should be collected and reported. Dedicated account managers have worked with individual NACOR members to address difficulties in reporting the required surgical billing data. As a result of these educational and outreach activities, reporting of the measure has increased and user feedback on the measure is positive.

**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.

**4b1. Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (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.)**

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.

Performance has shown steady improvement over time, increasing from an average performance rate of 93.3% in 2016 to an average performance rate of 97.08% in 2018. As the measure has continued to be included in the MIPS program, user uptake of the measure has continued to increase with nearly 50,000 providers reporting the measure to CMS in 2017.

**4b2. 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).

**4b2.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.**

Documentation of compliance with maximum barrier precautions when placing a CVC has not led to any unintended consequences. Compliance with the recommended standards has a strong association with improved patient outcomes, and this fact is generally well-recognized in anesthesia practice. The increased time required to comply, and the increased use of resources such as drapes, gloves, and prep solution, are trivial compared to the benefits of preventing even a single CVC-associated infection. The time required to complete the documentation itself is trivial, is supported by existing anesthesia records (both paper and electronic) and will become more so as Anesthesia Information Management Systems continue to advance.

**4b2.2. Please explain any unexpected benefits from implementation of this measure.**

As described in the testing attachment, the primary benefit of this measure, while not unexpected, is a decrease in national estimates of central line-associated blood stream infections over time.

**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.

Yes

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

0139 : National Healthcare Safety Network (NHSN) Central line-associated Bloodstream Infection (CLABSI) Outcome Measure

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

The measure is specified for a level of analysis that includes the individual practitioner with the intent of providing data to clinicians and other health professionals regarding their individual performance.

Similar measures exist including the Centers for Disease Control and Prevention's Central line-associated Bloodstream Infection measure (NQF measure 0139). This measure is specified and NQF endorsed for analysis at the facility level. That measure, although closely associated with and may touch upon this process measure, is an outcome measure. Although ASA welcomes a conversation on harmonization, we do not believe that this measure conflicts or competes with these measures.

**5a. Harmonization of Related Measures**

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 harmonized to the extent possible?**

No

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

The measure is specified for a level of analysis that includes the individual practitioner with the intent of providing data to clinicians and other health professionals regarding their individual performance. Similar measures exist including the Centers for Disease Control and Prevention's Central line-associated Bloodstream Infection measure (NQF measure 0139). This measure is specified and NQF endorsed for analysis at the facility level. That measure, although closely associated with and may touch upon this process measure, is an outcome measure. Although ASA welcomes a conversation on harmonization, we do not believe that this measure conflicts or competes with these measures.

**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.)**

The measure does not compete with NQF #0139.

## 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.

No appendix Attachment:

## Contact Information

**Co.1 Measure Steward (Intellectual Property Owner):** American Society of Anesthesiologists

**Co.2 Point of Contact:** Toni, Kaye, [t.kaye@asahq.org](mailto:t.kaye@asahq.org), 847-268-9160-

**Co.3 Measure Developer if different from Measure Steward:** American Society of Anesthesiologists

**Co.4 Point of Contact:** Matthew, Popovich, [qra@asahq.org](mailto:qra@asahq.org), 202-289-2222-316

## 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 AMA-PCPI-convened the Anesthesiology and Critical Care Workgroup developed the submitted measure. PCPI measures are developed through cross-specialty, multi-disciplinary work groups. All medical specialties and other health care professional disciplines participating in patient care for the clinical condition or topic under study are invited to participate as equal contributors to the measure development process. In addition, the PCPI strives to include on its work groups individuals representing the perspectives of patients, consumers, private health plans, and employers. This broad-based approach to measure development ensures buy-in on the measures from all stakeholders and minimizes bias toward any individual specialty or stakeholder group. All work groups have at least two co-chairs who have relevant clinical and/or measure development expertise and who are responsible for ensuring that consensus is achieved and that all perspectives are voiced.

The AMA-PCPI Anesthesiology and Critical Care Workgroup consisted of the following experts involved in measure development:

Alexander A. Hannenberg, MD, Co-chair – American Society of Anesthesiologists  
 Andrew J. Patterson, MD, PhD, Co-chair – American Board of Anesthesiology  
 William R. Andrews, MD, MS – American College of Chest Physicians  
 Rebecca A. Aslakson, MD, PhD – American Academy of Hospice and Palliative Medicine  
 Daniel R. Brown, MD, PhD – Mayo Clinic  
 Neal H. Cohen, MD, MPH, MS – American Society of Anesthesiologists  
 Peggy Duke, MD – American Society of Anesthesiologists  
 Heidi L. Frankel, MD – American College of Surgeons  
 Lorraine M. Jordan, BSN, MS, PhD – American Association of Nurse Anesthetists  
 Jeremy M. Kahn, MD, MS – American Thoracic Society  
 Jason N. Katz, MD, MHS – American College of Cardiology  
 Gerald A. Maccioli, MD – American Society of Anesthesiologists  
 Catherine L. Scholl, MD – Texas Medical Association  
 Todd L. Slesinger, MD – American College of Emergency Physicians  
 Victoria M. Steelman, PhD, RN – Association of Perioperative Registered Nurses  
 Avery Tung, MD – Society of Critical Care Medicine

In preparation for measure submission, the ASA also convened a Measure Expert Panel (MEP) who reviewed the measure specifications and were asked to rate their agreement with the following statement: "The scores obtained from the measure as specified will prove an accurate reflection of quality and can be used to distinguish good and poor quality." The results were displayed in 2b2.3.

John P. Abenstein, M.D., M.S.E.E.  
 Associate Professor of Anesthesiology  
 Mayo Clinic  
 Rochester, MN

Brian Cammarata, M.D.  
 Old Pueblo Anesthesia/Tucson Medical Center  
 Tucson, AZ

Christopher John Curatolo, M.D., M.E.M.  
 Resident Physician, Anesthesiology  
 The Mount Sinai Medical Center  
 New York, NY

Peggy G. Duke, M.D.  
Emeritus Professor  
Emory Healthcare  
Atlanta, GA

Brenda G. Fahy, M.D.  
Professor  
University of Florida  
Gainesville, FL

Chris Giordano, M.D.  
Division Chief of Transplant  
University of Florida  
Gainesville, FL

Alexander A. Hannenberg, M.D.  
Associate Chair of Anesthesiology  
Newton-Wellesley Hospital  
Newton, MA

Aaron Martin Joffe, D.O.  
Associate Professor  
University of Washington, Department of Anesthesiology and Pain Medicine  
Seattle, WA

Meghan B. Lane-Fall, M.D., MSc  
Assistant Professor  
University of Pennsylvania  
Philadelphia, PA

David P. Martin, M.D., Ph.D.  
Associate Professor of Anesthesiology  
Mayo Clinic  
Rochester, MN

Dolores B. Njoku, M.D.  
Associate Professor, ACCM, Pediatrics, Pathology  
Johns Hopkins University  
Baltimore, MD

Andrew Jay Patterson, M.D., Ph.D.  
Associate Professor  
Stanford University  
Stanford, CA

Marjorie Podraza Stiegler, M.D.  
Associate Professor  
Consortium of Anesthesia Patient Safety and Experiential Learning  
UNC – Chapel Hill  
Chapel Hill, NC

Erin A. Sullivan, M.D.  
Chief, Division of Cardiothoracic Anesthesiology  
University of Pittsburgh Medical Center  
Pittsburgh, PA

Steven L. Sween, M.D.  
Chairman, Medical Director  
Emory Saint Joseph's Hospital  
Atlanta, GA

Richard D. Urman, M.D., M.B.A.  
Associate Professor of Anesthesia  
Brigham and Women's Hospital  
Boston, MA

Cassie D. Volker, M.D.  
Mobile Anesthesia Care  
Overland Park, KS

Toby N. Weingarten, M.D.  
Associate Professor of Anesthesiology  
Mayo Clinic  
Rochester, MN

Jeffrey D. White, M.D.  
Assistant Clinical Professor  
University of Florida  
Gainesville, FL

#### 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:** 04, 2018

**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?** 04, 2020

#### Ad.6 Copyright statement: COPYRIGHT:

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**Ad.7 Disclaimers:** The Measures are not clinical guidelines, do not establish a standard of medical care, and have not been tested for all potential applications.

**Ad.8 Additional Information/Comments:** Make sure to cc Matt Popovich alternative email regarding correspondence of this measure ([qra@asahq.org](mailto:qra@asahq.org))