2024 QCDR Measure Specifications

Anesthesia Quality Institute
National Anesthesia Clinical Outcomes Registry
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Participation in the ASA® Quality Service does not guarantee satisfactory participation in CMS Merit-based Incentive Payment System (MIPS). Successful submission to CMS is contingent upon each individual eligible clinician (EC) and/or group meeting the MIPS program requirements and the timeliness, quality, and accuracy of the data they provide for reporting.

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The following applies to each Measure that contains the (†) symbol within its title:

† The efforts and contributions of Anesthesia Business Group, ePREOP and TeamHealth to harmonize this Measure with other similar anesthesia quality measures and to update this Measure on an ongoing basis is acknowledged.

The following applies to each Measure that contains the (††) symbol within its title:

†† The efforts and contributions of the American Society of Regional Anesthesia and Pain Medicine to develop and maintain this measure with the American Society of Anesthesiologists on an ongoing basis is acknowledged.
### Measures Removed from 2024 AQI NACOR QCDR Measure Set

Please note the following measures have been removed or retired from the AQI NACOR registry for QCDR reporting.

<table>
<thead>
<tr>
<th>Measure ID</th>
<th>Measure Title</th>
<th>Reason for Removal</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQI56</td>
<td>Use of Neuraxial Techniques and/or Peripheral Nerve Blocks for Total Knee Arthroplasty (TKA)</td>
<td>CMS rejected this measure due to being considered topped-out.</td>
</tr>
<tr>
<td>AQI68</td>
<td>Obstructive Sleep Apnea: Mitigation Strategies</td>
<td>CMS rejected this measure due to being considered topped-out.</td>
</tr>
<tr>
<td>AQI69</td>
<td>Intraoperative Antibiotic Redosing</td>
<td>CMS rejected this measure due to being a process-based measure and doesn't focus on a quality action or outcome.</td>
</tr>
<tr>
<td>AQI73</td>
<td>Prevention of Arterial Line-Related Bloodstream Infections</td>
<td>CMS rejected this measure due to being considered topped-out.</td>
</tr>
<tr>
<td>ABG41</td>
<td>Upper Extremity Nerve Blockade in Shoulder Surgery</td>
<td>CMS rejected this measure due to being considered topped-out.</td>
</tr>
<tr>
<td>ABG43</td>
<td>Use of Capnography for Non-Operating Room Anesthesia Measure</td>
<td>CMS rejected this measure due to being considered topped-out.</td>
</tr>
</tbody>
</table>
# Modifications to 2023 QCDR Measures for 2024 AQI NACOR Measure Set

This table identifies changes that were made to AQI NACOR’s QCDR measure specifications in preparation for the 2024 performance year. This table only serves as a general reference in support of but not superseding the final measure specifications for each measure within the book. **Users must refer to the full measure specifications for complete code sets, measure criteria and instructions.**

<table>
<thead>
<tr>
<th>Measure ID</th>
<th>Measure Title</th>
<th>Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQI48</td>
<td>Patient-Reported Experience with Anesthesia</td>
<td>Added 60-day timeframe to return patient survey.</td>
</tr>
</tbody>
</table>
## 2024 MIPS Measures Available for Reporting through AQI NACOR

Clinicians and groups reporting via Qualified Registry or Qualified Clinical Data Registry (QCDR) can report Merit-based Incentive Payment System (MIPS) measures to fulfill requirements for the MIPS Quality component. Download full MIPS measure specifications from CMS. The naming convention for MIPS measures is “Quality ID XXX” or “QID XXX.”

<table>
<thead>
<tr>
<th>Measure ID</th>
<th>Measure Title</th>
<th>Measure Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>QID 047</td>
<td>Advance Care Plan</td>
<td>Process – High Priority</td>
</tr>
<tr>
<td>QID 130</td>
<td>Documentation of Current Medications in the Medical Record</td>
<td>Process – High Priority</td>
</tr>
<tr>
<td>QID 155</td>
<td>Falls: Plan of Care</td>
<td>Process – High Priority</td>
</tr>
<tr>
<td>QID 182</td>
<td>Functional Outcome Assessment</td>
<td>Process – High Priority</td>
</tr>
<tr>
<td>QID 226</td>
<td>Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention</td>
<td>Process</td>
</tr>
<tr>
<td>QID 317</td>
<td>Preventive Care and Screening: Screening for High Blood Pressure and Follow-Up Documented</td>
<td>Process</td>
</tr>
<tr>
<td>QID 404*</td>
<td>Anesthesiology Smoking Abstinence</td>
<td>Intermediate Outcome – High Priority</td>
</tr>
<tr>
<td>QID 424*</td>
<td>Perioperative Temperature Management</td>
<td>Outcome – High Priority</td>
</tr>
<tr>
<td>QID 430*</td>
<td>Prevention of Post-Operative Nausea and Vomiting (PONV) – Combination Therapy</td>
<td>Process – High Priority</td>
</tr>
<tr>
<td>QID 463*</td>
<td>Prevention of Post-Operative Vomiting (POV) – Combination Therapy (Pediatrics)</td>
<td>Process – High Priority</td>
</tr>
<tr>
<td>QID 468</td>
<td>Continuity of Pharmacotherapy for Opioid Use Disorder (OUD)</td>
<td>Process – High Priority</td>
</tr>
<tr>
<td>QID 477*</td>
<td>Multimodal Pain Management</td>
<td>Outcome – High Priority</td>
</tr>
<tr>
<td>QID 487</td>
<td>Screening for Social Drivers of Health</td>
<td>Process – High Priority</td>
</tr>
</tbody>
</table>

*Measures with an asterisk (*) are included in the CMS-recommended Anesthesiology Measure Set. Eligible clinicians and groups are not required to report these measures towards the six measures required for the MIPS Quality Component but may find them applicable to their practice. QID 424, 430, 463, and 477 are also high priority measures.
Measure Title
AQI18: Coronary Artery Bypass Graft (CABG): Prolonged Intubation – Inverse Measure

Measure Description
Percentage of patients aged 18 years and older undergoing isolated CABG surgery who require postoperative intubation > 24 hours.

NQS Domain/ Meaningful Measures Area
Effective Clinical Care/ Preventable Healthcare Harm

Measure Type
Outcome

High Priority Status
Yes

Inverse Measure
Yes

Instructions
This measure is to be reported each time an isolated CABG procedure is performed during the reporting period. It is anticipated that qualified anesthesia providers and eligible clinicians who provide services for isolated CABG will submit this measure. This measure is intended to reflect the quality of services provided for isolated CABG or isolated reoperation CABG patients.

Measure Reporting via the Qualified Clinical Data Registry
CPT codes and patient demographics are used to identify patients who are included in the measure's denominator. The measure must capture both the surgical and related anesthesia code. G-codes are used to report the numerator of the measure.

Denominator
All patients, aged 18 years and older, undergoing isolated CABG surgery

Definition: Isolated CABG refers to CABG using arterial and/or venous grafts only.

Denominator Criteria (Eligible Cases):
Patient aged 18 years and older on date of encounter

AND
Patient encounter during the reporting period (CPT): 33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33521, 33522, 33523, 33533, 33534, 33535, 33536
AND
00566, 00567

OR
Patient encounter during the reporting period (CPT): 33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33521, 33522, 33523, 33533, 33534, 33535, 33536
AND
Patient encounter during the reporting period (CPT): 33530
AND
00562
**Denominator Exclusions**

- Organ donors as designated by ASA Physical Status 6
- Procedure reduced or discontinued prior to initiation of CPB as indicated on the claim by Modifier 52 or Modifier 53

**Numerator**

Patients who require intubation > 24 hours following exit from the operating room

**Numerator Quality-Data Coding Options for Reporting Satisfactorily**

**Performance Met:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>G8569</td>
<td>Prolonged postoperative intubation (&gt; 24 hrs) required</td>
</tr>
</tbody>
</table>

**OR**

**Performance Not Met:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>G8570</td>
<td>Prolonged postoperative intubation (&gt;24 hrs) not required</td>
</tr>
</tbody>
</table>

**NQF Number:** Not applicable

**eCQM:** Not applicable

**Rationale**

Prolonged intubation and/or prolonged ventilation following coronary artery bypass graft (CABG) surgery is associated with increased mortality and morbidity. A review of the literature suggests several predictors associated with prolonged ventilation following CABG including increased incidence of pneumonia and pulmonary atelectasis, history of hypertension, COPD, kidney disease and endocarditis among others. Most complications were associated with prolonged length of stay in the ICU and hospital and increased resource use.

Physician anesthesiologists and other qualified anesthesia providers must maintain respiratory function of patients throughout the perioperative period and play a critical role in patients’ respiratory care. As physician anesthesiologists and other qualified anesthesia providers control the patient breathing function, their decision-making and care related to airway management can greatly impact outcomes related to prolonged intubation and ventilation. One retrospective study found that physicians in the perioperative period are altering their management of types to reduce adverse respiratory outcomes. For example, research shows aortic aneurysm, combined and valve procedures, and preoperative renal dysfunction and stroke were strong predictors for prolonged ventilation. Changes to care and procedures to reduce adverse respiratory outcomes require the engagement of physician anesthesiologist and other qualified anesthesia provider expertise and skill to ensure appropriate patient care.

**Data Source:** Claims/Paper Medical Record, Registry

**Measure Steward:** American Society of Anesthesiologists (ASA)/Anesthesia Quality Institute (AQI)

**Number of Performance Rates:** 1

**Proportion Measure Scoring:** Yes

**Continuous Measure Scoring:** No

**Risk Adjustment:** No

**Care Setting:** Hospital Inpatient

**Telehealth Reporting Option:** No

---

2024 Qualified Clinical Data Registry Measure Flow for AQI ID #18:
Coronary Artery Bypass Graft (CABG): Prolonged Intubation

SAMPLE CALCULATIONS:

Data Completeness =
Performance Met (a=40 procedures) + Performance Not Met (b=20 procedures) = 60 procedures = 75.00%
Eligible Population / Denominator (c=80 procedures) = 80 procedures

Performance Rate =
Performance Met (a=40 procedures) = 40 procedures = 66.67%
Data Completeness Numerator (b=60 procedures) = 60 procedures
Measure Title

AQI48: Patient-Reported Experience with Anesthesia†

Measure Description: Percentage of patients, aged 18 and older, who were surveyed on their patient experience and satisfaction with anesthesia care and who reported a positive experience.

This measure will consist of two performance rates:

AQI48a: Percentage of patients, aged 18 and older, who were surveyed on their patient experience and satisfaction with anesthesia care.

AQI48b: Percentage of patients, aged 18 and older, who completed a survey on their patient experience and satisfaction with anesthesia care and who report a positive experience with anesthesia care within 60 days of receipt of the survey.

NOTE: The measure requires that a valid survey, as defined in the numerator of AQI48a, be sent to patients between discharge from the facility and within 30 days of facility discharge. To report AQI48b, a minimum number of 20 surveys, as described in the numerator of AQI48a, with the mandatory question completed must be reported. In order to be scored on this measure, clinicians must report BOTH AQI48a AND AQI48b.

NQS Domain/meaningful Measures Area
Person and Caregiver-Centered Experience and Outcomes/Person’s Experience of Care

Measure Type
Patient-Reported Outcome

High Priority Status
Yes

Inverse Measure:
No

Instructions:
This measure consists of two performance rates: AQI48a and AQI48b. AQI48a should be reported each time a patient undergoes a procedure under anesthesia. AQI48b should be reported every time a completed survey is returned by the patient within 60 days of receipt. To be scored on AQI48b, the provider must collect the individual scores received on the survey as described in AQI48a. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via the Qualified Clinical Data Registry
CPT codes and patient demographics are used to identify patients who are included in the measure denominator. Registry codes are used to report the measure numerator.

Rationale
Despite the implementation of CAHPS and H-CAHPS, there is a persistent gap in the ability to adequately measure patient experience on the selection of performance measures for performance-based payment programs. To provide high quality, patient-centered care in the future, anesthesiologists and other qualified anesthesia providers should measure and respond to the patients’ perception of the degree to which they felt they were treated as individuals and empowered by their anesthesiology practitioners to engage in decision-making for their care. The assessment of patient satisfaction with anesthesia care provides important feedback which enables providers to improve care delivery and quality. At present there is a vast array of tools available for practices and individuals to implement based upon local patient populations and for local quality improvement initiatives.
<table>
<thead>
<tr>
<th>Data Source</th>
<th>Database, Registry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Steward</td>
<td>American Society of Anesthesiologists (ASA)/Anesthesia Quality Institute (AQI)</td>
</tr>
<tr>
<td>Number of Performance Rates</td>
<td>2</td>
</tr>
<tr>
<td>Overall Performance Rate for Scoring</td>
<td>AQI48b</td>
</tr>
<tr>
<td>Proportion Measure Scoring</td>
<td>Yes</td>
</tr>
<tr>
<td>Continuous Measure Scoring</td>
<td>No</td>
</tr>
<tr>
<td>Risk Adjusted</td>
<td>No</td>
</tr>
<tr>
<td>Care Setting</td>
<td>Ambulatory Care: Clinician Office; Ambulatory Care: Hospital; Hospital; Hospital Inpatient; Outpatient Services</td>
</tr>
<tr>
<td>Telehealth Reporting Option</td>
<td>No</td>
</tr>
</tbody>
</table>
A48a

Description-A48a
Percentage of patients, aged 18 and older, who were surveyed on their patient experience and satisfaction with anesthesia care.

Denominator-A48a
Patients aged 18 and older, who undergo a procedure* under anesthesia

Denominator Definition: *Any procedure including surgical, therapeutic, or diagnostic

Denominator Criteria (Eligible Cases):
Patient aged 18 years or older on date of encounter
AND
A48a: Patient encounter during the reporting period (CPT):

Denominator Exclusions-A48a
- Organ Donors as designated with ASA Physical Status 6
- Patient died within 30 days of the procedure: 10A11
Numerator-AQI48a:
Patients who received a survey within 30 days of the procedure to assess their experience and satisfaction with anesthesia.

_Numerator Note: The survey should be administered to the patient shortly following discharge from the facility._

**Definition:** Practices and eligible clinicians may customize their patient experience and satisfaction with anesthesia surveys to meet local needs but, **at a minimum**, a valid survey must include a core set of questions that address **three of the four** following criteria related to patient experience and satisfaction and **one mandatory question** described below.

1. Preoperative Education and Preparation
2. Patient and/or Family Communication
3. Care Team Response to Comfort and Well-Being
4. Postoperative pain control and/or management

**Mandatory question** that must be included in each valid survey (practices must also include an option for patient to indicate “Not Applicable”):

1. On a scale of 1 to 5, where 1 indicates the worst anesthesia experience and where 5 indicates the best anesthesia experience, how would you rate your anesthesia experience?

_Numerator Note: Practices and eligible clinicians may wish to supplement these questions by taking into consideration the recommendations of the ASA Committee on Performance and Outcomes Measurement work product entitled “Patient Satisfaction with Anesthesia White Paper.”_

_Numerator Note: Depending on local practice, practices and eligible clinicians may wish to supplement survey questions by taking into consideration the recommendations developed as part of the Perioperative Surgical Home (PSH) that are structured in five distinct components._

1. Preoperative Education and Preparation (Four Indicators)
   a. Patient comfort with instructions provided about eating better
   b. Patient comfort with instructions provided about exercise or physical therapy
   c. Patient comfort with instructions provided about stopping smoking (if applicable)
   d. Patient comfort with instructions provided about what to do after surgery
2. Check-In and Pre-Procedure Experience
3. Caregiver and Family Communication during Surgery
4. Care Team Response to Comfort and Well-Being
5. Postoperative Pain Management

For more information on these resources, visit [https://www.asahq.org/psh](https://www.asahq.org/psh).

**Numerator Quality-Data Coding Options for Reporting Satisfactorily: AQI48a**

**Performance Met:**

10A12 Patient provided with a survey within 30 days of the procedure to assess their experience and satisfaction with anesthesia.

OR

**Denominator Exception**

10A13 Documentation of patient reason(s), process reason(s) or medical reason(s) for not receiving survey (i.e., patients who are non-verbal, who are unable to be surveyed due to a medical or psychiatric reason, who are unable to be surveyed due to a language barrier, have not provided contact information, who are discharged to assisted living, skilled nursing facility or other similar location where direct access to the patient is not available, or who decline to be surveyed.

OR

**Performance Not Met:**

10A14 Patient was not provided with a survey within 30 days of the procedure to assess their experience and satisfaction with anesthesia

OR

11A93 The patient did not respond within 60 days of receipt of the survey.
AQI48b

Description-AQI48b
Percentage of patients who complete the survey from AQI48a on their patient experience and satisfaction with anesthesia care and report a positive experience within 60 days of the receipt of the survey.

Denominator-AQI48b
All patients from the numerator of AQI48a who complete a survey on their patient experience and satisfaction with anesthesia care within 60 days of the receipt of the survey.

Denominator Note: In order to report AQI48b, the denominator must include a minimum of 20 returned surveys.

Denominator Criteria (Eligible Cases):
Patient completed a survey on their patient experience and satisfaction with anesthesia care within 60 days of receipt of the survey: 11A94

Denominator Exclusions-AQI48b

• Patient did not complete the mandatory anesthesia satisfaction question within 60 days of receipt of the survey: 11A95

Numerator – AQI48b:
Patients who reported a positive experience with anesthesia care.

Definition: A positive experience is defined as a response of 4 or 5 on the following mandatory patient experience and satisfaction survey question:

On a scale of 1 to 5, where 1 indicates the worst anesthesia experience and where 5 indicates the best anesthesia experience, how would you rate your anesthesia experience?
(Practices must include an option for patient to indicate “Not Applicable”)

Numerator Quality-Data Coding Options for Reporting Satisfactorily: AQI48b
Reporting note: To report this measure, the provider must report the individual patient scores. A percentage reporting a positive experience will be calculated on the provider’s behalf.

Performance Met:
10A70 Patient reported a positive anesthesia experience (i.e., a 4 or 5 on the mandatory survey question)

OR

Performance Not Met:
10A71 Patient did NOT report a positive anesthesia experience (i.e., a 1, 2, or 3 on the mandatory survey question)
2024 Qualified Clinical Data Registry Measure Flow for AQI ID #48a:
Patient-Reported Experience with Anesthesia

Denominator A

Start

- Not Included in Eligible Patient Population (Denominator A)
  - Yes
  - Organ Donors designated by ASA Physical Status 6
    - Yes
    - Patients aged ≥ 18 Years
      - Yes
      - Patient Encounter as Listed in Denominator
        - Yes
        - Documentation of patient, process or medical reasons for not receiving survey
          - Yes
          - Patient died within 30 days of procedure 10A11
            - Yes
            - Include in Eligible Population/Denominator (80 procedures)
          - No
          - Patient not provided survey within 30 days of the procedure
            - No
            - Patient did not respond within 60 days of receipt of the survey
              - No
              - Data Completeness Not Met Quality-Data Code or equivalent not submitted (10 procedures)
            - Yes
            - Data Completeness Met + Performance Not Met 11A93 (10 procedures)
        - No
    - No
  - No

Numerator A

- Patient provided survey within 30 days of the procedure
  - Yes
  - Data Completeness Met + Performance Met 10A12 (40 procedures)
  - No
  - Data Completeness Met + Denominator Exception 10A13 (10 procedures)
- Patient not provided survey within 30 days of the procedure
  - Yes
  - Data Completeness Met + Performance Not Met 10A14 (10 procedures)
  - No
  - Data Completeness Met + Performance Not Met 11A93 (10 procedures)

SAMPLE CALCULATIONS:

Data Completeness = Performance Met (a=40 procedures) + Denominator Exception (b=10 procedures) + Performance Not Met (c=20 procedures) = 70 procedures = 87.50% Eligible Population / Denominator (d=80 procedures) = 80 procedures

Performance Rate = Performance Met (a=40 procedures) = 40 procedures = 66.67%

Data Completeness Numerator (70 procedures) – Denominator Exception (b=10 procedures) = 60 procedures
2024 Qualified Clinical Data Registry Measure Flow for AQI ID #48b:
Patient-Reported Experience with Anesthesia

**SAMPLE CALCULATIONS:**

Data Completeness =
Performance Met (a=15 procedures) + Performance Not Met (b=5 procedures) = 20 procedures = 66.67%
Eligible Population / Denominator (d=80 procedures) = 30 procedures

Performance Rate =
Performance Met (a=15 procedures) = 15 procedures = 75.00%
Data Completeness Numerator (20 procedures) = 20 procedures

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Measure Title
AQI49: Adherence to Blood Conservation Guidelines for Cardiac Operations using Cardiopulmonary Bypass (CPB) – Composite

Measure Description
Percentage of patients aged 18 years and older, who undergo a cardiac operation using cardiopulmonary bypass for whom selected blood conservation strategies were used.

NQS Domain/ Meaningful Measures Area
Effective Clinical Care/ Preventable Healthcare Harm

Measure Type
Composite – Process

High Priority Status
No

Inverse Measure
No

Instructions
This measure is to be reported each time a patient undergoes a cardiac operation using cardiopulmonary bypass during the reporting period. This measure has four sub-metrics which are used to calculate the total composite score. All sub-metrics are required to report to indicate performance met or performance not met. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via the Qualified Clinical Data Registry
Patient demographics, CPT codes, and Registry codes are used to identify patients who are included in the measure denominator. CPT Category codes and Registry codes are used to report the numerator.

Denominator
Patients aged 18 years and older, who undergo a cardiac operation using cardiopulmonary bypass.

Denominator Note: Patients undergoing a re-operation are included in the denominator to the measure.

Denominator Criteria (Eligible Cases):
Patient aged 18 years or older on date of encounter

AND
Patient encounter during the reporting period (CPT): 00562, 00563, 00567, 00580

Denominator Exclusions
• Emergent cases
• Lung transplants not using cardiopulmonary bypass: 11A80
• Procedure reduced or discontinued prior to initiation of CPB as indicated on the claim by Modifier 52 or Modifier 53.
Numerator
Patients for whom selected blood conservation strategies were used³⁴

Numerator Scoring: Each blood conservation strategy of this measure accounts for 25% of the total composite score. Each of the four blood conservation strategies must be reported to be included in the performance measurement. The total composite score will be calculated by the data source and not the individual practitioner.

1. **Use of Lysine analogues**
   
   Numerator Note: As indicated by Intraoperative Antifibrinolytic med: Aminocaproic Acid or Tranexamic Acid.

   Numerator Quality-Data Coding Options for Reporting Satisfactorily
   
   **Performance Met:**
   10A01 Patients for whom lysine analogues were used.
   
   **OR**
   
   **Performance Not Met:**
   10A02 Patients for whom lysine analogues were NOT used.

2. **Use of mini-circuits or Retrograde Autologous Priming (RAP) or Ultrafiltration**
   (Minimize hemodilution caused by cardiopulmonary bypass pump priming solution)

   Numerator Note: Record the usage of retrograde autologous priming or a miniaturized circuit volume by the cardiopulmonary perfusion team prior to the onset of cardiopulmonary bypass.

   Numerator Note: Capture the total volume of ultrafiltrate removed by the cardiopulmonary perfusion team during cardiopulmonary bypass and during modified ultra-hemofiltration post-CPB. Record the data in milliliters.

   Numerator Quality-Data Coding Options for Reporting Satisfactorily
   
   **Performance Met:**
   10A03 Patients for whom mini-circuits or Retrograde Autologous Priming (RAP) or Ultrafiltration were used.
   
   **OR**
   
   **Performance Not Met:**
   10A04 Patients for whom mini-circuits or Retrograde Autologous Priming (RAP) or Ultrafiltration were NOT used.

3. **Use of red cell salvage using centrifugation**

   Numerator Note: Capture the volume of cell saver collected and given. Do not include autologous, allogeneic, pump-residual, or chest-tube recirculated blood.

   Numerator Quality-Data Coding Options for Reporting Satisfactorily
   
   **Performance Met:**
   10A05 Patients for whom red cell salvage using centrifugation was used.
   
   **OR**
   
   **Performance Not Met:**
   10A06 Patients for whom red cell salvage using centrifugation were NOT used.

---

4. Use of transfusion algorithm supplemented with point-of-care testing

   Numerator Note: Transfusion algorithm includes SCA/STS guideline recommendations, or an evidence-based
   algorithm formulated at the local level.

   **Numerator Quality-Data Coding Options for Reporting Satisfactorily**

   **Performance Met:**
   - **10A07**
     Patients for whom transfusion algorithm supplemented with point-of-care testing was used.

   **OR**

   **Performance Not Met:**
   - **10A08**
     Patients for whom transfusion algorithm supplemented with point-of-care testing was NOT used.

   **Composite Performance Score**

   **Performance Score Note:** This performance score is calculated by the data source and not the individual
   practitioner. Eligible clinicians reporting this measure must submit numerator quality codes for each of the
   four blood conservation strategies identified in this measure. The performance score is the cumulative sum of
   performance met for each blood conservation strategy listed in the numerator of this measure.

   For example, for a single patient encounter, if the eligible clinician reports performance met coding for “Use of mini-
   circuits or RAP or Ultrafiltration,” “Use of red cell salvage using centrifugation,” and “Use of transfusion algorithm
   supplemented with point-of-care testing” and performance not met for “Use of lysine analogues,” the cumulative
   score would be calculated as 3 performance met divided by 4 possibilities of performance met that would equal
   75%. This eligible clinician for this particular patient would be assessed as “Performance Not Met” because the
   eligible clinician had a cumulative score less than 100%.

   **Performance Met:**
   - **10A09**
     Patients for whom a cumulative score of 100% of blood conservation strategies was met.

   **OR**

   **Performance Not Met:**
   - **10A10**
     Patients for whom a cumulative score of less than 100% of blood conservation strategies was met.

   **NQF Number:** Not applicable

   **eCQM:** Not applicable

   **Rationale**

   Efforts to reduce blood product use have the potential to avoid transfusion-related complications and reduce
   health care costs. Implementation of a blood use initiative significantly improves postoperative morbidity, mortality,
   and resource utilization. Limiting intraoperative and postoperative blood product transfusion decreases adverse
   postoperative events and reduces health care costs. Low-risk patients have between an 8- and 10-fold excess risk
   of adverse outcomes when they receive a blood transfusion. We speculate that careful preoperative assessment of
   transfusion risk and intervention based on this assessment could minimize operative morbidity and mortality,
   especially because the patients at least risk are more likely to undergo elective operations and provide time for
   therapeutic interventions to improve transfusion risk profiles.
Clinical Recommendation Statements

**Perioperative Blood Transfusion and Blood Conservation in Cardiac Surgery: The Society of Thoracic Surgeons and The Society of Cardiovascular Anesthesiologists Clinical Practice Guideline**

“Lysine analogues—epsilon-aminocaproic acid (Amicar) and tranexamic acid (Cyklokapron)—reduce total blood loss and decrease the number of patients who require blood transfusion during cardiac procedures and are indicated for blood conservation. (Level of evidence A)”

“Retrograde autologous priming of the CPB circuit may be considered for blood conservation. (Level of evidence B)”

“Routine use of red cell salvage using centrifugation is helpful for blood conservation in cardiac operations using CPB. (Level of evidence A)”

“A multidisciplinary approach involving multiple stakeholders, institutional support, enforceable transfusion algorithms supplemented with point-of-care testing, and all of the already mentioned efficacious blood conservation interventions limits blood transfusion and provides optimal blood conservation for cardiac operations. (Level of evidence A)”

**Update to the Clinical Practice Guidelines on Patient Blood Management**

“Direct reinfusion of shed mediastinal blood from postoperative chest tube drainage is not recommended as a means of blood conservation and may cause harm. (Class III: Harm, Level B-NR)”

**Data Source:** Claims/Paper Medical Record, Registry

**Measure Steward:** American Society of Anesthesiologists (ASA)/Anesthesia Quality Institute (AQI)

**Number of Performance Rates:** 1

**Proportion Measure Scoring:** Yes

**Continuous Measure Scoring:** No

**Risk Adjustment:** No

**Care Setting:** Hospital Inpatient

**Telehealth Reporting Option:** No

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**Sample Calculations:**

Data Completeness =
Performance Met (a=50 procedures) + Performance Not Met (b=20 procedures) = 70 procedures = 87.50%

Eligible Population / Denominator (c=80 procedures) = 80 procedures

Performance Rate =
Performance Met (a=50 procedures) = 71.43%

Data Completeness Numerator (70 procedures) = 70 procedures

Version 3.0
December 2022
2024 Qualified Clinical Data Registry Measure Flow for AQI ID #49:
Adherence to Blood Conservation Guidelines for Cardiac Operations Using Cardiopulmonary Bypass (CBP): Use of Mini-Circuits or Retrograde Autologous Priming (RAP) or Ultrafiltration

SAMPLE CALCULATIONS:
Data Completeness =
Performance Met (a=50 procedures) + Performance Not Met (b=20 procedures) = 70 procedures = 87.50%
Eligible Population / Denominator = 80 procedures

Performance Rate =
Performance Met (a=50 procedures) = 71.43%
Data Completeness Numerator (70 procedures) = 70 procedures
2024 Qualified Clinical Data Registry Measure Flow for AQI ID #49: 

**SAMPLE CALCULATIONS:**

Data Completeness = \[
\frac{\text{Performance Met (a=50 procedures)}}{\text{Denominator (c=80 procedures)}} + \frac{\text{Performance Not Met (b=20 procedures)}}{\text{Denominator (c=80 procedures)}}
\] = \[
\frac{50}{80} + \frac{20}{80} = \frac{70}{80} = 87.50\%
\]

Performance Rate = \[
\frac{\text{Performance Met (a=50 procedures)}}{\text{Eligible Population (c=80 procedures)}}
\] = \[
\frac{50}{80} = 71.43\%
\]

Data Completeness Numerator (70 procedures) = 70 procedures

**Sample Calculations:**

- Data Completeness = (Performance Met (a=50 procedures) + Performance Not Met (b=20 procedures)) / Eligible Population / Denominator (c=80 procedures) = 70 procedures / 80 procedures = 87.50%

- Performance Rate = Performance Met (a=50 procedures) / Eligible Population / Denominator (c=80 procedures) = 50 procedures / 80 procedures = 71.43%

- Data Completeness Numerator (70 procedures) = 70 procedures

Version 3.0
January 2022
2024 Qualified Clinical Data Registry Measure Flow for AQI ID #49:

**Denominator**

- **Not Included in Eligible Patient Population**
  - No
  - Yes

- **Patient Aged ≥18 Years**
  - Yes
  - No

- **Patient Encounter Listed in the Denominator**
  - Yes
  - No

- **Emergent Case**
  - Yes
  - No

- **Lung transplants not using cardiopulmonary bypass**
  - Yes
  - No

- **Procedure reduced or discontinued (Modifier 52 or 53)**
  - Yes
  - No

**Composite Numerator**

- **100% of blood conservation strategies met**
  - Yes
  - No

**Multiple Submission Criteria**

- **Data Completeness Met + Performance Met**
  - 10A09 (50 procedures) a

- **Data Completeness Met + Performance Not Met**
  - 10A10 (20 procedures) b

- **Data Completeness Not Met**
  - Quality-Data code or equivalent not submitted (10 procedures)

**SAMPLE CALCULATIONS:**

- **Data Completeness =**
  - Performance Met (a=50 procedures) + Performance Not Met (b=20 procedures)
  - Eligible Population / Denominator (c=80 procedures) = 70 procedures = 87.50%

- **Performance Rate =**
  - Performance Met (a=50 procedures) / Eligible Population / Denominator (c=80 procedures) = 50 procedures = 71.43%

- **Data Completeness Numerator (70 procedures) =**
  - 70 procedures

Version 3.0
January 2022
Measure Title

AQI65: Avoidance of Cerebral Hyperthermia for Procedures Involving Cardiopulmonary Bypass

Measure Description: Percentage of patients, aged 18 years and older, undergoing a procedure using cardiopulmonary bypass who did not have a documented intraoperative pulmonary artery, oropharyngeal, or nasopharyngeal temperature ≥37.0 degrees Celsius during the period of cardiopulmonary bypass.

NQS Domain/ Meaningful Measures Area
Patient Safety/ Preventable Healthcare Harm

Measure Type
Outcome

High Priority Status
Yes

Inverse Measure
No

Instructions
This measure is to be reported each time a patient undergoes a cardiac operation using cardiopulmonary bypass during the reporting period. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via the Qualified Clinical Data Registry
CPT codes and patient demographics are used to identify patients who are included in the measure’s denominator. Registry codes are used to report the numerator.

Denominator
All patients aged 18 years or older, who undergo a procedure using cardiopulmonary bypass

Denominator Criteria (Eligible Cases):
Patient aged 18 years and older
AND
Patient encounter during the reporting period (CPT): 00562, 00563, 00567, 00580

Denominator Exclusions
• Procedure reduced or discontinued prior to initiation of CPB as indicated on the claim by Modifier 52 or Modifier 53.

Numerator: Patients who did not have an intraoperative pulmonary artery, oropharyngeal, or nasopharyngeal temperature ≥37.0 degrees Celsius during cardiopulmonary bypass

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met: 11A11
All intraoperative pulmonary artery, oropharyngeal, or nasopharyngeal temperatures <37.0 degrees Celsius during cardiopulmonary bypass

OR

Performance Not Met: 11A12
At least one intraoperative pulmonary artery, oropharyngeal, or nasopharyngeal temperature ≥37.0 degrees Celsius

OR

11A13
No documented pulmonary artery, oropharyngeal, or nasopharyngeal temperatures during cardiopulmonary bypass
NQF Number: Not applicable

eCQM: Not applicable

Rationale
Appropriate temperature management in the setting of cardiopulmonary bypass (CPB) is important to avoid cerebral hyperthermia and associated cerebral injury. Studies have associated cerebral hyperthermia with complications such as cognitive dysfunction, mediastinitis, and acute kidney injury. Through careful monitoring, good communication with perfusionists, and the assurance of appropriate rewarming strategies, anesthesiologists can prevent cerebral hyperthermia.

Clinical Recommendation Statements:

2015 STS/SCA/AECT Guidelines on Temperature Management During Cardiopulmonary Bypass

“Surgical teams should limit arterial outlet blood temperature to <37°C to avoid cerebral hyperthermia. (Class I, Level C)”

“Pulmonary artery or NP temperature recording is reasonable for core temperature measurement. (Class IIa, Level C)”

Data Source: Claims/Paper Medical Record, Registry

Measure Steward: American Society of Anesthesiologists (ASA)/ Anesthesia Quality Institute (AQI)

Number of Performance Rates: 1

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

Care Setting: Hospital Inpatient

Telehealth Reporting Option: No

Care Setting: Hospital Inpatient

Telehealth Reporting Option: No

2024 Qualified Clinical Data Registry Measure Flow for AQI ID #65: Avoidance of Cerebral Hyperthermia for Procedures Involving Cardiopulmonary Bypass (CPB)

**Denominator**

- Start
  - Not Included in Eligible Patient Population
    - No
      - Patient aged ≥ 18 Years
        - No
          - Patients Received Services Listed in Denominator
            - Yes
              - Procedure reduced or discontinued (Modifier 52 or 53)
                - No
                  - Include in Eligible Population/Denominator (80 procedures)
        - Yes
          - All temperatures < 37.0 degrees Celsius during CPB
            - No
              - At least one temperature ≥ 37.0 degrees Celsius during CPB
                - No
                  - No documented temperatures during CPB
                    - Yes
                      - Data Completeness Met + Performance Not Met 11A12 OR 11A13 (10 procedures)
                    - No
                      - Data Completeness Met + Performance Not Met 11A11 (60 procedures)
            - Yes
              - Data Completeness Not Met

**Numerator**

- All temperatures < 37.0 degrees Celsius during CPB
  - Yes
    - Data Completeness Met + Performance Met 11A11 (60 procedures)
  - No
    - Data Completeness Met + Performance Not Met 11A12 OR 11A13 (10 procedures)

**SAMPLE CALCULATIONS**

- **Data Completeness**
  - Performance Met (a=60 procedures) + Performance Not Met (b=10 procedure) = 70 procedures = 87.50%
  - Eligible Population / Denominator (c=80 procedures) = 80 procedures
- **Performance Rate**
  - Performance Met (a=60 procedures) / Eligible Population = 60 procedures = 85.71%
  - Data Completeness Numerator (70 procedures) / Performance Met = 70 procedures

Version 3.0
December 2022
Measure Title

**AQI67: Consultation for Frail Patients**

Measure Description: Percentage of patients aged 70 years or older, who undergo an inpatient procedure requiring anesthesia services and have a positive frailty screening result who receive a multidisciplinary consult or care during the hospital encounter.

**NQS Domain/Meaningful Measures Area**
Communication and Care Coordination/Management of Chronic Conditions

**Measure Type**
Process

**High Priority Status**
Yes

**Inverse Measure**
No

**Instructions**
This measure is to be reported each time a frail patient undergoes an inpatient procedure during the reporting period. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

**Measure Reporting via the Qualified Clinical Data Registry**
Patient demographics, Place of Service codes, CPT codes and Registry codes are used to identify patients who are included in the measure denominator. Registry codes are used to report the numerator.

**Denominator**: All patients aged 70 years or older, who undergo an inpatient procedure requiring anesthesia services and have a positive frailty screening result

- **Denominator Definition**: Frailty can be screened using an established tool including but not limited to following tools:
  - Fried Frailty Phenotype Criteria
  - Modified Frailty Index
  - The Vulnerable Elders Survey
  - Initial Clinical Impression (“First Minute Impression”)

- **Denominator Criteria (Eligible Cases)**:
  All patients aged 70 years and older
  AND
  - **Place of Service Code**: 21
  
- **Patient encounter during the reporting period (CPT)**:
  00100, 00102, 00103, 00104, 00120, 00124, 00126, 00140, 00142, 00144, 00145, 00147, 00148, 00160, 00162, 00164, 00170, 00172, 00174, 00176, 00190, 00192, 00210, 00211, 00212, 00214, 00215, 00216, 00218, 00220, 00222, 00320, 00322, 00330, 00350, 00352, 00400, 00402, 00404, 00406, 00410, 00450, 00454, 00470, 00472, 00474, 00500, 00520, 00522, 00524, 00528, 00529, 00530, 00532, 00534, 00537, 00539, 00540, 00541, 00542, 00546, 00548, 00550, 00560, 00562, 00563, 00566, 00567, 00580, 00600, 00604, 00620, 00625, 00626, 00630, 00632, 00635, 00640, 00670, 00700, 00702, 00730, 00731, 00732, 00750, 00752, 00754, 00756, 00770, 00790, 00792,
Denominator Exclusions
- Emergent cases

Numerator: Patients who receive a multidisciplinary consult and/or multidisciplinary care during the hospital encounter

Numerator Definition: A multidisciplinary consult should include documentation of a discussion of the frailty screening result and can include consultation initiated by the anesthesiologist or other qualified anesthesia provider with surgery, geriatrics, hospital medicine, palliative care, or other appropriate specialty to help manage the perioperative care of a frail patient.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

**Performance Met:**

11A15  
Patient received multidisciplinary consult and/or multidisciplinary care

**OR**

**Performance Not Met:**

11A16  
Patient did not receive multidisciplinary consult or multidisciplinary care

NQF Number: Not applicable

eCQM: Not applicable
Rationale
Frailty is a health state that makes a patient particularly vulnerable to stressors, such as surgery. Among elderly surgical patients, frailty has been well-associated with post-operative complications and mortality. While evidence is still evolving regarding appropriate interventions to best manage frailty in the perioperative setting and to optimize patient outcomes, there is agreement that preoperative assessment and identification of frailty is an important first step to ensure coordinated and patient-centric care for the frail patient throughout their perioperative course. Preoperative identification of frailty and appropriate multi-disciplinary consultation allows for the care team to provide appropriate counseling regarding the anticipated outcomes of surgery, better anticipate post-operative complications, and better prepare patients and families for their postoperative course. Multi-disciplinary consultation for frail patients can also allow for the implementation of appropriate team-based care pathways to manage complications such as postoperative delirium, as well as help patients and families define their care goals and expectations.15,16

Clinical Recommendation Statements:

“In the immediate preoperative period the patient’s goals and treatment preferences should be confirmed and documented. Also, during this time, fasting recommendations should be followed, appropriate prophylactic medications should be given, and medications lists should be reviewed for nonessential and inappropriate medications. The healthcare team can also take this opportunity to begin proactive, postoperative planning, especially with regard to analgesia strategies and minimization of opioids, prevention of functional decline and delirium, early multispecialty consultation where indicated, early involvement of allied health staff such as physical or occupational therapy and anticipating home health needs at discharge.”

2018 Preoperative Frailty Management Recommendations from the Society for Perioperative Assessment and Quality Improvement (SPAQI)
“A positive frailty screen is best followed up with a diagnostic assessment of frailty and when feasible a comprehensive geriatric assessment with a tailored intervention, ideally by a geriatric specialist.”

“The degree of frailty will help select the target population for highly-specialized geriatric co-management programs (involving anesthesiology, surgery, and geriatric medicine) that have already been demonstrated to improve the outcomes of elderly patients in non-elective surgeries.”

Data Source: Claims/Paper Medical Record, Registry
Measure Steward: American Society of Anesthesiologists (ASA)/Anesthesia Quality Institute (AQI)

Number of Performance Rates: 1
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk Adjustment: No
Care Setting: Hospital Inpatient
Telehealth Reporting Option: No

**2024 Qualified Clinical Data Registry Measure Flow for AQI ID #67: Consultation for Frail Patients**

**Denominator**

- Start
  - Not Included in Eligible Patient Population
    - Patient aged 70 years and older
      - Yes
        - Place of Service: 21
          - Yes
            - Patient Encounter Listed In Denominator
              - Yes
                - Positive Frailty Screening Result 11A14
                  - Yes
                    - Emergent Case
                      - No
        - No
          - Patient did NOT receive multidisciplinary consult or care
            - Yes
              - Data Completeness Met + Performance Met 11A15 (80 procedures)
            - No
              - Data Completeness Met + Performance Not Met 11A16 (10 procedures)

**Numerator**

- Patient received multidisciplinary consult or care
  - Yes
    - Data Completeness Met + Performance Met 11A15 (60 procedures)
  - No
    - Data Completeness Met + Performance Not Met 11A16 (10 procedures)

**SAMPLE CALCULATIONS**

\[
\text{Data Completeness} = \frac{\text{Performance Met (a=60 procedures) + Performance Not Met (b=10 procedures)}}{\text{Eligible Population / Denominator (c=80 procedures)}} = \frac{70}{80} = 87.50\%
\]

\[
\text{Performance Rate} = \frac{\text{Performance Met (a=60 procedures)}}{\text{Eligible Population / Denominator (c=80 procedures)}} = \frac{60}{80} = 85.71\%
\]

Version 2.0
November 2020
Measure Title
AQI71: Ambulatory Glucose Management

Measure Description
Percentage of diabetic patients, aged 18 years and older, who receive an office-based or ambulatory surgery whose blood glucose level is appropriately managed throughout the perioperative period.

This measure will consist of four performance rates:

AQI71a: Percentage of patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery whose blood glucose level is tested prior to the start of anesthesia.

AQI71b: Percentage of patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery who experienced a blood glucose level ≥180 mg/dL (10.0 mmol/L) who received insulin prior to anesthesia end time.

AQI71c: Percentage of patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery who received insulin perioperatively and who received a follow-up blood glucose level check following the administration of insulin and prior to discharge.

AQI71d: Percentage of patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery who experienced a blood glucose level ≥180 mg/dL (10.0 mmol/L) who received education on managing their glucose in the postoperative period prior to discharge.

NOTE: The overall measure score will be calculated as an average of the performance rates of parts A, B, C and D. In order to be scored on this measure, clinicians must have at least one eligible case reported for each sub-metric: AQI71a, AQI71b, AQI71c, and AQI71d.

NQS Domain/meaningful Measures Area
Effective Clinical Care/Healthcare Associated Infections

Measure Type
Process

High Priority Status
No

Inverse Measure
No

Instructions
This measure will consist of four performance rates: AQI71a, AQI71b, AQI71c, and AQI71d. Each measure should be reported, as appropriate, for each time a patient undergoes a procedure in an office-based or ambulatory setting during the reporting period. This measure has four sub-metrics which are used to calculate the total composite score. All submetrics are required to be reported during the performance period. In order to be scored on this measure, clinicians must have at least one eligible case reported for AQI71a, AQI71b, AQI71c, and AQI71d. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via the Qualified Clinical Data Registry
CPT codes and patient demographics are used to identify patients who are included in the measure’s denominator. Registry codes are used to report the numerator of the measure.

NQF Number: Not Applicable

eCQM: Not Applicable
Rationale
Diabetes mellitus has been shown to be an important risk factor for surgical site infection and other surgical complications. With increasingly complex procedures being performed in an ambulatory setting, perioperative glucose management is an important aspect of ambulatory anesthesia care. For diabetic patients, preoperative testing of blood glucose levels can provide an important indicator for their intraoperative insulin and care management needs. Despite the importance of glucose testing, evidence shows that it is not consistently performed in the ambulatory setting. Improved preoperative glucose testing can help anesthesia providers better anticipate and manage the needs of their diabetic patients throughout the perioperative period.

CLINICAL RECOMMENDATION STATEMENTS:

2010 SAMBA Consensus Statement on Perioperative Blood Glucose Management in Diabetic Patients Undergoing Ambulatory Surgery

“Ambulatory surgical facilities taking care of diabetic patients must have glucose monitoring capabilities such as point-of-care monitors. Adequate monitoring of blood glucose levels is critical in maintaining patient safety and should facilitate insulin titration to achieve optimal blood glucose levels as well as allow for early detection of hypoglycemia. It has been suggested that blood glucose levels should be checked on the patient’s arrival to the facility before surgery and before discharge home (LoE category 2A).”

Perioperative administration of Insulin to patients with hyperglycemia, has been shown to improve clinical outcomes by decreasing the incidence of surgical site infections and hyperglycemia in the post-anesthesia care unit. Blood glucose values of 180mg/dL (10 mmol/L) or higher are treated with insulin. Target range for the perioperative period is 140-180 mg/dL (7.7-10 mmol/L).

The Society for Ambulatory Anesthesia (SAMBA) recommends intraoperative blood glucose levels <180 mg/dL (10 mmol/l). The American Association of Clinical Endocrinologists (AACE) Task Force and the American Diabetes Association (ADA) recommend target glucose levels between 140 and 180 mg/dL (7.7-10 mmol/l) in critically ill patients.

The Society of Critical Care Medicine (SCCM) advises treatment be triggered at blood glucose levels ≥ 150 mg/dL (8.3 mmol/10 with a goal to maintain blood glucose below that level, and absolutely <180 mg/dL (10 mmol/l). The Society of Thoracic Surgeons (STS) Practice Guidelines recommend maintaining serum glucose levels ≤ 180mg/dL (10 mmol/l) for at least 24 hours after cardiac surgery. The Endocrine Society and SAMBA recommend that intraoperative blood glucose levels be maintained <180 mg/dL.

Data Source: Claims/Paper Medical Record, Registry

Measure Steward: American Society of Anesthesiologists (ASA)/Anesthesia Quality Institute (AQI)

Number of Performance Rates: 5
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk Adjustment: No
Care Setting: Ambulatory Care: Hospital
Telehealth Reporting Option: No

AQL71a: Ambulatory Point-of-Care Glucose Testing

Description
Percentage of patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery whose blood glucose level is tested prior to the start of anesthesia.

Denominator:
All patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery

   Denominator Definition: Office-based and ambulatory surgery is defined as a therapeutic or diagnostic procedure performed in a healthcare facility that does not require an overnight stay (less than 24 hours of care)

   Denominator Criteria (eligible cases):
   All patients, aged 18 years and older
   AND
   Diagnosis of diabetes mellitus: 11A41
   OR

   AND
   Off Campus-Outpatient Hospital, On Campus – Outpatient Hospital, Ambulatory Surgical Center, and Office-Based Setting: Place of Service Codes 11, 19, 22 or 24

   AND
Patient encounter during the reporting period (CPT):
00100, 00102, 00103, 00104, 00120, 00124, 00126, 00140, 00142, 00144, 00145, 00147, 00148, 00160, 00164, 00170, 00172, 00174, 00176, 00300, 00320, 00322, 00400, 00402, 00404, 00410, 00450, 00454, 00520, 00522, 00524, 00530, 00532, 00534, 00536, 00700, 00702, 00730, 00750, 00752, 00790, 00797, 00800, 00802, 00811, 00812, 00813, 00820, 00830, 00832, 00851, 00870, 00872, 00873, 00902, 00906, 00910, 00912, 00914, 00918, 00920, 00921, 00922, 00924, 00926, 00928, 00930, 00938, 00940, 00942, 00944, 00948, 00950, 00952, 01112, 01120, 01202, 01250, 01260, 01320, 01380, 01382, 01390, 01392, 01400, 01402, 01404, 01464, 01470, 01472, 01474, 01480, 01520, 01610, 01620, 01622, 01630, 01634, 01638, 01670, 01710, 01712, 01714, 01716, 01730, 01732, 01740, 01742, 01744, 01758, 01760, 01810, 01820, 01829, 01830, 01832, 01840, 01842, 01844, 01850, 01852, 01860, 01916, 01920, 01930, 01937, 01938, 01939, 01940, 01941, 01942, 01965, 01966, 01991, 01992

Denominator Exclusions:
• Procedure <30 minutes duration: 11A45

Numerator:
Patients who received a blood glucose test prior to the start of anesthesia

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:
11A51 Patient received a blood glucose test prior to start of anesthesia

OR

Performance Not Met:
11A52 Patient did NOT receive a glucose test prior to start of anesthesia
AQI71b: Ambulatory Hyperglycemia Control

Description
Percentage of patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery who experienced a blood glucose level >180 mg/dL (10.0 mmol/L) who received insulin prior to anesthesia end time.

Denominator:
All patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery who experienced a blood glucose level >180 mg/dL (10.0 mmol/L)

Denominator Definition: Office-based and ambulatory surgery is defined as a therapeutic or diagnostic procedure performed in a healthcare facility that does not require an overnight stay (less than 24 hours of care)

Denominator Criteria (Eligible Cases):
All patients, aged 18 years and older

AND
Diagnosis of diabetes mellitus: 11A41

OR

AND
Off Campus-Outpatient Hospital, On Campus – Outpatient Hospital, Ambulatory Surgical Center, and Office-Based Setting: Place of Service Codes 11, 19, 22 or 24

AND
Experienced a blood glucose level >180 mg/dL (10.0 mmol/L) prior to anesthesia end time: 11A44

AND
**Patient encounter during the reporting period (CPT):**
00100, 00102, 00103, 00104, 00120, 00124, 00140, 00142, 00144, 00145, 00147, 00148, 00160, 00164, 00170, 00172, 00174, 00176, 00300, 00320, 00322, 00400, 00402, 00404, 00410, 00450, 00454, 00520, 00522, 00524, 00530, 00532, 00534, 00537, 00700, 00702, 00720, 00724, 00730, 00731, 00732, 00750, 00752, 00790, 00797, 00800, 00802, 00811, 00812, 00813, 00820, 00830, 00832, 00851, 00857, 00870, 00872, 00873, 00902, 00906, 00910, 00912, 00914, 00917, 00920, 00921, 00922, 00924, 00926, 00928, 00930, 00938, 00940, 00942, 00944, 00948, 00950, 00952, 01112, 01120, 01202, 01250, 01260, 01320, 01380, 01382, 01390, 01392, 01400, 01402, 01404, 01464, 01470, 01472, 01474, 01480, 01520, 01610, 01620, 01622, 01630, 01634, 01638, 01670, 01710, 01712, 01714, 01716, 01730, 01732, 01740, 01742, 01744, 01758, 01760, 01810, 01820, 01829, 01830, 01832, 01840, 01842, 01844, 01850, 01852, 01860, 01916, 01920, 01930, 01937, 01938, 01939, 01940, 01941, 01942, 01965, 01966, 01991, 01992

**Denominator Exclusions:**
- Procedure <30 minutes duration: **11A45**

**Numerator:**
Patients who received insulin prior to anesthesia end time.

**Numerator Quality-Data Coding Options for Reporting Satisfactorily**

- **Performance Met:**
  - **11A53**
    - Patient received insulin prior to anesthesia end time.

  **OR**

- **Denominator Exception:**
  - **11A82**
    - Documentation that insulin was not given because patient had severe comorbidities and glucose concentrations between 180 mg/dL and 250 mg/dL (10-13.9 mmol/L).33

  **OR**

- **Performance Not Met:**
  - **11A54**
    - Patient did NOT receive insulin prior to anesthesia end time.
AQI71c: Follow-Up Glucose Check for Patients Receiving Insulin

Description
Percentage of patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery who received insulin perioperatively and who received a follow-up blood glucose level check following the administration of insulin and prior to discharge.

Denominator:
All patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery who received insulin perioperatively

Denominator Definition: Office-based and ambulatory surgery is defined as a therapeutic or diagnostic procedure performed in a healthcare facility that does not require an overnight stay (less than 24 hours of care)

Denominator Criteria (Eligible Cases):
All patients, aged 18 years and older

AND
Diagnosis of diabetes mellitus: 11A41

OR


AND

Off Campus-Outpatient Hospital, On Campus – Outpatient Hospital, Ambulatory Surgical Center, and Office-Based Setting: Place of Service Codes 11, 19, 22 or 24

AND

Patient received insulin perioperatively: 11A55

AND
Patient encounter during the reporting period (CPT):
00100, 00102, 00103, 00104, 00120, 00124, 00126, 00140, 00142, 00144, 00145, 00147, 00148, 00160, 00164, 00170, 00172, 00174, 00176, 00300, 00320, 00322, 00400, 00402, 00404, 00410, 00450, 00454, 00520, 00522, 00524, 00530, 00532, 00534, 00537, 00700, 00702, 00730, 00731, 00732, 00750, 00752, 00790, 00797, 00800, 00802, 00811, 00812, 00813, 00820, 00830, 00832, 00851, 00870, 00872, 00873, 00902, 00906, 00910, 00912, 00914, 00918, 00920, 00921, 00922, 00924, 00926, 00928, 00930, 00938, 00940, 00942, 00944, 00948, 00950, 00952, 01112, 01120, 01202, 01250, 01260, 01320, 01380, 01382, 01390, 01392, 01400, 01402, 01404, 01464, 01470, 01472, 01474, 01480, 01520, 01610, 01620, 01622, 01630, 01634, 01638, 01670, 01710, 01712, 01714, 01716, 01730, 01732, 01740, 01742, 01744, 01758, 01760, 01810, 01820, 01829, 01830, 01832, 01840, 01842, 01844, 01850, 01852, 01860, 01916, 01920, 01930, 01937, 01938, 01939, 01940, 01941, 01942, 01965, 01966, 01991, 01992

Denominator Exclusions:
• Procedure <30 minutes duration: 11A45

Numerator:
Patients who received a follow-up blood glucose level check following the administration of insulin and prior to discharge.

Numerator Quality-Data Coding Options for Reporting Satisfactorily
Performance Met:
11A56 Patient received a follow-up blood glucose level check following the administration of insulin and prior to discharge.

OR

Performance Not Met:
11A57 Patient did NOT receive a follow-up blood glucose level check following the administration of insulin and prior to discharge.
AQI71d: Hyperglycemia Management Patient Education

Description

Percentage of patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery who experienced a blood glucose level >180 mg/dL (10.0 mmol/L) who received education on managing their glucose in the postoperative period prior to discharge.

Denominator:

All patients, aged 18 years and older, with a current diagnosis of diabetes mellitus receiving anesthesia services for office-based or ambulatory surgery who experienced a blood glucose level >180 mg/dL (10.0 mmol/L).

**Denominator Definition:** Office-based or ambulatory surgery is defined as a therapeutic or diagnostic procedure performed in a healthcare facility that does not require an overnight stay (less than 24 hours of care).

**Denominator Criteria (Eligible Cases):**

All patients, aged 18 years and older

AND

Diagnosis of diabetes mellitus: **11A41**

OR


AND

Off Campus-Outpatient Hospital, On Campus – Outpatient Hospital, Ambulatory Surgical Center, and Office-Based Setting: Place of Service Codes **11, 19, 22 or 24**

AND

Experienced a blood glucose level >180 mg/dL (10.0 mmol/L) prior to anesthesia end time: **11A44**

AND

**Patient encounter during the reporting period (CPT):**

00100, 00102, 00103, 00104, 00120, 00124, 00126, 00140, 00142, 00144, 00145, 00147, 00148, 00160, 00164, 00170, 00172, 00174, 00176, 00300, 00320, 00322, 00400, 00401, 00402, 00404, 00410, 00450, 00454, 00520, 00522, 00524, 00530, 00532, 00534, 00537, 00700, 00702, 00730, 00731, 00732, 00750, 00752.
Denominator Exclusions:
- Procedure <30 minutes duration: 11A45

Numerator:
Patients who received education on managing their glucose in the postoperative period prior to discharge

Numerator Note: To meet this measure, the anesthesiologist or other member of the care team must provide both oral and written education. Provision of written materials alone is not sufficient.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

**Performance Met:**

11A58  Patient received education on managing their glucose in the postoperative period prior to discharge.

**OR**

**Performance Not Met:**

11A59  Patient did NOT receive education on managing their glucose in the postoperative period prior to discharge.
2024 Qualified Clinical Data Registry Measure Flow for AQI ID #71a:
Ambulatory Glucose Management:
Ambulatory Point-of-Care Testing

**Denominator**

- Not Included in Eligible Patient Population
- Patient aged ≥ 18 Years
- Diagnosis of diabetes mellitus 11A41 or appropriate ICD10 code
- Place of Service Code 11, 19, 22, or 24
- Patient Encounter Listed in Denominator
- Procedure < 30 minutes duration 11A45

**Numerator**

- Patient received a blood glucose test
- Patient did NOT receive a blood glucose test
- Data Completeness Not Met: Quality-Data Code or equivalent was not submitted (10 procedures)
- Data Completeness Met + Performance Met 11A51 (60 procedures)
- Data Completeness Met + Performance Not Met 11A52 (10 procedures)

**SAMPLE CALCULATIONS**

Data Completeness =
\[
\frac{\text{Performance Met (≥60 procedures) + Performance Not Met (≤10 procedures)}}{\text{Eligible Population / Denominator (≥80 procedures)}} = \frac{70 \text{ procedures}}{80 \text{ procedures}} = 87.50% 
\]

Performance Rate =
\[
\frac{\text{Performance Met (≥60 procedures)}}{\text{Eligible Population / Denominator (≥80 procedures)}} = \frac{60 \text{ procedures}}{80 \text{ procedures}} = 85.71% 
\]

Data Completeness Numerator (70 procedures) = 70 procedures

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December 2022
2024 Qualified Clinical Data Registry Measure Flow for AQI ID #71b:
Ambulatory Glucose Management:
Ambulatory Hyperglycemia Control

**Denominator**

1. **Start**
   - Not Included in Eligible Patient Population

2. Patient aged ≥ 18 Years
   - Yes
     - Denominator Exclusion
     - Procedure < 30 minutes duration 11A45
   - No

3. Diagnosis of diabetes mellitus 11A41 or appropriate ICD10 code
   - Yes
     - Patient Encounter Listed in Denominator
     - Experienced a blood glucose level ≥ 180 mg/dL 11A44
   - No

4. Place of Service Code 11, 19, 22, or 24
   - Yes
     - Include in Eligible Population/Denominator (80 procedures)
   - No

**Numerator**

1. Patient received insulin prior to anesthesia end time
   - Yes
     - Data Completeness Met + Performance Met 11A53 (40 procedures)
   - No

2. Documentation that insulin was not given
   - Yes
     - Data Completeness Met + Denominator Exception 11A82 (5 procedures)
   - No

3. Patient did NOT receive insulin prior to anesthesia end time
   - Yes
     - Data Completeness Met + Performance Not Met 11A54 (25 procedures)
   - No

**SAMPLE CALCULATIONS**

- Data Completeness = Performance Met (a=40 procedures) + Denominator Exceptions (b=5 procedures) + Performance Not Met (c=25 procedures) / Eligible Population / Denominator (d=80 procedures) = 70 procedures / 80 procedures = 87.5%
- Performance Rate = Performance Met (a=40 procedures) / Eligible Population / Denominator (d=80 procedures) = 40 procedures / 80 procedures = 61.54%
- Data Completeness Numerator (70 procedures) – Denominator Exceptions (b=5 procedures) = 65 procedures

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2024 Qualified Clinical Data Registry Measure Flow for AQI ID #71c:
Ambulatory Glucose Management:
Follow-Up Glucose Check for Patients Receiving Insulin

Multiple Submission Criteria

Denominator

Start

Patient aged ≥ 18 Years

Yes

Patient received insulin perioperatively 11A55

Yes

Procedure < 30 minutes duration 11A45

Yes

Diagnosis of diabetes mellitus 11A41 or appropriate ICD10 code

No

Place of Service Code 11, 19, 22, or 24

Yes

Patient Encounter Listed in Denominator

Yes

Patient received insulin perioperatively 11A55

Data Completeness Not Met

Quality-Data Code or equivalent was not submitted (10 procedures)

Numerator

Patient received a follow-up blood glucose level check

Yes

Patient did NOT receive a follow-up blood glucose level check

No

Data Completeness Met + Performance Met 11A56

(45 procedures)

Data Completeness Met + Performance Not Met 11A57

(25 procedures)

Include in Eligible Population / Denominator (80 procedures)

Yes

No

SAMPLE CALCULATIONS

Data Completeness =
Performance Met (a=45 procedures) + Performance Not Met (b=25 procedures) = 70 procedures = 87.50%
Eligible Population / Denominator (c=80 procedures) = 80 procedures

Performance Rate =
Performance Met (a=45 procedures) = 45 procedures = 64.29%
Data Completeness Numerator (70 procedures) = 70 procedures

Version 2.0
December 2022

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2024 Qualified Clinical Data Registry Measure Flow for AQI ID #71d:
Ambulatory Glucose Management:
Hyperglycemia Management Patient Education

Denominator

Not Included in Eligible Patient Population

Start

Patient aged ≥ 18 Years

Yes

Diagnosis of diabetes mellitus 11A41 or appropriate ICD10 code

Yes

Place of Service Code 11, 19, 22, or 24

Yes

Patient Encounter Listed in Denominator

Yes

Experienced a blood glucose level ≥ 180 mg/dL 11A44

Yes

Procedure < 30 minutes duration 11A45

Yes

Numerator

Patient received education on managing their glucose

Yes

Data Completeness Met + Performance Met
11A58
(45 procedures)

No

Patient did not receive education managing their glucose

Yes

Data Completeness Met + Performance Not Met
11A59
(25 procedures)

No

Data Completeness Not Met Quality-Data Code or equivalent was not submitted
(10 procedures)

Denominator Exclusion

Include in Eligible Population/Denominator (80 procedures)

SAMPLE CALCULATIONS

Data Completeness =
Performance Met (and 45 procedures) + Performance Not Met (by 25 procedures)

= 70 procedures

Eligible Population / Denominator (c=80 procedures) = 87.50%

Performance Rate =
Performance Met (and 45 procedures)

= 45 procedures

= 64.29%

Data Completeness Numerator (70 procedures) = 70 procedures

Version 2.0
December 2022
### 2024 Qualified Clinical Data Registry Measure Flow for AQI ID #71:
Ambulatory Glucose Management:
Sample Overall Calculation

#### SAMPLE CALCULATIONS: Ambulatory Point-of-Care Glucose Testing

<table>
<thead>
<tr>
<th>Data Completeness</th>
<th>Performance Met (a=60 procedures) + Performance Not Met (b=10 procedures) = 70 procedures</th>
<th>Performance Rate = Performance Met (a=60 procedures) = 60 procedures = 85.71%</th>
<th>Data Completeness Numerator (70 procedures) = 70 procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible Population / Denominator (c=80 procedures) = 80 procedures</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SAMPLE CALCULATIONS

<table>
<thead>
<tr>
<th>Data Completeness</th>
<th>Performance Met (a=40 procedures) + Denominator Exceptions (b=5 procedures) + Performance Not Met (c=25 procedures) = 70 procedures</th>
<th>Performance Rate = Performance Met (a=40 procedures) = 40 procedures = 61.54%</th>
<th>Data Completeness Numerator (70 procedures) – Denominator Exceptions (b=5 procedures) = 65 procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible Population / Denominator (d=80 procedures) = 80 procedures</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SAMPLE CALCULATIONS: Follow-Up Glucose Check for Patients Receiving Insulin

<table>
<thead>
<tr>
<th>Data Completeness</th>
<th>Performance Met (a=45 procedures) + Performance Not Met (b=25 procedures) = 70 procedures</th>
<th>Performance Rate = Performance Met (a=45 procedures) = 45 procedures = 64.29%</th>
<th>Data Completeness Numerator (70 procedures) = 70 procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible Population / Denominator (c=80 procedures) = 80 procedures</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SAMPLE CALCULATIONS: Hyperglycemia Management Patient Education

<table>
<thead>
<tr>
<th>Data Completeness</th>
<th>Performance Met (a=45 procedures) + Performance Not Met (b=25 procedures) = 70 procedures</th>
<th>Performance Rate = Performance Met (a=45 procedures) = 45 procedures = 64.29%</th>
<th>Data Completeness Numerator (70 procedures) = 70 procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible Population / Denominator (c=80 procedures) = 80 procedures</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SAMPLE CALCULATIONS: Sample Overall Calculation

\[
\text{Performance Rate} = \frac{85.71\% + 64.29\% + 64.29\% + 64.29\%}{4} = 72.83 \% = 68.96\%
\]

\[
\text{Performance Rate} = \frac{85.71\% + 64.29\% + 64.29\% + 64.29\%}{4} = 72.83 \% = 68.96\%
\]
Measure Title

AQI72: Perioperative Anemia Management

Measure Description
Percentage of patients, aged 18 years and older, undergoing elective total joint arthroplasty who were screened for anemia preoperatively AND, if positive, have documentation that one or more of the following management strategies were used prior to PACU discharge.

Management strategies include one or more of the following:
- Cell salvage techniques employed intraoperatively
- Intraoperative antifibrinolytic therapy or tourniquet, if not contraindicated
- Preoperative iron supplementation, epoetin alpha
- Use of evidence-based preoperative anemia management algorithm supplemented with laboratory testing and/or multidisciplinary consult

NQS Domain/meaningful Measures Area
Patient Safety/Preventable Healthcare Harm

Measure Type
Process

High Priority Status
Yes

Inverse Measure
No

Instructions
This measure is to be reported each time a patient undergoes an elective total joint arthroplasty procedure during the reporting period. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via the Qualified Clinical Data Registry
CPT codes are used to identify patients who are included in the measure denominator. Registry codes are used to report the numerator of the measure.

Denominator
Patients, aged 18 years and older, undergoing elective total joint arthroplasty.

Denominator Note: For the purpose of this measure, total joint arthroplasty includes arthroplasty of the knee, hip, and shoulder.

Denominator Criteria (Eligible Cases):
All patients, aged 18 years and older

AND
Elective Surgery: G9643

AND
Patient encounter during the reporting period (CPT): 01214, 01215, 01402, 01638
Denominator Exclusions
Surgeon or other non-anesthesia professional clinician completed one or more of the management strategies without direction or assistance from the anesthesia professional: 11A80

Numerator
Patients who were screened for anemia preoperatively AND, if positive, have documentation that one or more of the following management strategies were used prior to PACU discharge.

Management strategies include one or more of the following:

- Cell salvage techniques employed intraoperatively
- Intraoperative antifibrinolytic therapy or tourniquet, if not contraindicated
- Preoperative iron supplementation, epoetin alpha
- Use of evidence-based preoperative anemia management algorithm supplemented with laboratory testing and/or multidisciplinary consult

Numerator Definition: For the purpose of this measure, a positive preoperative anemia screening result is defined as a Hgb value <13 gm/dL all adults, regardless of gender.35

Numerator note: Preoperative screening for anemia could include any of the following tests: complete blood count (CBC), arterial blood gas (ABG), venous blood gas (VBG), or other point of care hemoglobin/hematocrit test within 90 days and until one day prior to the surgical procedure.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A67 Patient was screened for anemia preoperatively AND documentation of one or more selected management strategies used prior to PACU discharge.

OR

Denominator Exception:

11A68 Negative preoperative anemia screening result.

OR

Denominator Exception:

11A69 Documentation of medical or patient reason(s) for not screening for anemia and/or using selected management strategies (e.g., patient refusal, contraindication, etc.).

OR

Performance Not Met:

11A70 No preoperative patient screen for anemia OR positive preoperative anemia screening result and no documentation of one or more selected management strategies used prior to PACU discharge.

NQF Number: Not Applicable

eCQM: Not Applicable

Rationale
Anemia is a common complication of many chronic illnesses that interferes with iron absorption. It has been estimated that at least one-third of patients undergoing non-emergent surgical procedures have potentially treatable anemia. Preoperative anemia is associated with increased need for perioperative blood transfusion as well as significant perioperative morbidity and mortality. Appropriate preoperative anemia management can reduce the risk of perioperative blood transfusion, help identify co-morbidities, and improve perioperative outcomes by improving patients’ readiness for surgery. The 2015 American Society of Anesthesiologists Guideline on Perioperative Blood Management indicate “TEG and ROTEM-guided algorithms are shown to be effective in reducing blood transfusion requirements.” Additionally, studies have found that preoperative anemia has been associated with postoperative joint infections. The preoperative screening for anemia would reduce the number of post-operative joint infections.” More resources can be found at the American Association of Blood Banks.

The purpose of this measure is to drive quality changes within perioperative anemia management. Testing algorithms may not be available in all practices. Those that do not have testing algorithms should use a different strategy to fulfill requirements of this measure.

Clinical Recommendation Statements
2015 ASA Practice Guidelines for Perioperative Blood Management
“Review available laboratory test results including hemoglobin, hematocrit, and coagulation profiles. Order additional laboratory tests depending on a patient's medical condition (e.g., coagulopathy, anemia).”

“Erythropoietin with or without iron may be administered when possible to reduce the need for allogenic blood in selected patient populations (e.g., renal insufficiency, anemia of chronic disease, refusal of transfusion). Administer iron to patients with iron deficiency anemia if time permits.”

“If anemia is suspected, monitor hemoglobin/hematocrit values based on estimated blood loss and clinical signs.”

Data Source: Claims/Paper Medical Record, Registry
Measure Steward: American Society of Anesthesiologists (ASA)/Anesthesia Quality Institute (AQI)
Number of Performance Rates: 1
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk Adjustment: No
Care Setting: Hospital
Telehealth Reporting Option: No

2024 Qualified Clinical Data Registry Measure Flow for AQI ID #72: Perioperative Anemia Management

**Sample Calculations**

Data Completeness -
Performance Met (a=50 procedures) + Denominator Exception (b=10 procedures) + Performance Not Met (c=10 procedures) - 70 procedures = 89.50% Eligible Population / Denominator (d=60 procedures) = 60 procedures

Performance Rate =
Performance Met (a=50 procedures) - 50 procedures = 83.33%
Data Completeness Numerator (70 procedures) - Denominator Exceptions (b=10 procedures) = 60 procedures
Measure Title

ABG44: Low Flow Inhalational General Anesthesia

Measure Description
Percentage of patients aged 18 years or older, who undergo an elective procedure lasting 30 minutes or longer requiring inhalational general anesthesia who during the maintenance phase of the anesthetic have a total fresh gas flow less than or equal to 1 L/min (less than or equal to 2 L/min for Sevoflurane).

NQS Domain/meaningful Measures Area
Efficient Use of Healthcare Resources/Clinical Process/Effectiveness

Measure Type
Process

High Priority Status
Yes

Inverse Measure
No

Instructions:
This measure is to be reported each time a patient undergoes an elective procedure in which inhalational general anesthesia is used. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via the Qualified Clinical Data Registry
Patient demographics and CPT codes are used to identify patients who are included in the measure denominator. G-codes and Registry Codes are used to capture the numerator.

Denominator
All patients aged 18 years or older, who undergo an elective procedure lasting 30 minutes or longer requiring inhalational general anesthesia.

Denominator Criteria (Eligible Cases)
Patients aged 18 years and older
AND
Elective procedure G9643
AND
Patient who receives inhalational general anesthesia 11A96
AND
Procedure lasts 30 minutes or longer 11A97
### Patient encounter during the reporting period (CPT)

<table>
<thead>
<tr>
<th>Denominator Exceptions</th>
<th>Numerator Definition</th>
<th>Numerator Quality-Data Coding Options for Reporting Satisfactorily</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Denominator Exceptions</strong></td>
<td>Inhalational general anesthesia is defined as the use of at least one inhalational anesthetic gas (e.g., halothane, isoflurane, desflurane, sevoflurane, nitrous oxide) as the primary mode of anesthesia for the procedure. The maintenance phase of the inhalational anesthetic is defined as the portion of the case in which Stage III surgical anesthesia (e.g., unconsciousness, amnesia, immobility, unresponsive to surgical stimulation) is achieved at a safe anesthetic depth while also maintaining respiratory and hemodynamic stability. This occurs between the induction and emergence phases of the case.¹ Fresh gas flow (FGF) is defined as the combined admixture of medical gases such as air, oxygen, or nitrous oxide as well as volatile anesthetics as set by the anesthesia provider.</td>
<td></td>
</tr>
<tr>
<td><strong>Numerator</strong></td>
<td>Patients who undergo an elective procedure lasting 30 minutes or longer requiring inhalational general anesthesia who during the maintenance phase of the anesthetic have a total fresh gas flow less than or equal to 1 L/min (less than or equal to 2 L/min for Sevoflurane).</td>
<td>Performance Met: The total FGF is reduced to less than or equal to 1 L/min (less than or equal to 2 L/min for Sevoflurane) for the duration of the maintenance phase of the anesthetic. <strong>11A98</strong>  OR  Performance Not Met: The total FGF is greater than 1 L/min (greater than 2 L/min for Sevoflurane) for the duration of the maintenance phase of the anesthetic. <strong>11A99</strong></td>
</tr>
<tr>
<td><strong>Numerator Definition</strong></td>
<td>Inhalational general anesthesia is defined as the use of at least one inhalational anesthetic gas (e.g., halothane, isoflurane, desflurane, sevoflurane, nitrous oxide) as the primary mode of anesthesia for the procedure.</td>
<td></td>
</tr>
</tbody>
</table>

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Rationale
Managing Fresh Gas Flow to Reduce Environmental Contamination

Introduction
When using a circle anesthesia system, any anesthetic gases and vapors that enter the scavenging system will flow through the hospital vacuum system and ultimately be vented outside the hospital to the atmosphere. The total fresh gas flow determines the amount of gas entering the scavenging system per minute. Whenever fresh gas flow exceeds the patient's requirement, gases and vapors will enter the scavenging system and ultimately contaminate the atmosphere. By choosing the minimal total fresh gas flow, the environmental impact of anesthetic vapors and gases can be minimized. Although the environmental impact of a single case may be minimal, every practitioner can make a significant difference over the thousands of procedures during their career by practicing careful fresh gas flow management for each case. There are three strategies to minimize fresh gas flow and environmental contamination. To implement these strategies, it is important to understand how to utilize anesthetic agent and oxygen concentration monitors to safely deliver the minimum fresh gas flow.

Strategy #1: Minimize Fresh Gas Flow During Maintenance
With this background, the first strategy to reduce the environmental impact of anesthetic vapors is to minimize the fresh gas flow during the maintenance phase of the case. As an example of a low, or minimal, flow anesthetic technique, consider a case of a 70 kg male requiring general anesthesia. Following intravenous induction, isoflurane was administered using oxygen and air at 2 L/min each for a total fresh gas flow of 4 L/min. Once the exhaled concentration of isoflurane is close to the inspired concentration, uptake from the lungs has slowed and the fresh gas flow can be reduced. Assuming oxygen consumption to be about 350 mL/min, the oxygen flow can be set to 350 mL/min. The air flowmeter can be set at 500 mL/min which would deliver an additional 105 mL/min of oxygen and the total fresh gas flow will be less than 1 L/min. If nitrous oxide is used, the oxygen flowmeter should be set to 500 mL/min at a minimum and nitrous oxide at 500 mL/min.

Managing this technique requires that the inspired oxygen concentration be monitored. If oxygen consumption exceeds the total oxygen delivered, the inspired oxygen concentration will diminish over time, which will be an indication that oxygen flow needs to be increased. There is still some environmental contamination with this technique, since the total fresh gas flow exceeds what is consumed, but it is easier to manage than a true “closed circuit” technique. Unless the patient has a large oxygen consumption (e.g., trauma, pregnancy) it should be possible during the maintenance phase of anesthesia to limit the fresh gas flow to a maximum of 1 L/minute. For smaller patients with even lower oxygen consumption requirements, the maintenance fresh gas flow can be reduced even further with the same caveat of monitoring inspired oxygen concentration.
Described in 1952 by Foldes, the technique of reducing the fresh gas flow during an anesthetic to a level < 1 L/min is both safe and effective. Additionally, there are benefits to both the patient, cost savings to the facility and benefits to the environment.

- The inhalational anesthetic agents sevoflurane, isoflurane and desflurane have global warming potentials 2-3 orders of magnitude higher than CO₂. Nitrous oxide contributes significantly to global warming and ozone depletion.
- 5% of the carbon footprint (CO₂e) of the British National Health System is attributable to exhaled anesthetic agents.
- Reducing the environmental impact of anesthesia can be achieved through behavior change.
- The chemical properties and global warming impacts of these gases vary, with atmospheric lifetimes of 1–5 years for sevoflurane, 3–6 years for isoflurane, 9–21 years for desflurane, and 114 years for N₂O.
- The conservation of heat and moisture within the breathing system is an added benefit of low flow anesthesia to the patient, especially when humidifier connection filters are not used.
- Low flow anesthesia can result in cost savings even when the increased cost of CO₂ absorber is factored in, especially with regards to usage of Sevoflurane and Desflurane.
- The simulated low flow anesthesia of 1 L/min FGF across all agents predicted a 48% reduction in costs of volatile anesthetics at a tertiary hospital.

Data Source:
1. Maintenance of general anesthesia: Overview – UpToDate
5. Effect of CO₂ Absorbent on the Cost of Low Flow Anesthesia: Lower Flows Are Not Always Cheaper (asaabstracsts.com)
2024 Qualified Clinical Data Registry Measure Flow for AQI ID #72: Perioperative Anemia Management

**Denominator**
- Not Included in Eligible Patient Population
- Patient aged ≥ 18 Years
- Patient received inhalational general anesthesia 11A96
- Patient Encounter Listed in Denominator
- Procedure Duration ≥ 30 minutes 11A97
- Elective Surgery G9643
- Include in Eligible Population/ Denominator (80 procedures)

**Numerator**
- Total FGF is reduced ≤ 1 L/min for the duration of the maintenance phase of the anesthetic
- Data Completeness Not Met Performance Not Met 11A99 (10 procedures)

**SAMPLE CALCULATIONS**

Data Completeness = Performance Met (a=50 procedures) + Denominator Exception (b=10 procedures) + Performance Not Met (c=10 procedures) = 70 procedures = 87.50%

Eligible Population / Denominator (d=80 procedures) = 80 procedures

Performance Rate = Performance Met (a=50 procedures) = 50 procedures = 83.33%

Data Completeness Numerator (70 procedures) - Denominator Exceptions (b=10 procedures) = 60 procedures

Version 1.0
December 2023
Measure Title

**ePreop31: Intraoperative Hypotension (IOH) among Non-Emergent Noncardiac Surgical Cases**

*ASA LICENSED THIS MEASURE FROM Provation*

**Measure Description:** Percentage of general anesthesia cases in which mean arterial pressure (MAP) fell below 65 mmHg for cumulative total of 15 minutes or more

**NQS Domain/Meaningful Measures Area**
Patient Safety/Preventable Healthcare Harm

**Measure Type**
Intermediate Outcome

**High Priority Status**
Yes

**Inverse Measure**
Yes – A lower score indicates better quality. Note that providers are not expected to receive a score of zero on the measure, because some patients could have a MAP that falls below 65 for reasons outside a provider's control.

**Instructions**
This measure evaluates the proportion of cases in which the patient’s MAP is below 65 mmHg for 15 minutes or more, cumulatively over the course of the surgery. The numerator condition is met when MAP is below 65 mmHg for one continuous period lasting 15 minutes or more, or if the patient has several discrete periods with a MAP below 65 mmHg that collectively sum to 15 minutes or more. Note that this measure is not intended to substitute for the clinician's judgement about managing IOH for any given patient, and for some patients the clinician may manage blood pressure using a higher or lower target MAP (e.g., a higher MAP target for patients with chronic hypertension).

To report the measure, the reporting clinician must submit data on the patient's MAP over the course of the surgery as monitored by an anesthesia information management system (AIMS). The reporting clinician must submit intraoperative patient vitals extracted directly from an interface with the monitor. Reporting clinicians who track blood pressure manually are not eligible to report the measure. If the record for a given case includes both vitals pulled from the monitor and manually recorded vitals, only those from the monitor will be used to score the measure.

The first blood pressure reading is defined as the anesthesia start time. The measure end time is defined as the anesthesia end time. A given blood pressure reading will be attributed to the period that runs from the time the reading was recorded to the time of either the next reading or the measure end time. If the period between a given reading and either the next reading or the measure end time lasts for longer than five minutes, the reading will only be attributed for five minutes. If the reporting clinician monitors a patient using more than one method and there are two MAPs available at the same point in time, the measure uses the invasive value for scoring the measure. The measure attributes the full case to all reporting clinicians who provide care during any portion of the case from the beginning to the end of the measurement period.

The measure excludes patients with a baseline MAP below 65 mmHg. To determine the patient's baseline MAP, the measure relies on the most recent reading taken from the preoperative holding area. If no such reading is available, the measure uses the most recent MAP taken in the operating room before induction of anesthesia.

If a clinician does not have MAP values available to report either for the baseline MAP or for measurements across the measurement period, the clinician may submit pairs of systolic and diastolic blood pressures (SBPs and DBPs) as a replacement for the MAP. The registry collecting the data will use these systolic and diastolic pressure values to calculate MAP values. Specifically, the registry will calculate MAP using the following formula:

\[ MAP = \frac{1}{3} (SBP) + \frac{2}{3} (DBP) \]  
(Sesso et al. 2000).

Non-emergency surgeries include both elective and urgent surgeries.
Because longitudinal blood pressure data can contain artifactual values (for example, inaccurate readings caused by the surgeon's leaning on the blood pressure cuff), the measure will drop MAP, SBP, and DBP readings that are likely to be artifacts. Specifically, the measure will drop individual MAP readings that meet any of the following criteria:

- Documented as an artifact by the clinician
- SBP ≥ 300 mmHg or ≤20 mmHg
- DBP ≤5 mmHg or DBP ≥ 225 mmHg
- SBP and DBP within 5 mmHg
- MAP ≤30 mmHg or ≥ 250 mmHg

**Measure Reporting via the Qualified Clinical Data Registry**

CPT codes, patient demographics and billing data are used to identify patients who are included in the measure's denominator. Denominator eligible cases are required to be sent from an electronic reporting facility to qualify. Registry codes are used to report the numerator. Reporting clinicians who track information manually are not eligible to report the measure.

**Denominator**

- Unadjusted measure score: All cases in which adults (ages 18 and older) with noncardiac, non-emergency surgery requires general, neuraxial, or regional anesthesia care.
- Risk adjusted measure score: The expected number of cases in which patients have a MAP below 65 mmHg that exceeds the cumulative length of 15 minutes with noncardiac, non-emergency surgery requiring general, neuraxial, or regional anesthesia care, based on the risk adjustment model.

**Denominator Criteria (Eligible Cases):**

Patient aged 18 years and older

**AND**

Anesthesia Types: General Anesthesia, Neuraxial Anesthesia, Regional Anesthesia

**AND**

Patient encounter during the reporting period (CPT):

00100, 00103, 00160, 00162, 00164, 00170, 00174, 00176, 00190, 00192, 00210, 00211, 00212, 00214, 00215, 00216, 00218, 00220, 00222, 00300, 00320, 00322, 00350, 00352, 00400, 00402, 00404, 00406, 00450, 00454, 00470, 00472, 00474, 00500, 00520, 00524, 00528, 00529, 00530, 00532, 00534, 00539, 00540, 00541, 00542, 00546, 00548, 00550, 00600, 00604, 00620, 00622, 00624, 00625, 00626, 00630, 00632, 00635, 00636, 00640, 00670, 00700, 00702, 00730, 00750, 00752, 00756, 00770, 00790, 00792, 00794, 00797, 00800, 00802, 00820, 00830, 00832, 00840, 00844, 00846, 00848, 00851, 00852, 00860, 00862, 00864, 00865, 00866, 00868, 00870, 00872, 00873, 00880, 00882, 00902, 00904, 00906, 00908, 00910, 00912, 00914, 00916, 00918, 00920, 00921, 00922, 00924, 00926, 00928, 00930, 00932, 00934, 00936, 00938, 00940, 00942, 00944, 00948, 00950, 00952, 01112, 01120, 01140, 01150, 01160, 01170, 01173, 01200, 01202, 01210, 01212, 01214, 01215, 01220, 01230, 01232, 01234, 01250, 01260, 01270, 01272, 01274, 01320, 01340, 01360, 01380, 01382, 01390, 01392, 01400, 01402, 01404, 01420, 01430, 01432, 01440, 01442, 01444, 01462, 01464, 01470, 01472, 01474, 01480, 01482, 01484, 01486, 01500, 01502, 01520, 01522, 01610, 01620, 01622, 01630, 01634, 01636, 01638, 01650, 01652, 01654, 01656, 01670, 01710, 01712, 01714, 01716, 01730, 01732, 01740, 01742, 01744, 01756, 01758, 01760, 01770, 01772, 01780, 01782, 01810, 01820, 01829, 01830, 01832, 01840, 01842, 01844, 01850, 01852, 01916, 01920, 01922, 01922, 01924, 01925, 01926, 01930, 01931, 01932, 01933, 01937, 01938, 01939, 01940, 01941, 01942, 01951, 01952, 01953
**Denominator Exclusions**

- **99A16** – The measure excludes patients with a baseline MAP below 65 mmHg
  - To determine the patient’s baseline MAP, the measure relies on the most recent reading taken from the preoperative holding area. If no such reading is available, the measure uses the most recent MAP taken in the operating room before induction of anesthesia.
  - If a clinician does not have MAP values available to report either for the baseline MAP or for measurements across the measurement period, the clinician may submit pairs of systolic and diastolic blood pressures (SBPs and DBPs) as a replacement for the MAP. The registry collecting the data will use these systolic and diastolic pressure values to calculate MAP values. Specifically, the registry will calculate MAP using the following formula:
    \[ MAP = \frac{1}{3} (SBP) + \frac{2}{3} (DBP) \]
    (Sesso et al. 2000).

- **99135** CPT code – The measure excludes surgeries where add on code 99135 (Anesthesia complicated by utilization of controlled hypotension) is listed separately in addition to the code for the primary anesthesia procedure.

- American Society of Anesthesiologists (ASA) Physical Status Classification of 1, 5 and 6
- Emergency case
- Cardiac procedures
- Obstetric non-operative procedures
- Liver or lung transplant procedures
- Cataract procedures

**Numerator**

Patients who have a MAP below 65 mmHg that exceeds the cumulative length of 15 minutes

**Numerator Quality-Data Coding Options for Reporting Satisfactorily**

- **Performance Met:**
  - **99A17** MAP below 65 mmHg that exceeds the cumulative length of 15 minutes.

- **Performance Not Met:**
  - **99A18** MAP does not fall below 65 mmHg for a cumulative length of 15 minutes

**NQF Number:** Not applicable

**eCQM:** Not applicable

**Rationale**

MAP below 60–70 mmHg among adults having non-cardiac surgery is associated with increased risk of acute kidney injury (AKI), myocardial injury, and mortality, and the risk is a function of both hypotension severity and duration (Sessler et al. 2019). Noncardiac surgery patients are at increased risk of AKI when their cumulative time below a MAP of 65 mmHg reaches or exceeds 13 minutes. When patients fall even further below this threshold (for example, MAP below 55 mmHg), even shorter durations are associated with increased risk of AKI (Salmasi et al. 2017).

Among adult noncardiac surgery patients, 31.3 percent have experienced MAP below 65 mmHg for 10 minutes or longer (Bijker et al. 2007). Different approaches for managing patients’ blood pressure during surgery are significantly associated with higher or lower risks of postoperative organ dysfunction, including renal dysfunction (Futier et al. 2017).
<table>
<thead>
<tr>
<th><strong>Data Source:</strong></th>
<th>Claims, EHR (AIMS, patient record)</th>
</tr>
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<tbody>
<tr>
<td><strong>Care Setting:</strong></td>
<td>Hospital</td>
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<tr>
<td><strong>Telehealth:</strong></td>
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<tr>
<td><strong>Measure Steward:</strong></td>
<td>ePreop Anesthesia Quality Registry/Cleveland Clinic</td>
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<td><strong>Number of Multiple Performance Rates:</strong></td>
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<td><strong>Proportional Measure:</strong></td>
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<td><strong>Continuous Variable Measure:</strong></td>
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<tr>
<td><strong>Ratio Measure:</strong></td>
<td>Yes - This is a ratio measure that will score greater than or equal to zero</td>
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<tr>
<td><strong>Risk Adjusted:</strong></td>
<td>Yes</td>
</tr>
</tbody>
</table>
| **Risk adjustment:**          | Variables incorporated into the risk adjustment model include the following:  
  • Age  
  • ASA physical status classification  
  • Body mass index  
  • Duration of surgery  
  • Gender |