2023 QCDR Measure Specifications

Anesthesia Quality Institute
National Anesthesia Clinical Outcomes Registry

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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 2023 AQI NACOR QCDR Measure Set

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

Measure ID	Measure Title	Reason for Removal
AQI57	Safe Opioid Prescribing Practices	ASA will no longer support this measure beginning with the 2023 performance year.
AQI62	Obstructive Sleep Apnea: Patient Education	CMS removed this measure for the 2023 Performance Year.
Quantum31	Central Line Ultrasound Guidance	CMS removed this measure for the 2023 Performance Year.

Modifications to 2022 QCDR Measures for 2023 AQI NACOR Measure Set

This table identifies changes that were made to AQI NACOR's QCDR measure specifications in preparation for the 2023 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.

Measure ID	Measure Title	Modifications
AQI56	Use of Neuraxial Techniques or Peripheral Nerve Block (PNB) for Total Knee Arthroplasty (TKA)	Numerator note modified for clarification, "...Administration of local infiltration analgesia is acceptable to meet this measure (performance met if anesthesiologist administered and denominator exception if the surgeon administered the LIA)."
ABG43	Use of Capnography for non-Operating Room anesthesia Measure	An update has been made to the denominator exclusions criteria for ABG43. ABG has removed General Anesthesia as a denominator exclusion (11A89). Patients receiving general anesthesia for an applicable anesthesia service in a non-operating room setting are included in the denominator for this measure.

2023 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."

Measure ID	Measure Title	Measure Type
QID 047	Advance Care Plan	Process – High Priority
QID 128	Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up Plan	Process
QID 130	Documentation of Current Medications in the Medical Record	Process – High Priority
QID 155	Falls: Plan of Care	Process – High Priority
QID 182	Functional Outcome Assessment	Process – High Priority
QID 226	Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention	Process
QID 317	Preventive Care and Screening: Screening for High Blood Pressure and Follow-Up Documented	Process
QID 404*	Anesthesiology Smoking Abstinence	Intermediate Outcome – High Priority
QID 424*	Perioperative Temperature Management	Outcome – High Priority
QID 430*	Prevention of Post-Operative Nausea and Vomiting (PONV) – Combination Therapy	Process – High Priority
QID 463*	Prevention of Post-Operative Vomiting (POV) – Combination Therapy (Pediatrics)	Process – High Priority
QID 468	Continuity of Pharmacotherapy for Opioid Use Disorder (OUD)	Process – High Priority
QID 477*	Multimodal Pain Management	Outcome – High Priority

*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.

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

Denominator 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:

G8569 Prolonged postoperative intubation (> 24 hrs) required

OR

Performance Not Met:

G8570 Prolonged postoperative intubation (>24 hrs) not required

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.[1] 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.[2] 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

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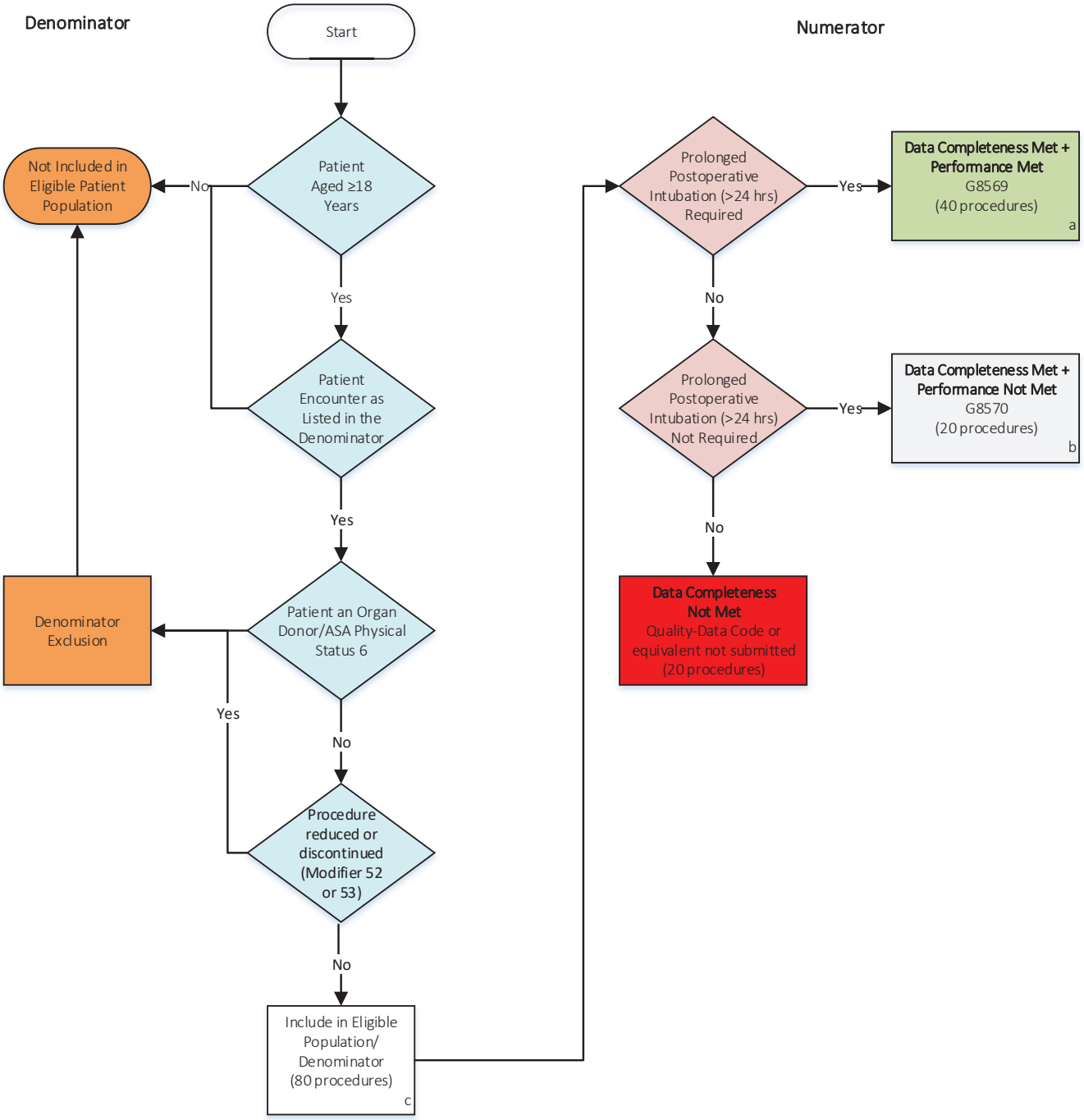
[1] Ji Q, Duan Q, Wang X, et al. Risk factors for ventilator dependency following coronary artery bypass grafting. Int J Med Sci. 2012;9(4):306-310. doi:10.7150/ijms.4340.
[2] Totonchi Z, Baazm F, Chitsazan M, Seifi S, Chitsazan M. Predictors of prolonged mechanical ventilation after open heart surgery. J Cardiovasc Thorac Res. 2014;6(4):211-216. doi:10.15171/jcvtr.2014.014.

2023 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

Version 3.0
January 2022

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.

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/Patient'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. 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.

Data Source:	Database, Registry
Measure Steward:	American Society of Anesthesiologists (ASA)/Anesthesia Quality Institute (AQI)
Number of Performance Rates:	2
Overall Performance Rate for Scoring:	AQI48b
Proportion Measure Scoring:	Yes
Continuous Measure Scoring:	No
Risk Adjusted:	No
Care Setting:	Ambulatory Care: Clinician Office; Ambulatory Care: Hospital; Hospital; Hospital Inpatient; Outpatient Services
Telehealth Reporting Option:	No

AQI48a

Description-AQI48a

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

Denominator-AQI48a

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

AQI48a: 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, 00300, 00320, 00322, 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, 00794, 00796, 00797, 00800, 00802, 00811, 00812, 00813, 00820, 00830, 00832, 00840, 00842, 00844, 00846, 00848, 00851, 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, 01130, 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, 01490, 01500, 01502, 01520, 01522, 01610, 01620, 01622, 01630, 01634, 01636, 01638, 01650, 01652, 01654, 01656, 01670, 01680, 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, 01860, 01916, 01920, 01922, 01924, 01925, 01926, 01930, 01931, 01932, 01933, 01937, 01938, 01939, 01940, 01941, 01942, 01951, 01952, 01958, 01960, 01961, 01962, 01963, 01965, 01966, 01967, 01991, 01992, 20526, 20550, 20551, 20552, 20553, 20600, 20604, 20605, 20606, 20610, 20611, 27096, 36555, 36556, 36570, 36571, 36578, 36580, 36581, 36582, 36583, 36584, 36585, 62263, 62264, 62270, 62272, 62273, 62280, 62281, 62282, 62320, 62321, 62322, 62323, 62324, 62325, 62326, 62327, 62328, 62329, 62350, 62355, 62360, 62361, 62362, 62365, 62370, 63650, 63661, 63662, 63663, 63664, 63685, 63688, 64400, 64405, 64408, 64415, 64416, 64417, 64418, 64420, 64425, 64430, 64435, 64445, 64446, 64447, 64448, 64449, 64450, 64451, 64454, 64461, 64463, 64479, 64483, 64486, 64487, 64488, 64489, 64490, 64493, 64505, 64510, 64517, 64520, 64530, 64600, 64605, 64610, 64620, 64624, 64625, 64630, 64633, 64635, 64640, 64680, 64681, 93503, 95990, 95991

Denominator Exclusions-AQI48a

- 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.

Numerator 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. Pre-operative Education and Preparation
2. Patient and/or Family Communication
3. Care Team Response to Comfort and Well-Being
4. Post-operative 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. Pre-Operative 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. Post-Operative Pain Management

For more information on these resources, visit 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.

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.

Denominator-AQI48b

All patients from the numerator of AQI48a who complete a survey on their patient experience and satisfaction with anesthesia care.

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: **10A72**

Denominator Exclusions-AQI48b

- Patient did not complete the mandatory anesthesia satisfaction question: **10A69**

Numerator-AQI48b:

Patients who reported a positive experience with anesthesia care.

Numerator 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:

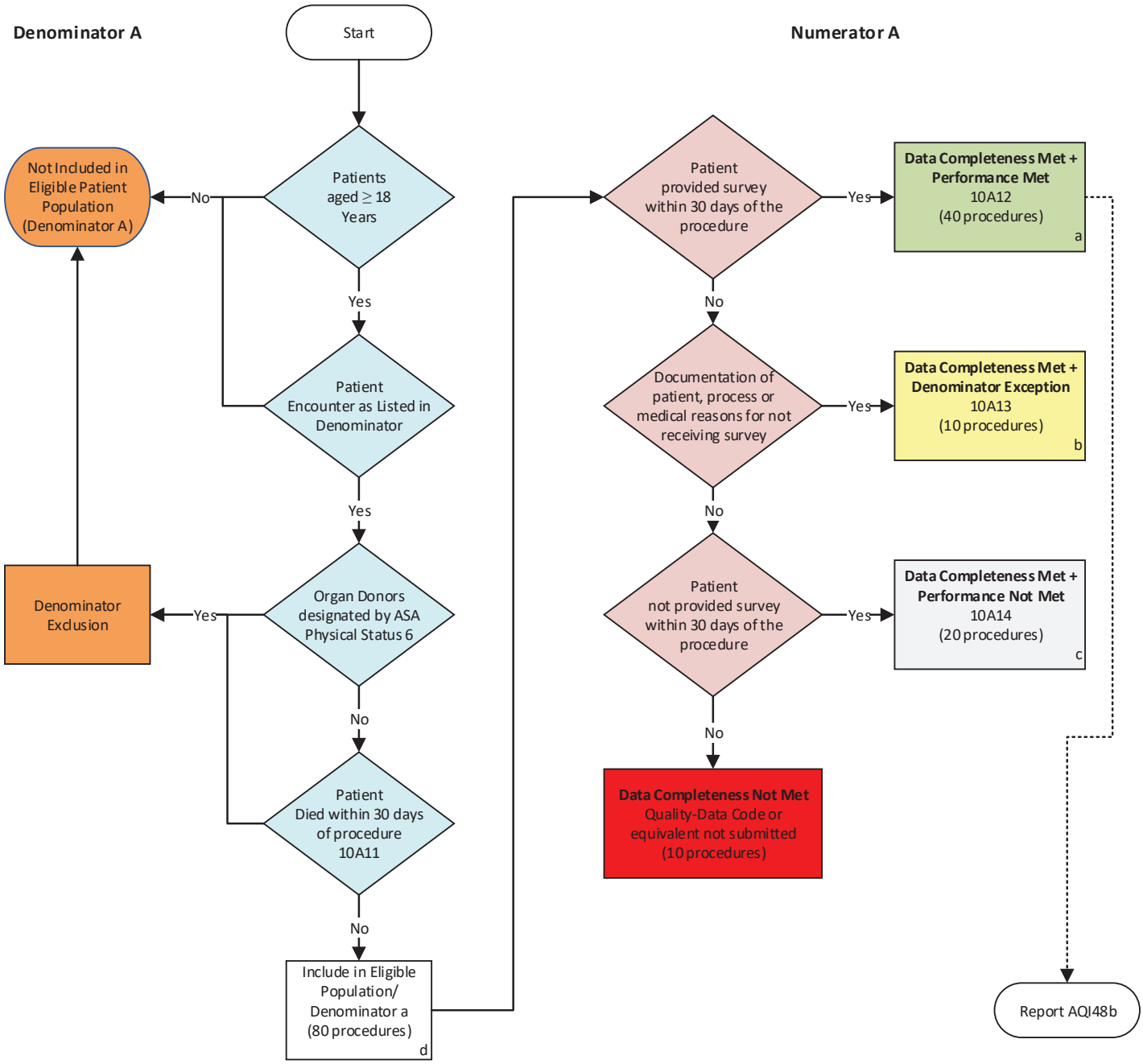
10A70 Patient reported a positive anesthesia experience (i.e., a 4 or 5 on the mandatory survey question)

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)

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #48a: Patient-Reported Experience with Anesthesia



SAMPLE CALCULATIONS:

Data Completeness =

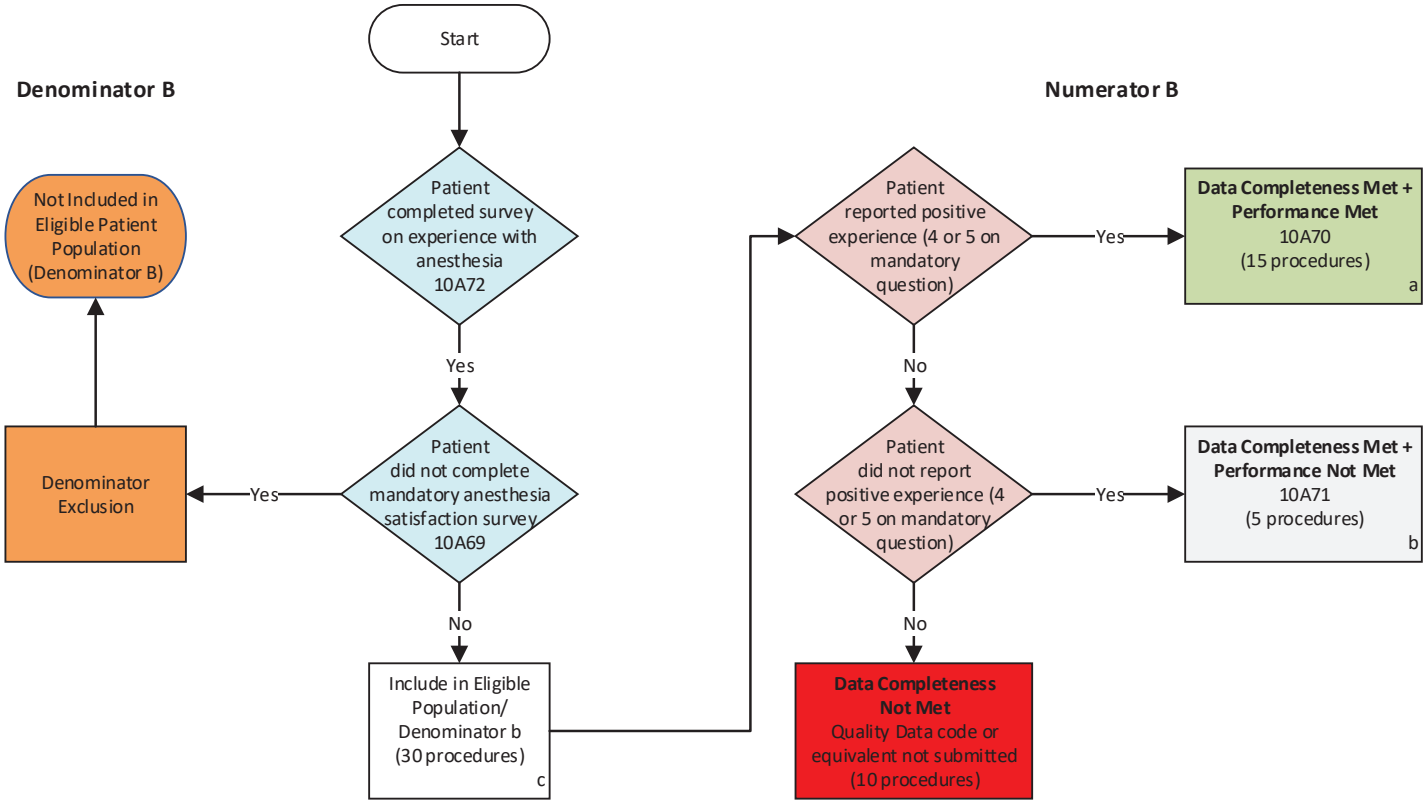
Performance Met (a=40 procedures) + Denominator Exception (b=10 procedures) + Performance Not Met (c=20 procedures) / Eligible Population / Denominator (d=80 procedures) = 70 procedures / 80 procedures = 87.50%

Performance Rate =

Performance Met (a=40 procedures) / Data Completeness Numerator (70 procedures) – Denominator Exception (b=10 procedures) = 40 procedures / 60 procedures = 66.67%

Version 2.0
November 2020

2023 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

Version 2.0
December 2022

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 used[3,4]

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.

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[3] Society of Thoracic Surgeons Blood Conservation Guideline Task Force, Ferraris VA, Ferraris SP, et al. Perioperative blood transfusion and blood conservation in cardiac surgery: the Society of Thoracic Surgeons and The Society of Cardiovascular Anesthesiologists clinical practice guideline. Ann Thorac Surg. 2007;83(5 Suppl):S27-S86. doi:10.1016/j.athoracsur.2007.02.099

[4] Tibi P, McClure RS, Huang J, Baker RA, Fitzgerald D, Mazer CD, Stone M, Chu D, Stammers AH, Dickinson T, Shore-Lesserson L, Ferraris V, Firestone S, Kissoon K, Moffatt-Bruce S. STS/SCA/AmSECT/SABM Update to the Clinical Practice Guidelines on Patient Blood Management. J Extra Corpor Technol. 2021 Jun;53(2):97-124. doi: 10.1182/ject-2100053. PMID: 34194077; PMCID: PMC8220901.

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.[5] 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.[6]

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[xi]

"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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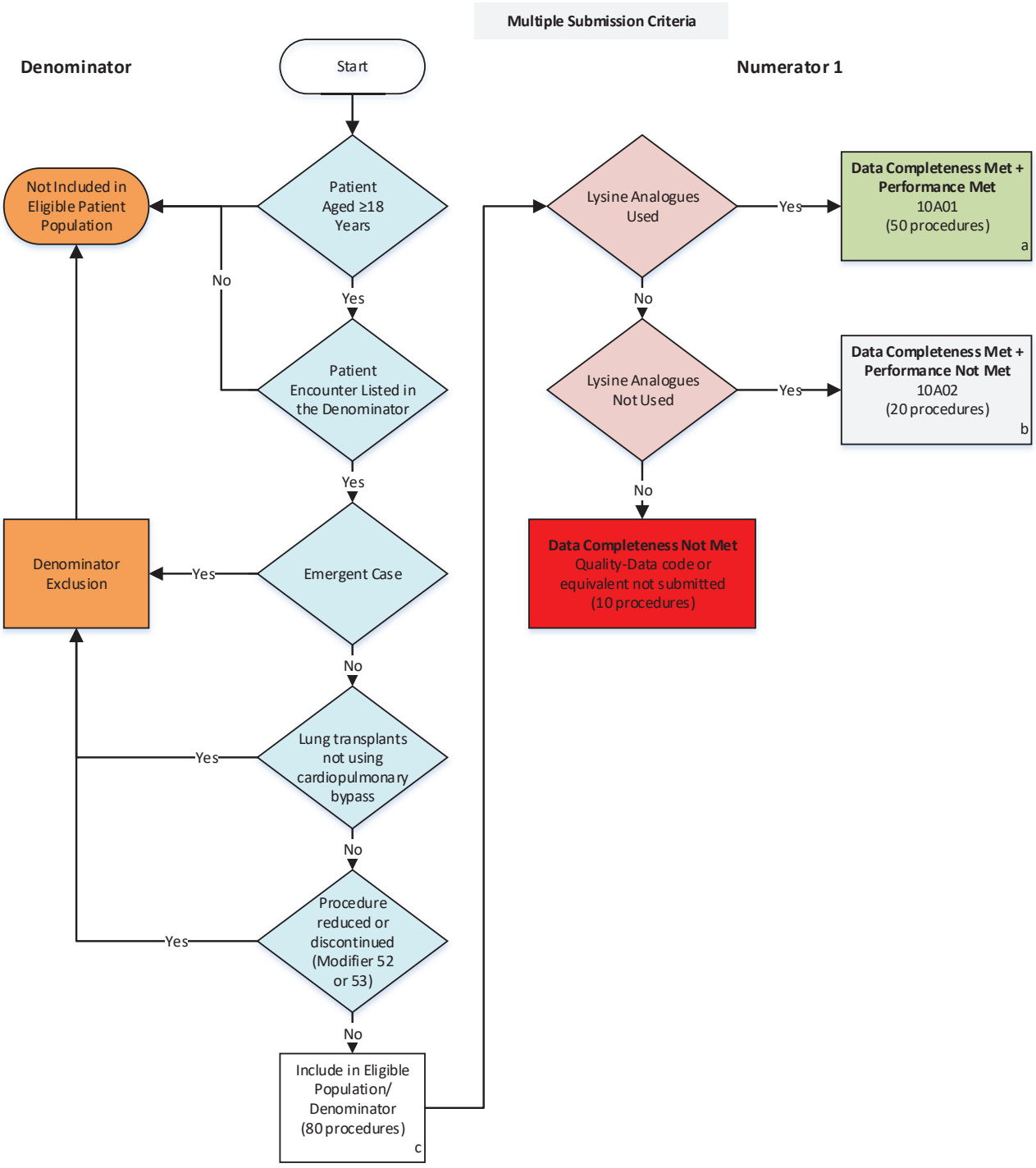
[5] LaPar DJ, Crosby IK, Ailawadi G, et al. Blood product conservation is associated with improved outcomes and reduced costs after cardiac surgery. J Thorac Cardiovasc Surg. 2013;145(3):796-804. doi:10.1016/j.jtcvs.2012.12.041.

[6] Ferraris VA, Hochstetler M, Martin JT, Mahan A, Saha SP. Blood transfusion and adverse surgical outcomes: The good and the bad. Surgery. 2015;158(3):608-617. doi:10.1016/j.surg.2015.02.027.

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #49: Adherence to Blood Conservation Guidelines for Cardiac Operations Using Cardiopulmonary Bypass (CBP): Use of Lysine Analogues



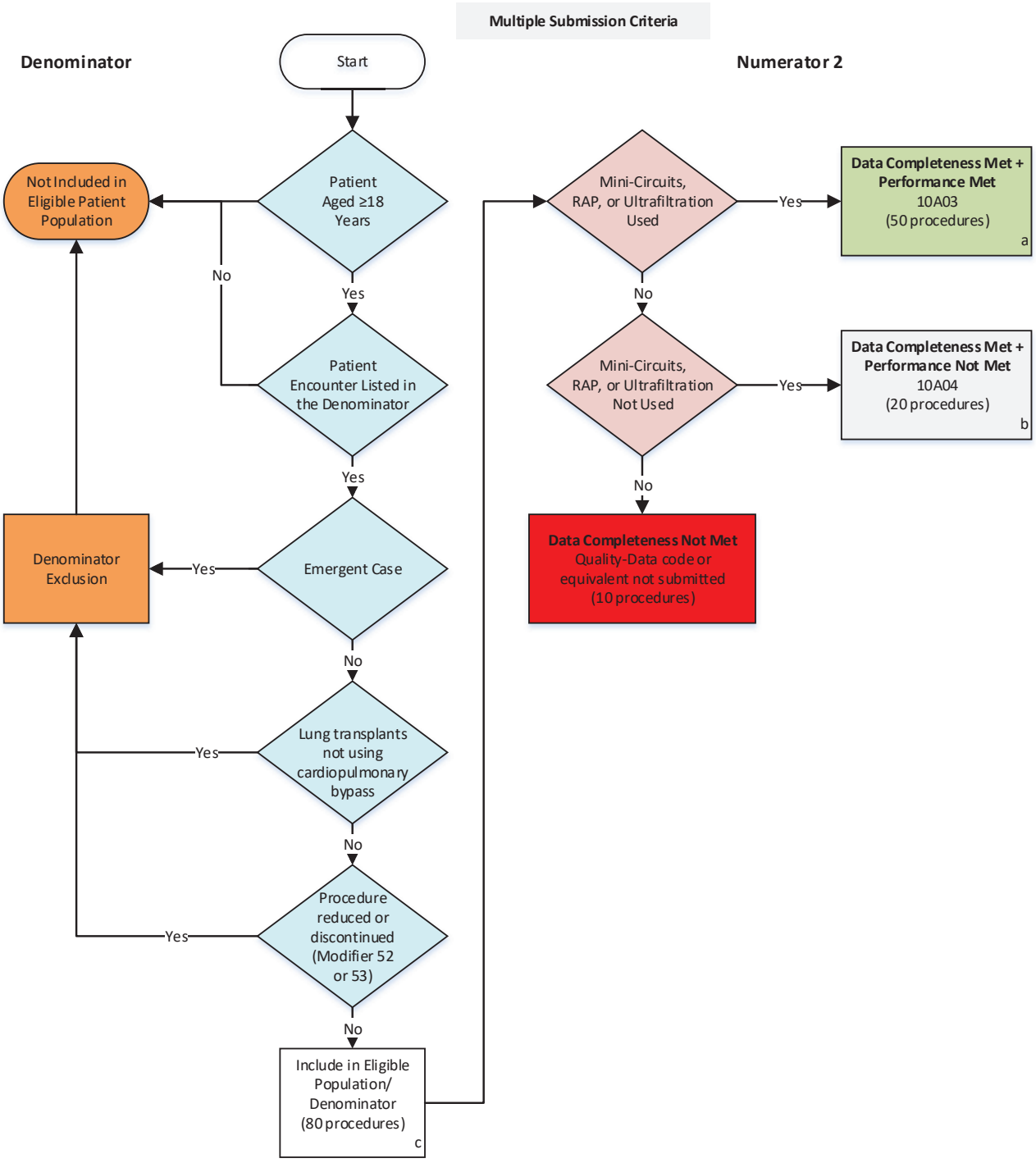
SAMPLE CALCULATIONS:

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) = 50 procedures = 71.43%
Data Completeness Numerator (70 procedures) = 70 procedures

Version 3.0
December 2022

2023 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



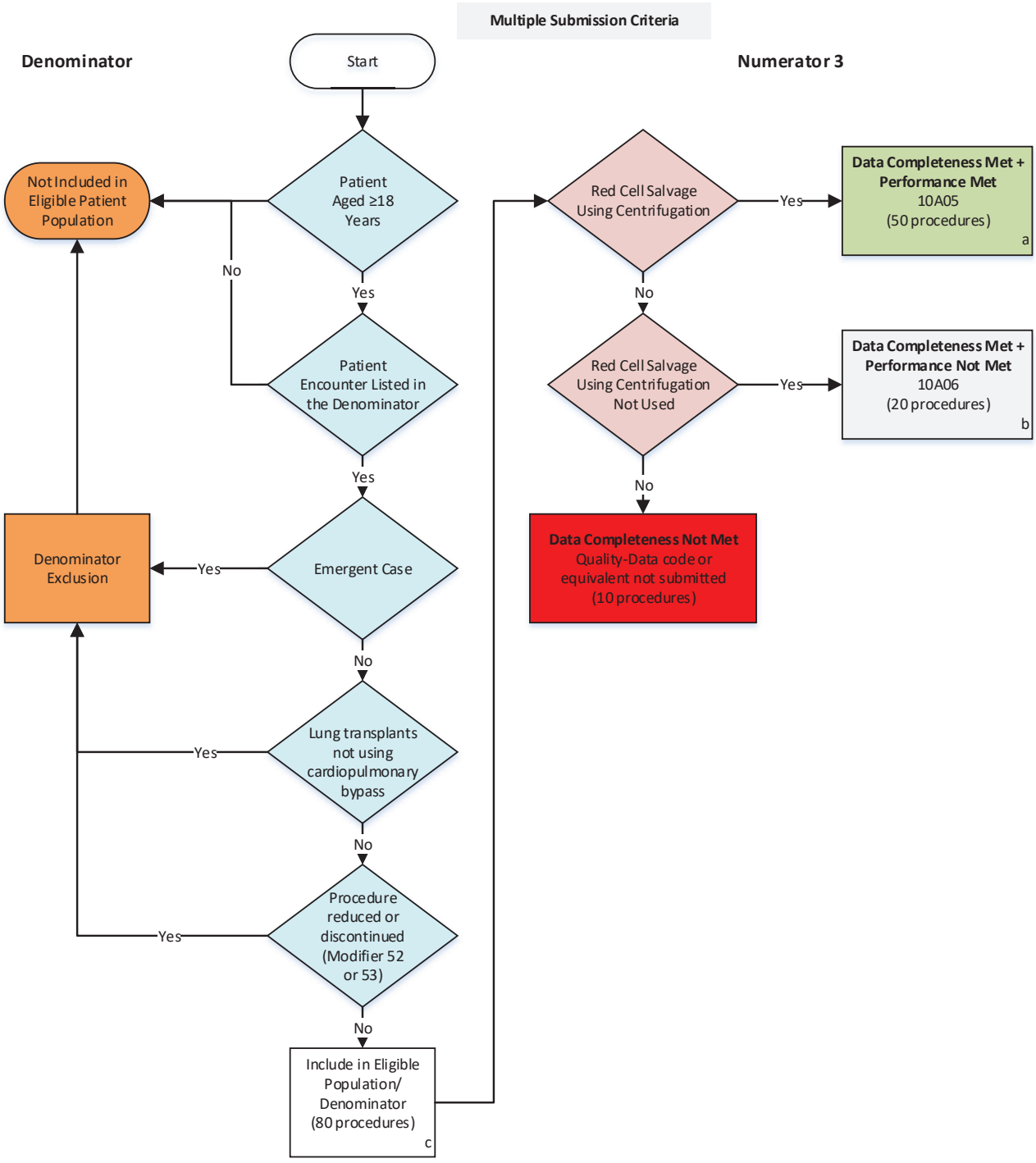
SAMPLE CALCULATIONS:

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

Performance Rate =
Performance Met (a=50 procedures) = 50 procedures = 71.43%
Data Completeness Numerator (70 procedures) = 70 procedures

Version 3.0
January 2022

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #49: Adherence to Blood Conservation Guidelines for Cardiac Operations Using Cardiopulmonary Bypass (CBP): Use of red cell salvage using centrifugation



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) = 50 procedures = 71.43%
Data Completeness Numerator (70 procedures) = 70 procedures

Version 3.0
January 2020

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #49: Adherence to Blood Conservation Guidelines for Cardiac Operations Using Cardiopulmonary Bypass (CBP): Use of transfusion algorithm supplemented with point-of-care testing

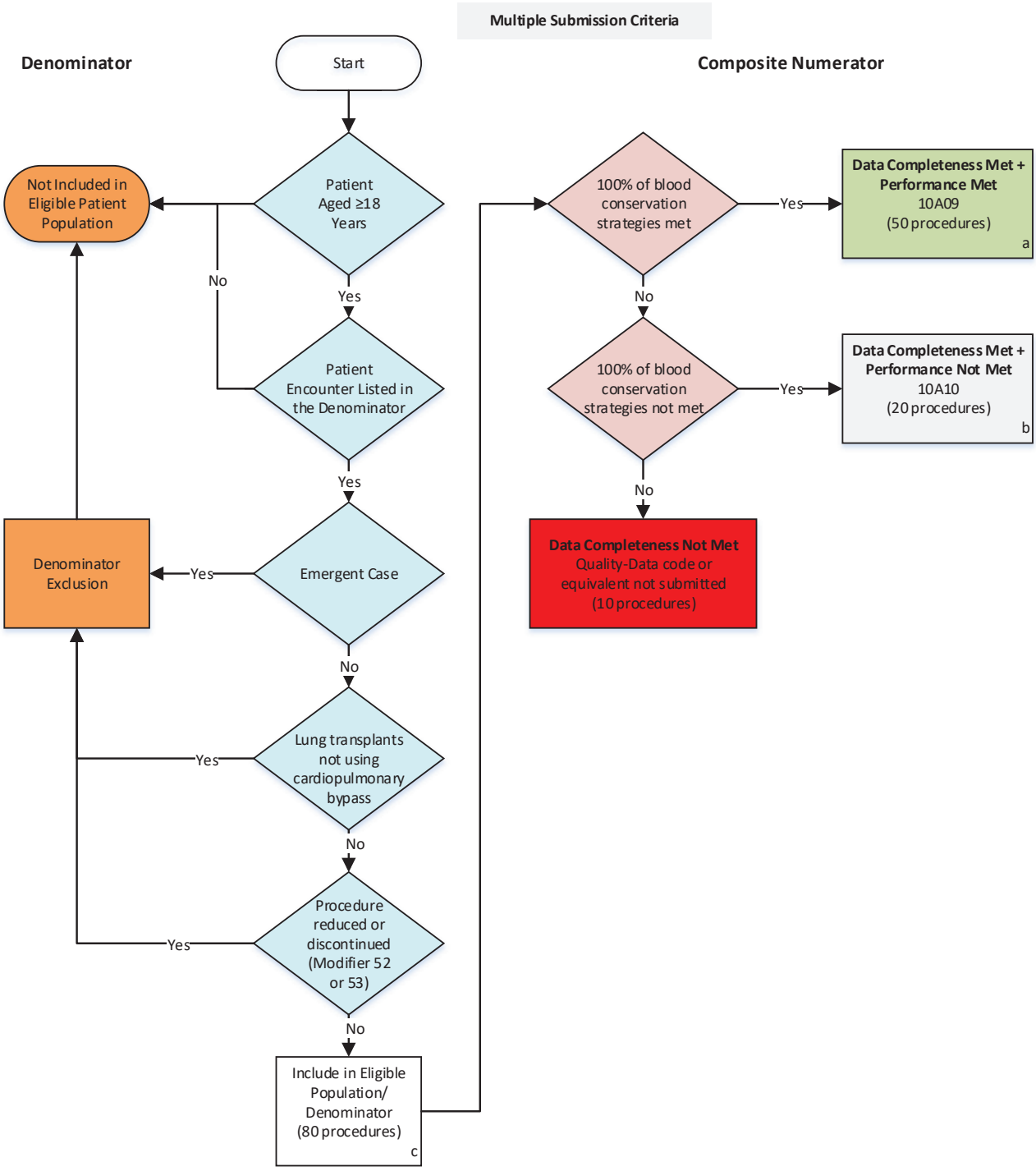
SAMPLE CALCULATIONS:

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) = 50 procedures = 71.43%
Data Completeness Numerator (70 procedures) = 70 procedures

Version 3.0
January 2022

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #49: Adherence to Blood Conservation Guidelines for Cardiac Operations Using Cardiopulmonary Bypass (CBP): Composite Performance Score



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) = 50 procedures = 71.43%
Data Completeness Numerator (70 procedures) = 70 procedures

Version 3.0
January 2022

Measure Title

AQI56: Use of Neuraxial Techniques and/or Peripheral Nerve Blocks for Total Knee Arthroplasty (TKA)††

Measure Description
Percentage of patients, regardless of age, that undergo primary total knee arthroplasty for whom neuraxial anesthesia and/or a peripheral nerve block is performed.

NQS Domain/Meaningful Measures Area
Effective Clinical Care/Appropriate use of Healthcare

Measure Type
Process

High Priority Status
Yes

Inverse Measure
No

Instructions
This measure is to be reported each time a patient undergoes primary total knee arthroplasty. 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
All patients, regardless of age, who undergo primary total knee arthroplasty

Denominator Criteria (Eligible Cases):
All patients, regardless of age

AND

Patient encounter during the reporting period (CPT): 01402

Denominator Exclusions
- Revision of TKA: CPT 27486, 27487 or **11A09**
- Prosthesis Removal: CPT 27488 or **11A10**

Numerator
Patients for whom neuraxial anesthesia and/or a peripheral nerve block is performed.

Numerator Note: For the purposes of this measure, a peripheral nerve block performed either as primary procedural anesthesia or performed for postoperative analgesia would meet the numerator. Administration of local infiltration analgesia (LIA) is acceptable to meet this measure (performance met if anesthesiologist administered and denominator exception if the surgeon administered the LIA).

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A78 Neuraxial anesthesia and/or a peripheral nerve block was used

OR

Denominator Exception:

11A01 Documentation of patient reason(s) for not using either neuraxial anesthesia or a peripheral nerve block (e.g., patient refusal)

OR

11A81 Surgeon administered nerve block

OR

Performance Not Met:

10A79 Neuraxial anesthesia and/or a peripheral nerve block was NOT used

NQF Number: Not Applicable

eCQM: Not Applicable

Rationale

Regional anesthesia is associated with improved patient outcomes and lower postoperative morbidity and mortality compared to general anesthesia in patients undergoing TKA.[7] Patients receiving neuraxial anesthesia typically lose less blood during surgery, leading to reduced need for many blood transfusions. [8] Additionally, some studies support the notion that spinal anesthesia is associated with lower incidence of surgical site infection when compared to general anesthesia.[9] Peripheral nerve blocks (PNBs) can be used as part of a pain management protocol after knee replacement surgery when compared with systemic analgesia, patients receiving PNBs have better pain scores and use less opioids after surgery.[10] By requiring fewer opioids after surgery, patients also avoid opioid-related side effect such as sedation, respiratory depression, nausea, vomiting, and constipation. They also have better functional outcomes and have overall, a better perioperative experience.[11]

Strength of the evidence supporting neuraxial anesthesia and PNB is sometimes questioned as some of the supporting studies are retrospective in nature and mainly derived from analysis of administrative databases. However, evidence from randomized clinical trials either support better outcomes with regional anesthesia or show that there is no difference with the anesthesia technique.[12]

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[7] Memtsoudis SG, Sun X, Chiu YL, et al. Perioperative comparative effectiveness of anesthetic technique in orthopedic patients [published correction appears in Anesthesiology. 2016 Sep;125(3):610]. Anesthesiology. 2013;118(5):1046-1058. doi:10.1097/ALN.0b013e318286061d.

[8] Hu S, Zhang ZY, Hua YQ, Li J, Cai ZD. A comparison of regional and general anaesthesia for total replacement of the hip or knee: a meta-analysis. J Bone Joint Surg Br. 2009;91(7):935-942. doi:10.1302/0301-620X.91B7.21538.

[9] Zorrilla-Vaca, A., Grant, M. C., Mathur, V., Li, J., & Wu, C. L. (2016). The impact of neuraxial versus general anesthesia on the incidence of postoperative surgical site infections following knee or hip Arthroplasty a meta-analysis. Regional Anesthesia and Pain Medicine, 41(5), 555-563. https://doi.org/10.1097/AAP.0000000000000437.

[10] Memtsoudis SG, Poeran J, Cozowicz C, Zubizarreta N, Ozbek U, Mazumdar M. The impact of peripheral nerve blocks on perioperative outcome in hip and knee arthroplasty-a population-based study. Pain. 2016;157(10):2341-2349. doi:10.1097/j.pain.0000000000000654.

[11] Terkawi AS, Mavridis D, Sessler DI, et al. Pain Management Modalities after Total Knee Arthroplasty: A Network Meta-analysis of 170 Randomized Controlled Trials. Anesthesiology. 2017;126(5):923-937. doi:10.1097/ALN.0000000000001607.

[12] Johnson RL, Koop SL, Burkle CM, et al. Neuraxial vs general anesthesia for total hip and total knee arthroplasty: a systematic review of comparative-effectiveness research. Br J Anaesth. 2016;116(2):163-76.

Clinical Recommendation Statements

2015 AAOS Evidence-Based Clinical Practice Guideline for Surgical Management of Osteoarthritis of the Knee[13]

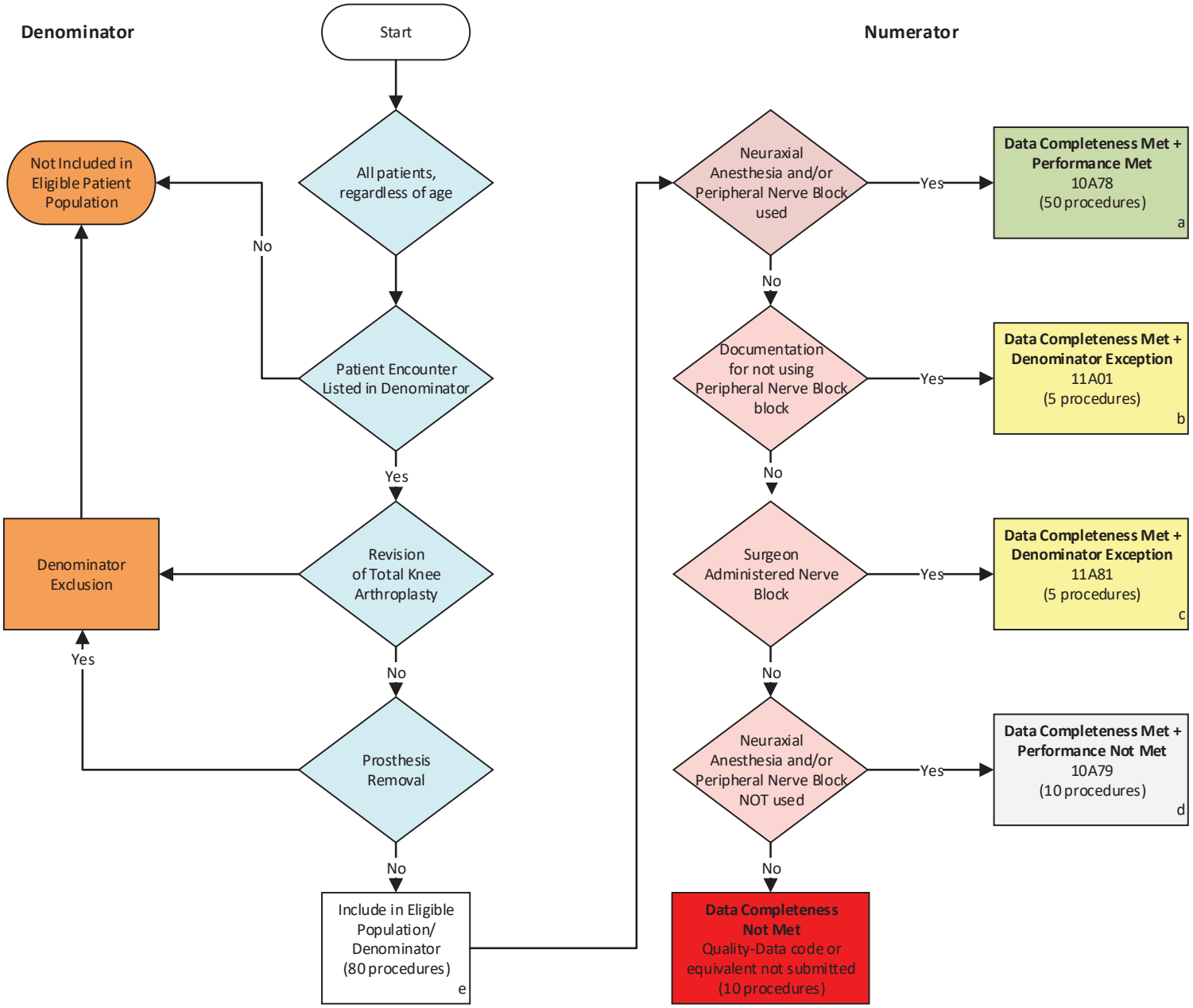
"Strong evidence supports that peripheral nerve blockade for total knee arthroplasty (TKA) decreases postoperative pain and opioid requirements. Strength of Recommendation: Strong Evidence: 4 stars"

"Moderate evidence supports that neuraxial anesthesia could be used in total knee arthroplasty (TKA) to improve select perioperative outcomes and complication rates compared to general anesthesia. Strength of Recommendation: Moderate, Evidence: 3 stars"

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:	Ambulatory Care: Hospital; Hospital Inpatient; Hospital Outpatient Services
Telehealth Reporting Option:	No

[13] McGrory BJ, Weber KL, Jevsevar DS, Sevarino K. Surgical Management of Osteoarthritis of the Knee: Evidence-based Guideline. J Am Acad Orthop Surg. 2016 Aug;24(8):e87-93. doi: 10.5435/JAAOS-D-16-00159. PMID: 27355286.

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #56: Use of Neuraxial Techniques and/or Peripheral Nerve Blocks for Total Knee Arthroplasty (TKA)



SAMPLE CALCULATIONS:

Data Completeness =
Performance Met (a=50 procedures) + Denominator Exception (b=5 + c=5 procedures) + Performance Not Met (d=10 procedures) = 70 procedures = 87.50%
Eligible Population / Denominator (e=80 procedures) = 80 procedures

Performance Rate =
Performance Met (a=50 procedures) = 50 procedures = 83.33%
Data Completeness Numerator (70 procedures) – Denominator Exception (b=5 + c=5 procedures) = 60 procedures

Version 3.0
December 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/ASECT Guidelines on Temperature Management During Cardiopulmonary Bypass[14]

"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)"

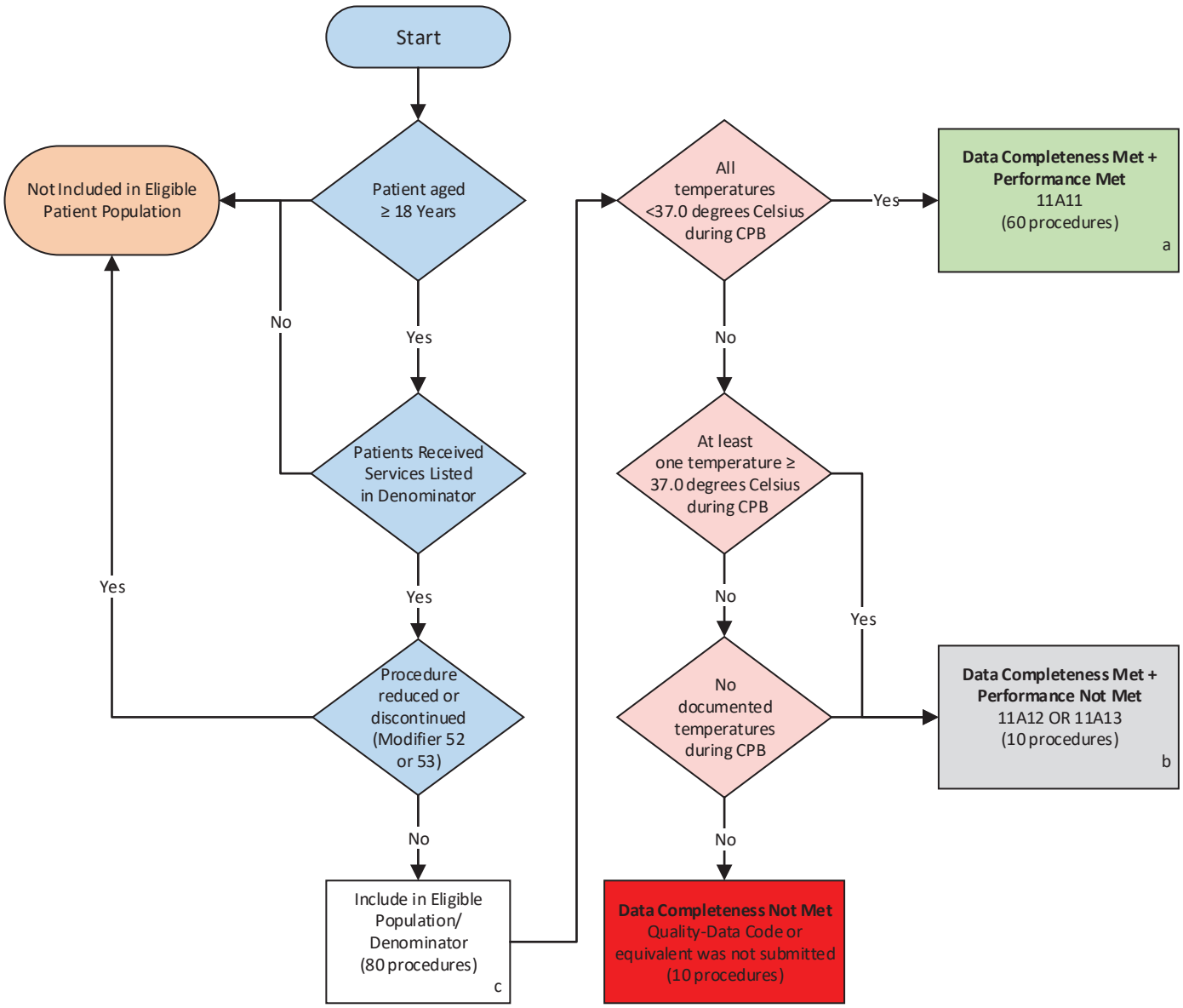
Data Source:	Claims/Paper Medical Record, Registry
Measure Steward:	American Society of Anesthesiologists (ASA)/ Anesthesia Quality Institute (AQI)
Number of Performance Rates:	1
Proportion Measure Scoring:	Yes
Continuous Measure Scoring:	No
Risk Adjustment:	No
Care Setting:	Hospital Inpatient
Telehealth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

[14] Engelman R, Baker RA, Likosky DS, et al. The Society of Thoracic Surgeons, The Society of Cardiovascular Anesthesiologists, and The American Society of ExtraCorporeal Technology: Clinical Practice Guidelines for Cardiopulmonary Bypass--Temperature Management during Cardiopulmonary Bypass. J Extra Corpor Technol. 2015;47(3):145-154.

2023 Quality Clinical Data Registry Measure Flow for AQI ID #65: Avoidance of Cerebral Hyperthermia for Procedures Involving Cardiopulmonary Bypass (CPB)

Denominator

Numerator



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) = 60 procedures = 85.71%

Data Completeness Numerator (70 procedures) = 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**
AND
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, 00300, 00320, 00322, 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,

00794, 00796, 00797, 00800, 00802, 00811, 00812, 00813, 00820, 00830, 00832, 00840, 00842, 00844, 00846, 00848, 00851, 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, 01130, 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, 01490, 01500, 01502, 01520, 01522, 01610, 01620, 01622, 01630, 01634, 01636, 01638, 01650, 01652, 01654, 01656, 01670, 01680, 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, 01860, 01916, 01920, 01922, 01924, 01925, 01926, 01930, 01931, 01932, 01933, 01937, 01938, 01939, 01940, 01941, 01942, 01951, 01952, 01991, 01992, 20526, 20550, 20551, 20552, 20553, 20600, 20604, 20605, 20606, 20610, 20611, 27096, 36555, 36556, 36570, 36571 36578, 36580, 36581, 36582, 36583, 36584, 36585, 62263, 62264, 62270, 62272, 62273, 62280, 62281, 62282, 62320, 62321, 62322, 62323, 62324, 62325, 62326, 62327, 62328, 62329, 62350, 62355, 62360, 62361, 62362, 62365, 62370, 63650, 63661, 63662, 63663, 63664, 63685, 63688, 64400, 64405, 64408, 64415, 64416, 64417, 64418, 64420, 64425, 64430, 64435, 64445, 64446, 64447, 64448, 64449, 64450, 64451 64454, 64461, 64463, 64479, 64483, 64486, 64487, 64488, 64489, 64490, 64493, 64505, 64510, 64517, 64520, 64530, 64600, 64605, 64610, 64620, 64624, 64625, 64630, 64633, 64635, 64640, 64680, 64681, 93503, 95990, 95991

AND

Positive Frailty Screening Result: **11A14**

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 car

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:

2016 ACS NSQIP/AGS Guidelines on Perioperative Management of the Geriatric Patient[17]

"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

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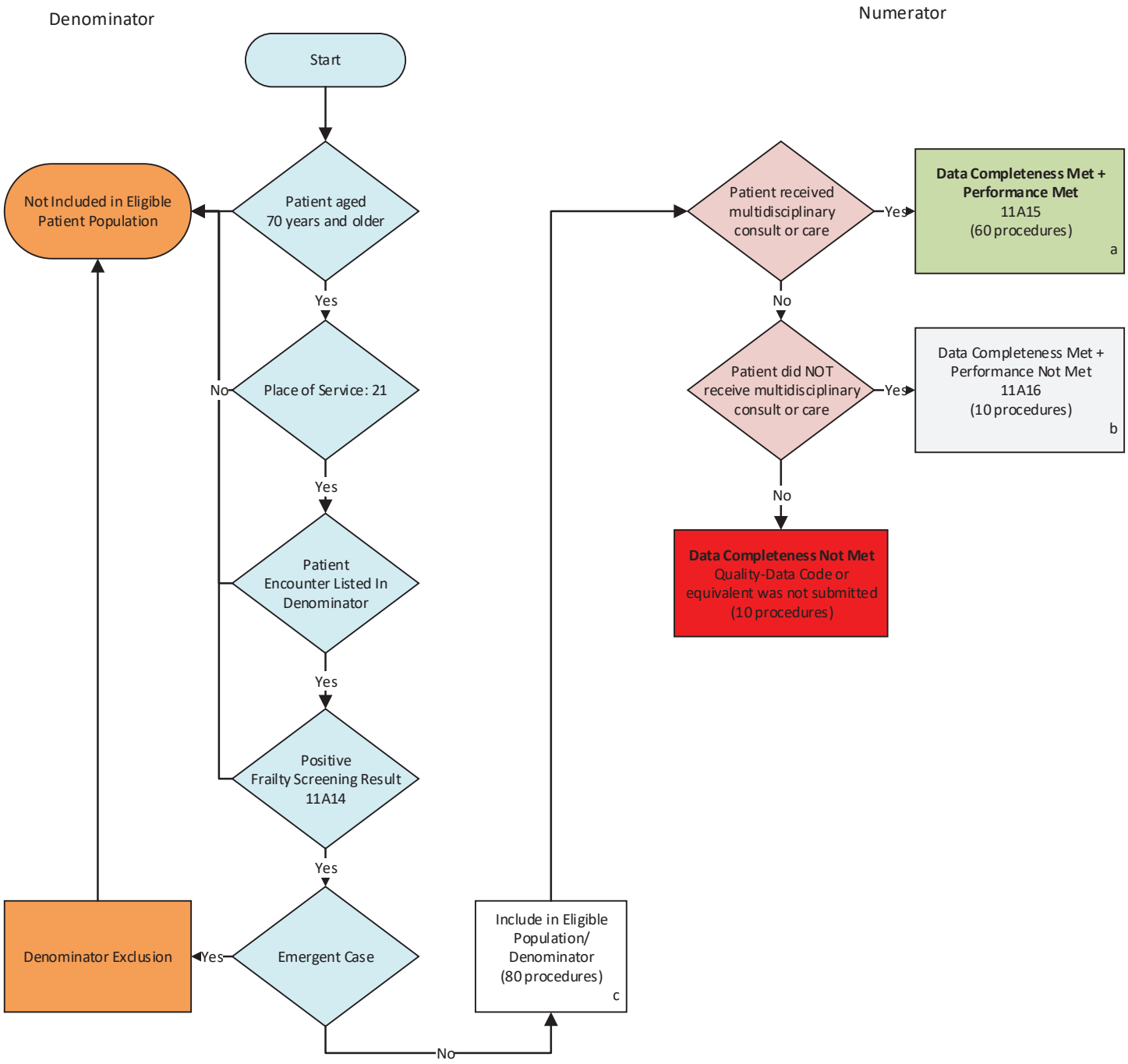
[15] A George EL, Hall DE, Youk A, et al. Association Between Patient Frailty and Postoperative Mortality Across Multiple Noncardiac Surgical Specialties. JAMA Surg. 2021;156(1):e205152. doi:10.1001/jamasurg.2020.5152

[16] Shinall MC, Arya S, Youk A, et al. Association of Preoperative Patient Frailty and Operative Stress with Postoperative Mortality. JAMA Surg. 2020;155(1):e194620. doi:10.1001/jamasurg.2019.4620

[17] Mohanty S, et al. Optimal Perioperative Management of the Geriatric Patient: A Best Practices Guideline. Journal of the American College of Surgeons. 2016;222(5) DOI: http://dx.doi.org/10.1016/j.jamcollsurg.2015.12.026.

[18] Alvarez-Nebreda ML, Bentov N, Urman RD, et al. Recommendations for Preoperative Management of Frailty from the Society for Perioperative Assessment and Quality Improvement (SPAQI). J Clin Anesth. 2018;47:33-42. doi:10.1016/j.jclinane.2018.02.011.

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #67: Consultation for Frail Patients



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) = 60 procedures = 85.71%
Data Completeness Numerator (70 procedures) = 70 procedures

Version 2.0
November 2020

Measure Title

AQI68: Obstructive Sleep Apnea: Mitigation Strategies

Measure Description: Percentage of patients aged 18 years or older, who undergo an elective procedure requiring anesthesia services who are screened for obstructive sleep apnea (OSA) AND, if positive, for whom two or more selected mitigation strategies were used prior to PACU discharge.

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 procedure under anesthesia 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, G-codes and CPT codes are used to identify patients who are included in the measure denominator. Registry Codes are used to capture the numerator.

Denominator: All patients aged 18 years or older, who undergo an elective procedure requiring anesthesia services

Denominator Note: For the purposes of this measure, anesthesia services only include cases using general anesthesia, neuraxial anesthesia and monitored anesthesia care (MAC)

Denominator Criteria (Eligible Cases):

Patients aged 18 years and older

AND

Elective procedure: **G9643**

AND

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, 00300, 00320, 00322, 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, 00750, 00752, 00754, 00756, 00770, 00790, 00792, 00794, 00796, 00797, 00800, 00802, 00820, 00830, 00832, 00840, 00842, 00844, 00846, 00848, 00851, 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, 01130, 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, 01490, 01500, 01502, 01520, 01522, 01610, 01620, 01622, 01630, 01634, 01636, 01638, 01650, 01652, 01654, 01656, 01670, 01680, 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, 01860, 01916, 01920, 01922, 01924, 01925, 01926, 01930, 01931, 01932, 01933, 01937, 01938, 01939, 01940, 01941, 01942, 01951, 01952, 01958, 01960, 01961, 01962, 01963, 01965, 01966, 01967, 01991, 01992

Denominator Exclusions

- None

Numerator

Patients who are screened for obstructive sleep apnea AND, if positive, have documentation that two or more of the following mitigation strategies were used prior to PACU discharge:

- Preoperative initiation of continuous positive airway pressure (CPAP) or non-invasive positive pressure ventilation (NIPPV)
- Preoperative use of mandibular advancement devices or oral appliances
- Intraoperative administration of CPAP, nasopharyngeal airway, or oral appliance during sedation
- Use of major conduction anesthesia (spinal/epidural) or peripheral nerve block
- Multimodal analgesia
- Extubation while patient is awake
- Verification of full reversal of neuromuscular block
- Extubation and recovery carried out in lateral, semiupright, or other nonsupine position
- Postoperative administration of CPAP, nasopharyngeal airway, or oral appliance in the postanesthesia care unit (PACU)

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A26	Positive patient screen for OSA OR existing OSA diagnosis AND documentation of two or more mitigation strategies used prior to PACU discharge

OR

Performance Met:

11A27	Negative patient screen for OSA

OR

Denominator Exception

11A38	Documentation of medical reason(s) for not screening for obstructive sleep apnea and/or documenting the use of two or more mitigation strategies (i.e., patient remains intubated postoperatively, listed mitigation strategies contraindicated, other medical reason[s])

OR

Performance Not Met:

11A28	No patient screen for OSA OR positive OSA screen result and documentation of less than 2 mitigation strategies used prior to PACU discharge

NQF Number: Not applicable

eCQM: Not applicable

Rationale

Undiagnosed OSA may pose a variety of problems for anesthesiologists and qualified anesthesia providers. A number of case reports have documented an increase in the incidence of postoperative complications and deaths among patients suspected of having OSA. Untreated OSA patients are known to have a higher incidence of difficult intubation, postoperative complications, increased intensive care unit admissions, and greater duration of hospital stay. Identifying patients with OSA is the first step in preventing postoperative complications due to OSA. Moderate-to-severe sleep apnea is independently associated with a large increased risk of all-cause mortality, incident stroke, and cancer incidence and mortality in this community-based sample. With improved preoperative assessment of OSA risk, anesthesiologists are better able to tailor their care to the individual patient's needs through a variety of techniques and mitigation strategies.

Clinical Recommendation Statements:

2014 ASA Guidelines on Perioperative Management of Patients with Obstructive Sleep Apnea[19]

"Preoperative initiation of continuous positive airway pressure (CPAP) should be considered, particularly if OSA is severe.

- For patients who do not respond adequately to CPAP, NIPPV should be considered.

"The preoperative use of mandibular advancement devices or oral appliances and preoperative weight loss should be considered when feasible."

"For superficial procedures, consider the use of local anesthesia or peripheral nerve blocks, with or without moderate sedation.

"If moderate sedation is used, ventilation should be continuously monitored by capnography or another automated method if feasible because of the increased risk of undetected airway obstruction in these patients.

"Consider administering CPCP or using an oral appliance during sedation to patients previously treated with these modalities."

"Major conduction anesthesia (spinal/epidural) should be considered for peripheral procedures.

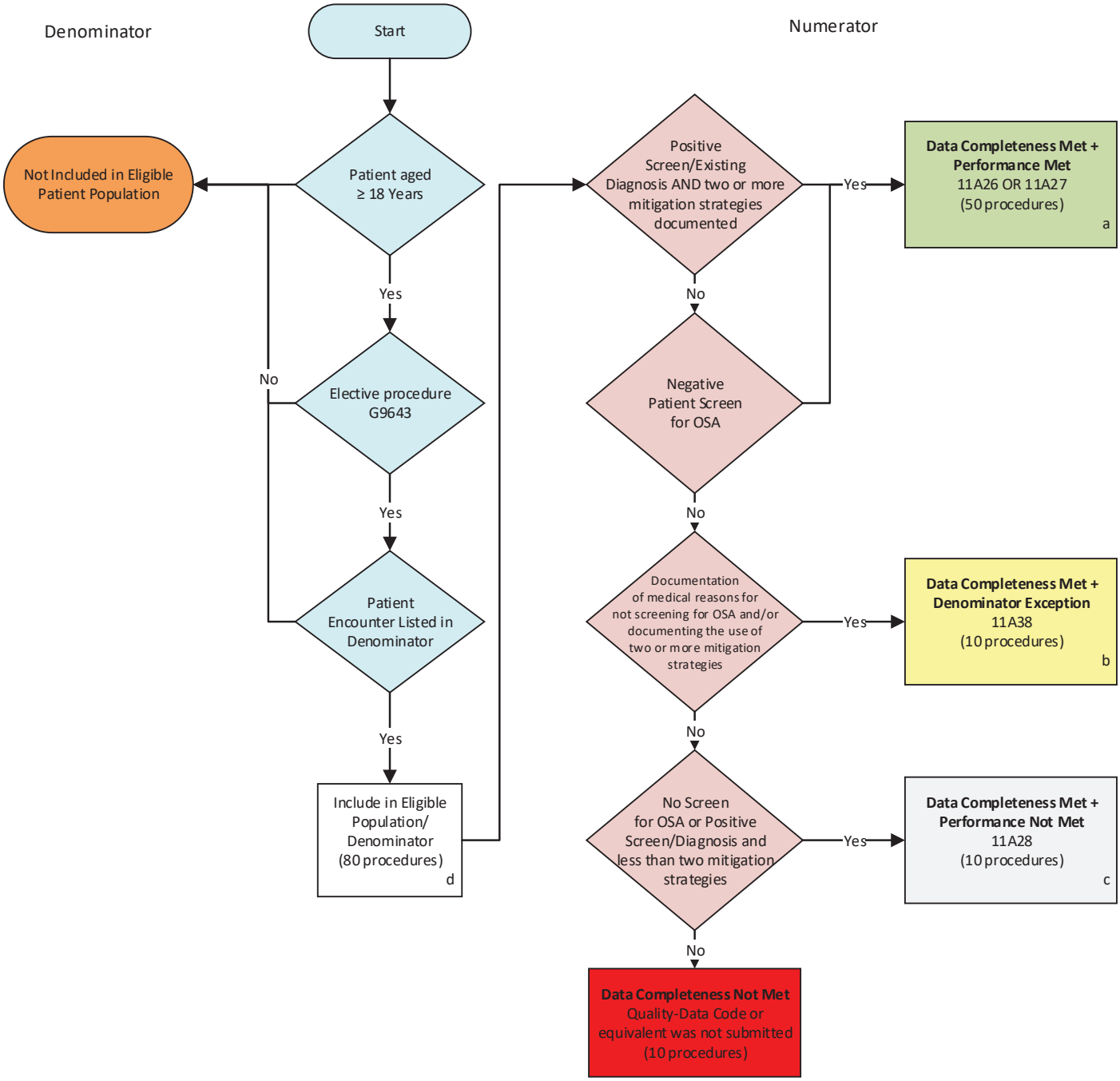
"Unless there is a medical or surgical contraindication, patients at increased perioperative risk from OSA should be extubated while awake."

"Full reversal of neuromuscular block should be verified before extubation. When possible, extubation and recovery should be carried out in the lateral, semiupright, or other nonsupine position."

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:	Ambulatory Care: Clinician Office; Ambulatory Care: Hospital; Hospital; Hospital Inpatient; Outpatient Services
Telehealth Reporting Option:	No

[19] American Society of Anesthesiologists: Practice guidelines for the perioperative management of patients with obstructive sleep apnea: A report by the American Society of Anesthesiologists Task Force on Perioperative Management of Patients with Obstructive Sleep Apnea. Anesthesiology. 2014. 120(2): 268-286.

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #68:
Obstructive Sleep Apnea: Mitigation Strategies



SAMPLE CALCULATIONS

Data Completeness =
Performance Met (a=50 procedures) + Denominator Exceptions (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 2.0
November 2020

Measure Title

AQI69: Intraoperative Antibiotic Redosing

Measure Description

Percentage of patients, aged 18 years and older, who received preoperative antibiotic prophylaxis within 60 minutes prior to incision (if fluoroquinolone or vancomycin, two hours) and undergo a procedure greater than two hours duration who received intraoperative antibiotic redosing at a maximum interval of two half-lives of the selected prophylactic antibiotic.

NQS Domain/Meaningful Measures Area

Patient Safety/Healthcare Associated Infections

Measure Type

Process

High Priority Status

Yes

Inverse Measure

No

Instructions

This measure is to be reported each time a patient undergoes a surgical procedure lasting greater than two hours duration 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 of the measure.

Denominator

All patients, aged 18 years and older, who received preoperative antibiotic prophylaxis within 60 minutes (if fluoroquinolone or vancomycin, two hours) prior to incision and undergo a procedure greater than two hours duration.

Denominator Definition: For the purpose of this measure, preoperative antibiotic prophylaxis includes, but is not limited to, prophylaxis with the following antimicrobial agents:

- *Ampicillin-sulbactam*
- *Ampicillin*
- *Aztreonam*
- *Cefazolin*
- *Cefuroxime*
- *Cefotaxime*
- *Cefoxitin*
- *Cefotetan*
- *Clindamycin*
- *Piperacillin-tazobactam*

Denominator Criteria (Eligible Cases):

All patients, aged 18 years and older

AND

Patient received antibiotic prophylaxis within 60 minutes (if fluoroquinolone or vancomycin, two hours) prior to incision: 10A87

AND

Procedure >2 hours duration: 11A60

AND

Patient encounter during the reporting period (CPT):

00100, 00102, 00103, 00120, 00124, 00126, 00140, 00144, 00145, 00147, 00160, 00162, 00164, 00170, 00172, 00174, 00176, 00190, 00192, 00210, 00211, 00212, 00214, 00215, 00216, 00218, 00220, 00222, 00300, 00320, 00322, 00350, 00352, 00400, 00402, 00404, 00406, 00410, 00450, 00454, 00470, 00472, 00474, 00500, 00528, 00529, 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, 00730, 00750, 00752, 00754, 00756, 00770, 00790, 00792, 00794, 00796, 00797, 00800, 00802, 00811, 00820, 00830, 00832, 00840, 00842, 00844, 00846, 00848, 00851, 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, 01120, 01140, 01150, 01160, 01170, 01173, 01200, 01202, 01210, 01212, 01214, 01215, 01220, 01230, 01232, 01234, 01250, 01260, 01270, 01272, 01274, 01320, 01340, 01360, 01382, 01390, 01392, 01400, 01402, 01404, 01430, 01432, 01440, 01442, 01444, 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, 01732, 01740, 01742, 01744, 01756, 01758, 01760, 01770, 01772, 01780, 01782, 01810, 01829, 01830, 01832, 01840, 01842, 01844, 01850, 01852, 01920, 01924, 01925, 01926, 01930, 01931, 01932, 01933 01937, 01938, 01939, 01940, 01941, 01942, 01951, 01952, 01961, 01962, 01963, 01965, 01966.

Denominator Exclusions

- Acute Renal failure:[20] 11A61
- Chronic kidney disease:[21] 11A62
- Procedure duration <2 half-lives of selected prophylactic antibiotic: 11A63

Numerator

Patients who received intraoperative redosing of prophylactic antibiotics at a maximum interval of two half-lives of the selected prophylactic antibiotic

Numerator Note: If multiple redosing windows pass during a procedure, the recommended redosing window is the maximum amount of time that can pass between any two doses in order to meet this measure. Information on dosing and redosing should reflect clinical practice guidelines, local hospital policy, manufacturer guidance, and other materials imperative to safe practice. Antibiotic redosing should occur prior to closing the surgical incision.

[20] Kidney or renal failure is defined as either: (1) a level of GFR to <15 mL/min/1.73 m2, which is accompanied in most cases by signs and symptoms of uremia, or (2) a need for initiation of kidney replacement therapy (dialysis or transplantation) for treatment for complications of decreased GFR, which would otherwise increase the risk of mortality and morbidity.

[21] Persons reporting this measure should refer to the "KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease" for criteria of chronic kidney disease, renal disfunction and renal insufficiency criteria. Found at: https://kdigo.org/wp-content/uploads/2017/02/KDIGO_2012_CKD_GL.pdf. Accessed October 18, 2020.

Maximum redosing intervals for included antibiotics are listed below:[22]

- *Ampicillin-sulbactam: 2 hours*
- *Ampicillin: 2 hours*
- *Aztreonam: 4 hours*
- *Cefazolin: 4 hours*
- *Cefuroxime: 4 hours*
- *Cefotaxime: 3 hours*
- *Cefoxitin: 2 hours*
- *Cefotetan: 6 hours*
- *Clindamycin: 6 hours*
- *Piperacillin-tazobactam: 2 hours*

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A64 Patient received intraoperative redosing of prophylactic antibiotics at a maximum interval of two half-lives of the selected antibiotic

OR

Performance Met

11A65 Patient received intraoperative redosing of prophylactic antibiotics according to facility antibiotic stewardship program.

OR

Performance Not Met:

11A66 Patient did not receive intraoperative redosing of prophylactic antibiotics at a maximum interval of two half-lives of the selected antibiotic or according to facility antibiotic stewardship program.

NQF Number: Not Applicable

eCQM: Not Applicable

Rationale

While much attention has been focused on antimicrobial stewardship and reducing hospital-acquired infections in recent years, appropriate intraoperative redosing of antibiotics remains an acknowledged area for improvement.[23] Maintaining adequate inhibitory antimicrobial concentrations is an important aspect of infection prevention, with procedure length found to be an independent risk factor for developing surgical site infections.[24] Evidence in the literature has shown wide variation in compliance published recommendations for intraoperative antibiotics, which can be improved through the implementation of multifaceted quality improvement interventions.[25,26]

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[22] Bratzler DW, Dellinger EP, Olsen KM, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. Am J Health Syst Pharm. 2013;70:195-283.

[23] Caruso TJ, Wang EY, Colletti AA, and Sharek PJ. Intraoperative antibiotic redosing compliance and the extended postoperative recovery period: often overlooked areas that may reduce surgical site infections. Pediatric Anesthesia. 2019;29(3):290-291.

[24] Leong G, Wilson J, Charlett A. Duration of operation as a risk factor for surgical site infection: comparison of English and US data. J Hosp Infect. 2006:63;255-262.

[25] Riggi G, Castillo M, Fernandez M, et al. Improving compliance with timely intraoperative redosing of antimicrobials in surgical prophylaxis. Infect Control Hosp Epidemiol. 2014;35(10):1236-1240.

[26] O'Sullivan CT, Rogers WK, Ackman M, Goto M, Hoff BM. Implementation of a multifaceted program to sustainably improve appropriate intraoperative antibiotic redosing. Am J Infect Control. 2019;47(1):74-77.

Clinical Recommendation Statements

2013 ASHP /IDSA/SIS/SHEA Clinical Practice Guidelines for Antimicrobial Prophylaxis in Surgery[27]

"Intraoperative redosing is needed to ensure adequate serum and tissue concentrations of the antimicrobial if the duration of the procedure exceeds two half-lives of the antimicrobial or there is excessive blood loss (i.e., >1500 mL). The redosing interval should be measured from the time of administration of the preoperative dose, not from the beginning of the procedure."

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

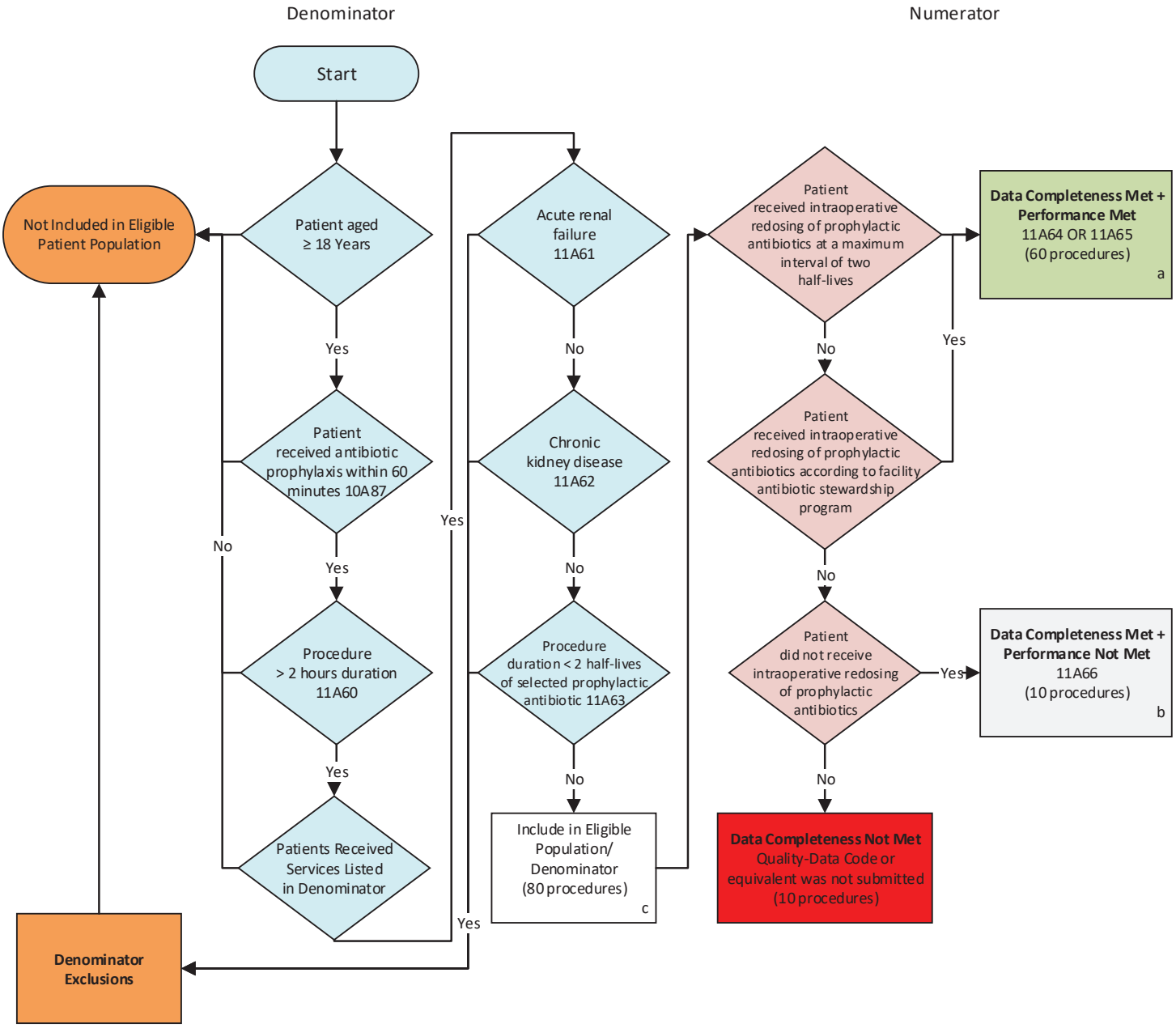
Risk Adjustment: No

Care Setting: Hospital

Telehealth Reporting Option: No

[27] Bratzler DW, Dellinger EP, Olsen KM, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. Am J Health Syst Pharm. 2013;70:195-283.

2023 Quality Clinical Data Registry Measure Flow for AQI ID #69: Intraoperative Antibiotic Redosing



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) = 60 procedures = 85.71%
Data Completeness Numerator (70 procedures) = 70 procedures

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 sub-metrics 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[28]

"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.[29] 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).[30]

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.[31] The Society of Critical Care Medicine (SCCM) advises treatment be triggered at blood glucose levels ≥ 150 mg/dl (8.3 mmol/l0 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.[32]

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

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[28] Joshi, GP, et al. "Society for Ambulatory Anesthesia Consensus Statement on Perioperative Blood Glucose Management in Diabetic Patients Undergoing Ambulatory Surgery." Anesthesia & Analgesia. December 2010; Vol 111:6. P. 1378-1387.

[29] Ehrenfeld JM1, Wanderer JP, Terekhov M, Rothman BS, Sandberg WS. A Perioperative Systems Design to Improve Intraoperative Glucose Monitoring Is Associated with a Reduction in Surgical Site Infections in a Diabetic Patient Population. Anesthesiology. 2017 Mar;126(3):431-440.

[30] Duggan, E.W., Carloson, K., & Umpierrez, G.E. (2017). Perioperative hyperglycemia management: An update. Anesthesiology. 126(3):547-560.

[31] American Diabetes Association Professional Practice Committee; 16. Diabetes Care in the Hospital: Standards of Medical Care in Diabetes—2022. Diabetes Care 1 January 2022; 45 (Supplement_1): S244–S253. https://doi.org/10.2337/dc22-S016

[32] Duggan, E.W., Carloson, K., & Umpierrez, G.E. (2017). Perioperative hyperglycemia management: An update. Anesthesiology. 126(3):547-560.

AQI71a: 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

ICD-10CM code: E10.10, E10.11, E10.21, E10.22, E10.29, E10.311, E10.319, E10.3211, E10.3212, E10.3213, E10.3219, E10.3291, E10.3292, E10.3293, E10.3299, E10.3311, E10.3312, E10.3313, E10.3319, E10.3391, E10.3392, E10.3393, E10.3399, E10.3411, E10.3412, E10.3413, E10.3419, E10.3491, E10.3492, E10.3493, E10.3499, E10.3511, E10.3512, E10.3513, E10.3519, E10.3521, E10.3522, E10.3523, E10.3529, E10.3531, E10.3532, E10.3533, E10.3539, E10.3541, E10.3542, E10.3543, E10.3549, E10.3551, E10.3552, E10.3553, E10.3559, E10.3591, E10.3592, E10.3593, E10.3599, E10.36, E10.37X1, E10.37X2, E10.37X3, E10.37X9, E10.39, E10.40, E10.41, E10.42, E10.43, E10.44, E10.49, E10.51, E10.52, E10.59, E10.610, E10.618, E10.620, E10.621, E10.622, E10.628, E10.630, E10.638, E10.641, E10.649, E10.65, E10.69, E10.8, E10.9, E11.00, E11.01, E11.10, E11.11, E11.21, E11.22, E11.29, E11.311, E11.319, E11.3211, E11.3212, E11.3213, E11.3219, E11.3291, E11.3292, E11.3293, E11.3299, E11.3311, E11.3312, E11.3313, E11.3319, E11.3391, E11.3392, E11.3393, E11.3399, E11.3411, E11.3412, E11.3413, E11.3419, E11.3491, E11.3492, E11.3493, E11.3499, E11.3511, E11.3512, E11.3513, E11.3519, E11.3521, E11.3522, E11.3523, E11.3529, E11.3531, E11.3532, E11.3533, E11.3539, E11.3541, E11.3542, E11.3543, E11.3549, E11.3551, E11.3552, E11.3553, E11.3559, E11.3591, E11.3592, E11.3593, E11.3599, E11.36, E11.37X1, E11.37X2, E11.37X3, E11.37X9, E11.39, E11.40, E11.41, E11.42, E11.43, E11.44, E11.49, E11.51, E11.52, E11.59, E11.610, E11.618, E11.620, E11.621, E11.622, E11.628, E11.630, E11.638, E11.641, E11.649, E11.65, E11.69, E11.8, E11.9, E13.00, E13.01, E13.10, E13.11, E13.21, E13.22, E13.29, E13.311, E13.319, E13.3211, E13.3212, E13.3213, E13.3219, E13.3291, E13.3292, E13.3293, E13.3299, E13.3311, E13.3312, E13.3313, E13.3319, E13.3391, E13.3392, E13.3393, E13.3399, E13.3411, E13.3412, E13.3413, E13.3419, E13.3491, E13.3492, E13.3493, E13.3499, E13.3511, E13.3512, E13.3513, E13.3519, E13.3521, E13.3522, E13.3523, E13.3529, E13.3531, E13.3532, E13.3533, E13.3539, E13.3541, E13.3542, E13.3543, E13.3549, E13.3551, E13.3552, E13.3553, E13.3559, E13.3591, E13.3592, E13.3593, E13.3599, E13.36, E13.37X1, E13.37X2, E13.37X3, E13.37X9, E13.39, E13.40, E13.41, E13.42, E13.43, E13.44, E13.49, E13.51, E13.52, E13.59, E13.610, E13.618, E13.620, E13.621, E13.622, E13.628, E13.630, E13.638, E13.641, E13.649, E13.65, E13.69, E13.8, E13.9

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, 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 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

ICD-10CM code: E10.10, E10.11, E10.21, E10.22, E10.29, E10.311, E10.319, E10.3211, E10.3212, E10.3213, E10.3219, E10.3291, E10.3292, E10.3293, E10.3299, E10.3311, E10.3312, E10.3313, E10.3319, E10.3391, E10.3392, E10.3393, E10.3399, E10.3411, E10.3412, E10.3413, E10.3419, E10.3491, E10.3492, E10.3493, E10.3499, E10.3511, E10.3512, E10.3513, E10.3519, E10.3521, E10.3522, E10.3523, E10.3529, E10.3531, E10.3532, E10.3533, E10.3539, E10.3541, E10.3542, E10.3543, E10.3549, E10.3551, E10.3552, E10.3553, E10.3559, E10.3591, E10.3592, E10.3593, E10.3599, E10.36, E10.37X1, E10.37X2, E10.37X3, E10.37X9, E10.39, E10.40, E10.41, E10.42, E10.43, E10.44, E10.49, E10.51, E10.52, E10.59, E10.610, E10.618, E10.620, E10.621, E10.622, E10.628, E10.630, E10.638, E10.641, E10.649, E10.65, E10.69, E10.8, E10.9, E11.00, E11.01, E11.10, E11.11, E11.21, E11.22, E11.29, E11.311, E11.319, E11.3211, E11.3212, E11.3213, E11.3219, E11.3291, E11.3292, E11.3293, E11.3299, E11.3311, E11.3312, E11.3313, E11.3319, E11.3391, E11.3392, E11.3393, E11.3399, E11.3411, E11.3412, E11.3413, E11.3419, E11.3491, E11.3492, E11.3493, E11.3499, E11.3511, E11.3512, E11.3513, E11.3519, E11.3521, E11.3522, E11.3523, E11.3529, E11.3531, E11.3532, E11.3533, E11.3539, E11.3541, E11.3542, E11.3543, E11.3549, E11.3551, E11.3552, E11.3553, E11.3559, E11.3591, E11.3592, E11.3593, E11.3599, E11.36, E11.37X1, E11.37X2, E11.37X3, E11.37X9, E11.39, E11.40, E11.41, E11.42, E11.43, E11.44, E11.49, E11.51, E11.52, E11.59, E11.610, E11.618, E11.620, E11.621, E11.622, E11.628, E11.630, E11.638, E11.641, E11.649, E11.65, E11.69, E11.8, E11.9, E13.00, E13.01, E13.10, E13.11, E13.21, E13.22, E13.29, E13.311, E13.319, E13.3211, E13.3212, E13.3213, E13.3219, E13.3291, E13.3292, E13.3293, E13.3299, E13.3311, E13.3312, E13.3313, E13.3319, E13.3391, E13.3392, E13.3393, E13.3399, E13.3411, E13.3412, E13.3413, E13.3419, E13.3491, E13.3492, E13.3493, E13.3499, E13.3511, E13.3512, E13.3513, E13.3519, E13.3521, E13.3522, E13.3523, E13.3529, E13.3531, E13.3532, E13.3533, E13.3539, E13.3541, E13.3542, E13.3543, E13.3549, E13.3551, E13.3552, E13.3553, E13.3559, E13.3591, E13.3592, E13.3593, E13.3599, E13.36, E13.37X1, E13.37X2, E13.37X3, E13.37X9, E13.39, E13.40, E13.41, E13.42, E13.43, E13.44, E13.49, E13.51, E13.52, E13.59, E13.610, E13.618, E13.620, E13.621, E13.622, E13.628, E13.630, E13.638, E13.641, E13.649, E13.65, E13.69, E13.8, E13.9

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, 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 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.

[33] Diabetes Care in the Hospital: Standards of Medical Care in Diabetes—2021 American Diabetes Association Diabetes Care Jan 2021, 44 (Supplement 1) S211-S220; DOI: 10.2337/dc21-S015

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

ICD-10CM code: E10.10, E10.11, E10.21, E10.22, E10.29, E10.311, E10.319, E10.3211, E10.3212, E10.3213, E10.3219, E10.3291, E10.3292, E10.3293, E10.3299, E10.3311, E10.3312, E10.3313, E10.3319, E10.3391, E10.3392, E10.3393, E10.3399, E10.3411, E10.3412, E10.3413, E10.3419, E10.3491, E10.3492, E10.3493, E10.3499, E10.3511, E10.3512, E10.3513, E10.3519, E10.3521, E10.3522, E10.3523, E10.3529, E10.3531, E10.3532, E10.3533, E10.3539, E10.3541, E10.3542, E10.3543, E10.3549, E10.3551, E10.3552, E10.3553, E10.3559, E10.3591, E10.3592, E10.3593, E10.3599, E10.36, E10.37X1, E10.37X2, E10.37X3, E10.37X9, E10.39, E10.40, E10.41, E10.42, E10.43, E10.44, E10.49, E10.51, E10.52, E10.59, E10.610, E10.618, E10.620, E10.621, E10.622, E10.628, E10.630, E10.638, E10.641, E10.649, E10.65, E10.69, E10.8, E10.9, E11.00, E11.01, E11.10, E11.11, E11.21, E11.22, E11.29, E11.311, E11.319, E11.3211, E11.3212, E11.3213, E11.3219, E11.3291, E11.3292, E11.3293, E11.3299, E11.3311, E11.3312, E11.3313, E11.3319, E11.3391, E11.3392, E11.3393, E11.3399, E11.3411, E11.3412, E11.3413, E11.3419, E11.3491, E11.3492, E11.3493, E11.3499, E11.3511, E11.3512, E11.3513, E11.3519, E11.3521, E11.3522, E11.3523, E11.3529, E11.3531, E11.3532, E11.3533, E11.3539, E11.3541, E11.3542, E11.3543, E11.3549, E11.3551, E11.3552, E11.3553, E11.3559, E11.3591, E11.3592, E11.3593, E11.3599, E11.36, E11.37X1, E11.37X2, E11.37X3, E11.37X9, E11.39, E11.40, E11.41, E11.42, E11.43, E11.44, E11.49, E11.51, E11.52, E11.59, E11.610, E11.618, E11.620, E11.621, E11.622, E11.628, E11.630, E11.638, E11.641, E11.649, E11.65, E11.69, E11.8, E11.9, E13.00, E13.01, E13.10, E13.11, E13.21, E13.22, E13.29, E13.311, E13.319, E13.3211, E13.3212, E13.3213, E13.3219, E13.3291, E13.3292, E13.3293, E13.3299, E13.3311, E13.3312, E13.3313, E13.3319, E13.3391, E13.3392, E13.3393, E13.3399, E13.3411, E13.3412, E13.3413, E13.3419, E13.3491, E13.3492, E13.3493, E13.3499, E13.3511, E13.3512, E13.3513, E13.3519, E13.3521, E13.3522, E13.3523, E13.3529, E13.3531, E13.3532, E13.3533, E13.3539, E13.3541, E13.3542, E13.3543, E13.3549, E13.3551, E13.3552, E13.3553, E13.3559, E13.3591, E13.3592, E13.3593, E13.3599, E13.36, E13.37X1, E13.37X2, E13.37X3, E13.37X9, E13.39, E13.40, E13.41, E13.42, E13.43, E13.44, E13.49, E13.51, E13.52, E13.59, E13.610, E13.618, E13.620, E13.621, E13.622, E13.628, E13.630, E13.638, E13.641, E13.649, E13.65, E13.69, E13.8, E13.9

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

ICD-10CM code: E10.10, E10.11, E10.21, E10.22, E10.29, E10.311, E10.319, E10.3211, E10.3212, E10.3213, E10.3219, E10.3291, E10.3292, E10.3293, E10.3299, E10.3311, E10.3312, E10.3313, E10.3319, E10.3391, E10.3392, E10.3393, E10.3399, E10.3411, E10.3412, E10.3413, E10.3419, E10.3491, E10.3492, E10.3493, E10.3499, E10.3511, E10.3512, E10.3513, E10.3519, E10.3521, E10.3522, E10.3523, E10.3529, E10.3531, E10.3532, E10.3533, E10.3539, E10.3541, E10.3542, E10.3543, E10.3549, E10.3551, E10.3552, E10.3553, E10.3559, E10.3591, E10.3592, E10.3593, E10.3599, E10.36, E10.37X1, E10.37X2, E10.37X3, E10.37X9, E10.39, E10.40, E10.41, E10.42, E10.43, E10.44, E10.49, E10.51, E10.52, E10.59, E10.610, E10.618, E10.620, E10.621, E10.622, E10.628, E10.630, E10.638, E10.641, E10.649, E10.65, E10.69, E10.8, E10.9, E11.00, E11.01, E11.10, E11.11, E11.21, E11.22, E11.29, E11.311, E11.319, E11.3211, E11.3212, E11.3213, E11.3219, E11.3291, E11.3292, E11.3293, E11.3299, E11.3311, E11.3312, E11.3313, E11.3319, E11.3391, E11.3392, E11.3393, E11.3399, E11.3411, E11.3412, E11.3413, E11.3419, E11.3491, E11.3492, E11.3493, E11.3499, E11.3511, E11.3512, E11.3513, E11.3519, E11.3521, E11.3522, E11.3523, E11.3529, E11.3531, E11.3532, E11.3533, E11.3539, E11.3541, E11.3542, E11.3543, E11.3549, E11.3551, E11.3552, E11.3553, E11.3559, E11.3591, E11.3592, E11.3593, E11.3599, E11.36, E11.37X1, E11.37X2, E11.37X3, E11.37X9, E11.39, E11.40, E11.41, E11.42, E11.43, E11.44, E11.49, E11.51, E11.52, E11.59, E11.610, E11.618, E11.620, E11.621, E11.622, E11.628, E11.630, E11.638, E11.641, E11.649, E11.65, E11.69, E11.8, E11.9, E13.00, E13.01, E13.10, E13.11, E13.21, E13.22, E13.29, E13.311, E13.319, E13.3211, E13.3212, E13.3213, E13.3219, E13.3291, E13.3292, E13.3293,

E13.3299, E13.3311, E13.3312, E13.3313, E13.3319, E13.3391, E13.3392, E13.3393, E13.3399, E13.3411, E13.3412, E13.3413, E13.3419, E13.3491, E13.3492, E13.3493, E13.3499, E13.3511, E13.3512, E13.3513, E13.3519, E13.3521, E13.3522, E13.3523, E13.3529, E13.3531, E13.3532, E13.3533, E13.3539, E13.3541, E13.3542, E13.3543, E13.3549, E13.3551, E13.3552, E13.3553, E13.3559, E13.3591, E13.3592, E13.3593, E13.3599, E13.36, E13.37X1, E13.37X2, E13.37X3, E13.37X9, E13.39, E13.40, E13.41, E13.42, E13.43, E13.44, E13.49, E13.51, E13.52, E13.59, E13.610, E13.618, E13.620, E13.621, E13.622, E13.628, E13.630, E13.638, E13.641, E13.649, E13.65, E13.69, E13.8, E13.9

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, 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 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**:*

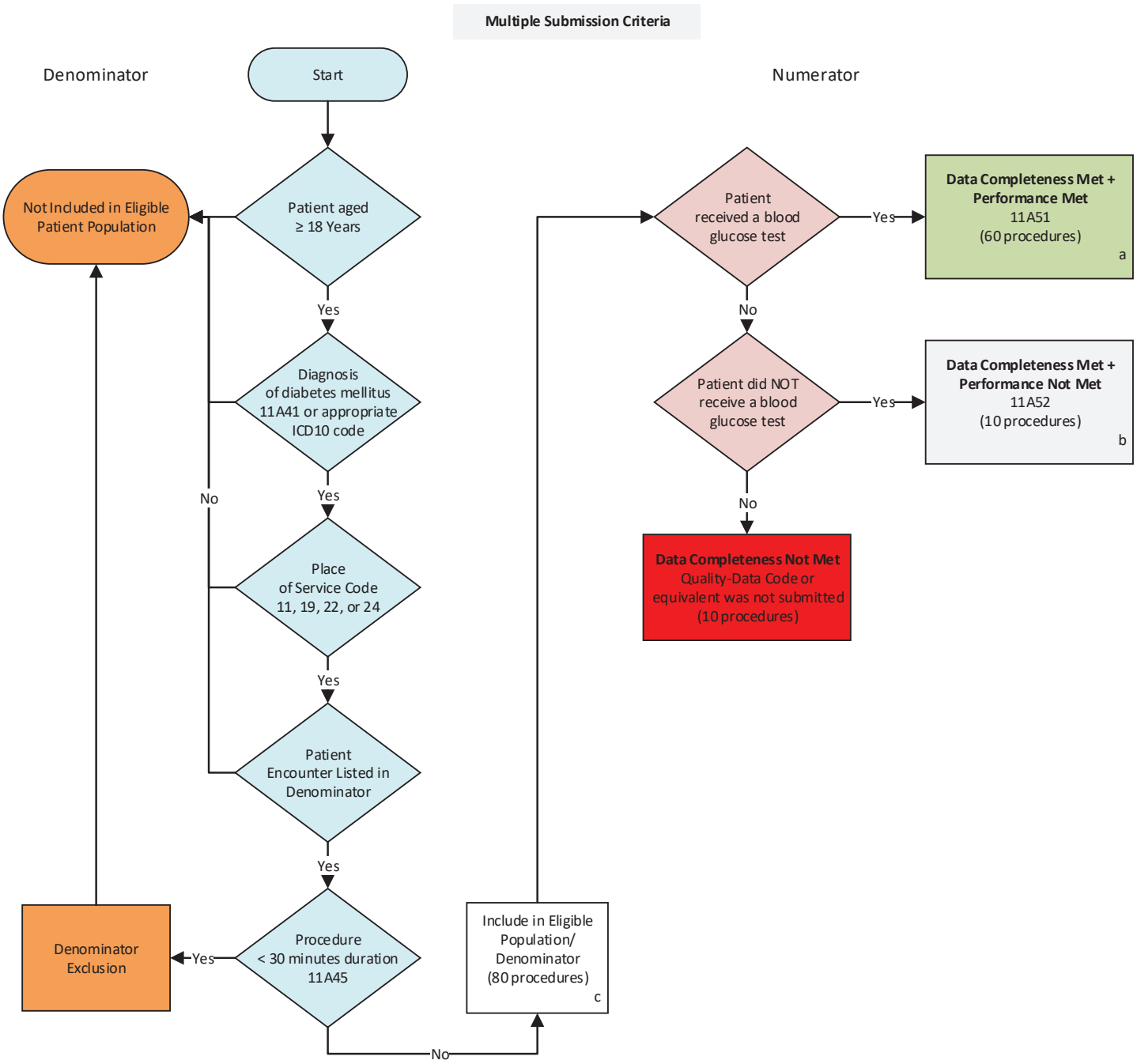
11A58 Patient received education on managing their glucose in the postoperative period prior to discharge.

OR

Performance Not Met:

11A59 Patient did NOT receive education on managing their glucose in the postoperative period prior to discharge.

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #71a:
Ambulatory Glucose Management:
Ambulatory Point-of-Care Glucose Testing



SAMPLE CALCULATIONS

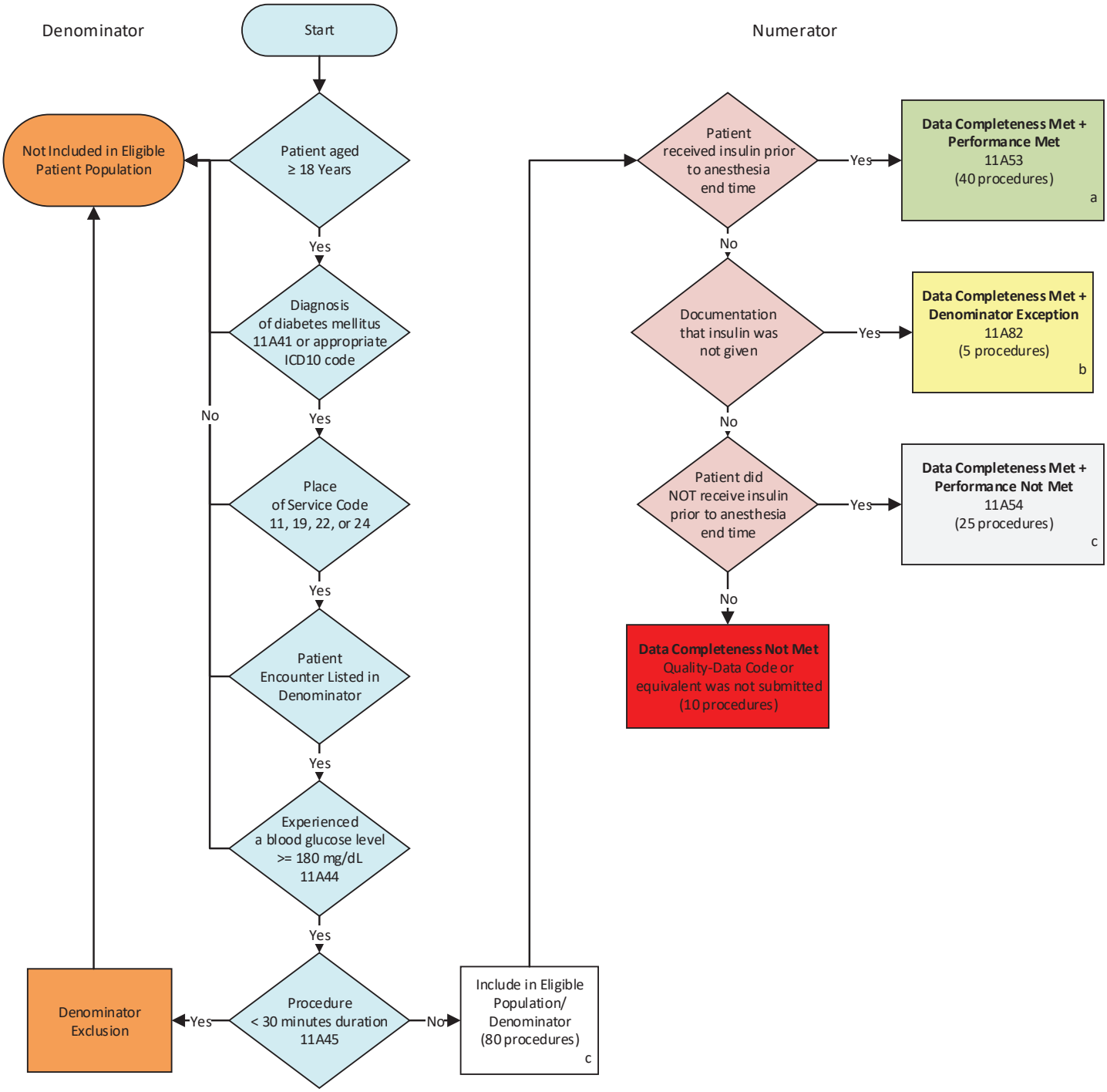
Data Completeness =
Performance Met (a=60 procedures) + Performance Not Met (b=10 procedures) = 70 procedures = 87.50%
Eligible Population / Denominator (c=80 procedures) = 80 procedures

Performance Rate =
Performance Met (a=60 procedures) = 60 procedures = 85.71%
Data Completeness Numerator (70 procedures) = 70 procedures

Version 2.0
December 2022

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #71b:
Ambulatory Glucose Management:
Ambulatory Hyperglycemia Control

Multiple Submission Criteria

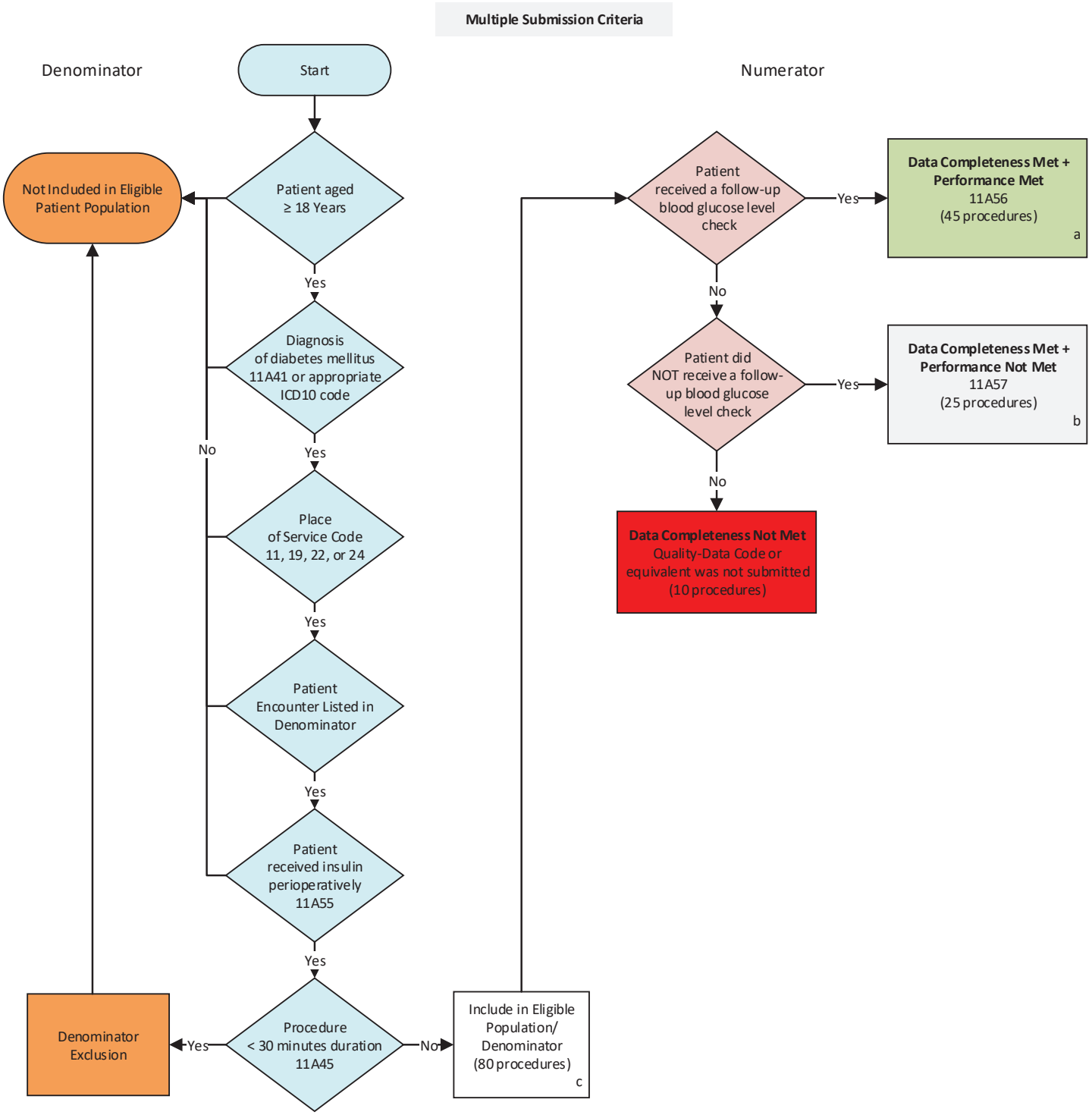


SAMPLE CALCULATIONS

Data Completeness =
Performance Met (a=40 procedures) + Denominator Exceptions (b=5 procedures) + Performance Not Met (c=25 procedure) / Eligible Population / Denominator (d=80 procedures) = **70 procedures / 80 procedures** = **87.50%**

Performance Rate =
Performance Met (a=40 procedures) / Data Completeness Numerator (70 procedures) – Denominator Exceptions (b=5 procedures) = **40 procedures / 65 procedures** = **61.54%**

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #71c:
Ambulatory Glucose Management:
Follow-Up Glucose Check for Patients Receiving Insulin



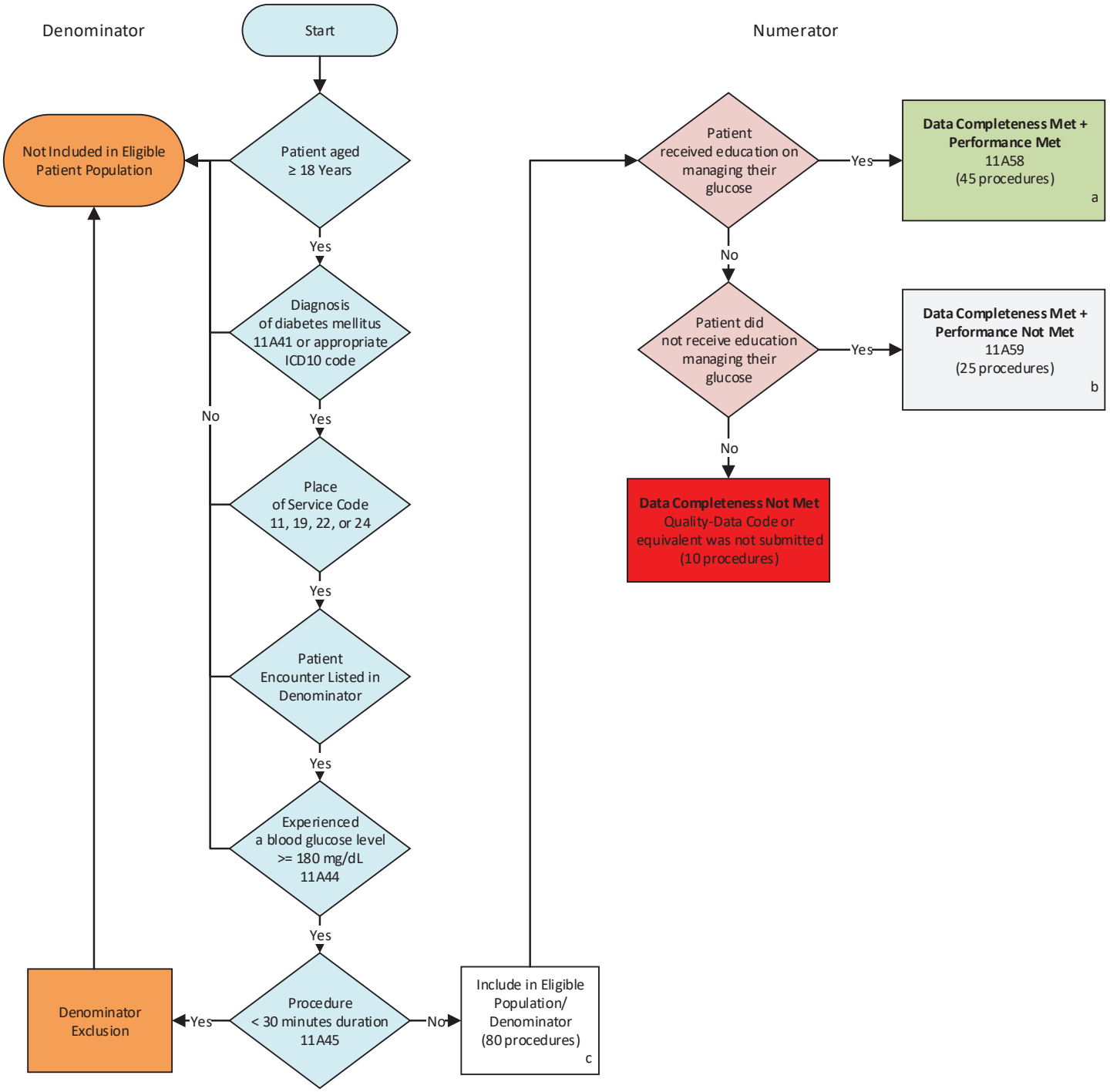
SAMPLE CALCULATIONS

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

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #71d:
Ambulatory Glucose Management:
Hyperglycemia Management Patient Education

Multiple Submission Criteria



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

2023 Qualified Clinical Data Registry Measure Flow for AQI ID #71:
Ambulatory Glucose Management:
Sample Overall Calculation

Multiple Submission Criteria

SAMPLE CALCULATIONS: Ambulatory Point-of-Care Glucose Testing

Data Completeness =
Performance Met (a=60 procedures) + Performance Not Met (b=10 procedures) = 70 procedures = 87.50%
Eligible Population / Denominator (c=80 procedures) = 80 procedures

Performance Rate =
Performance Met (a=60 procedures) = 60 procedures = 85.71%
Data Completeness Numerator (70 procedures) = 70 procedures

SAMPLE CALCULATIONS

Data Completeness =
Performance Met (a=40 procedures) + Denominator Exceptions (b=5 procedures) + Performance Not Met (c=25 procedure) = 70 procedures = 87.50%
Eligible Population / Denominator (d=80 procedures) = 80 procedures

Performance Rate =
Performance Met (a=40 procedures) = 40 procedures = 61.54%
Data Completeness Numerator (70 procedures) – Denominator Exceptions (b=5 procedures) = 65 procedures

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

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

SAMPLE CALCULATIONS: Hyperglycemia Management Patient Education

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

SAMPLE CALCULATIONS: Sample Overall Calculation

Performance Rate =
Ambulatory Point-of-Care Glucose Testing Performance Rate (85.71%) + Ambulatory Hyperglycemia Control Performance Rate (61.54%) +
Follow-Up Glucose Check for Patients Receiving Insulin Performance Rate (64.29%) + Hyperglycemia Management Patient Education Performance Rate (64.29%)
4

Performance Rate =
85.71% + 64.29% + 64.29% + 64.29% = 275.83 = 68.96%
4 = 4

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.[34]

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

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[34] Spahn DR, Muñoz M, Klein AA, Levy JH, Zacharowski K. Patient Blood Management: Effectiveness and Future Potential. Anesthesiology. 2020 Jul;133(1):212-222. doi: 10.1097/ALN.0000000000003198. PMID: 32108683.

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.[35] 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."[36] 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.[37]

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[38]

"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

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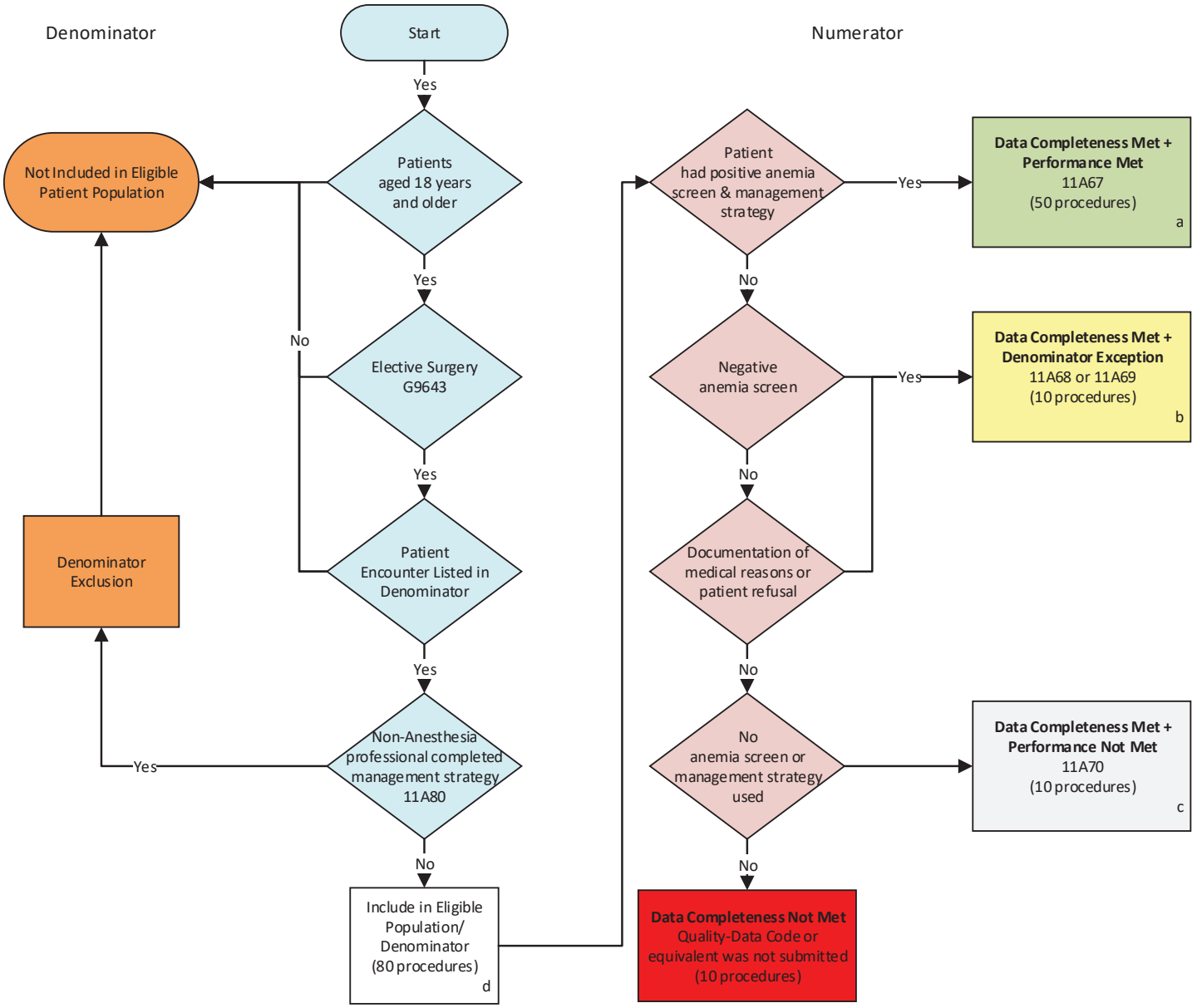
[35] Shander A, Knight K, Thurer R, Adamson J, Spence R. Prevalence and outcomes of anemia in surgery: a systematic review of the literature. Am J Med. 2004;116 Suppl 7A:58S-69S.

[36] Practice Guidelines for Perioperative Blood Management: An Updated Report by the American Society of Anesthesiologists Task Force on Perioperative Blood Management*. Anesthesiology 2015;122(2):241-275. doi: https://doi.org/10.1097/ALN.0000000000000463.

[37] American Association of Blood Banks. http://www.aabb.org/pbm/Pages/pbm-resources.aspx. http://www.aabb.org/pbm/Documents/PBM-Addressing-Preoperative-Anemia-May-Improve-Surgical-Outcomes.pdf.

[38] Practice Guidelines for Perioperative Blood Management: An Updated Report by the American Society of Anesthesiologists Task Force on Perioperative Blood Management*. Anesthesiology 2015;122(2):241-275. doi: **https://doi.org/10.1097/ALN.0000000000000463**.

2023 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 = 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 3.0
January 2020

Measure Title

AQI73: Prevention of Arterial Line-Related Bloodstream Infections

Measure Description

Percentage of patients, regardless of age, who undergo placement of a peripheral intra-arterial catheter for whom the arterial line was inserted with all indicated elements of sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques followed

The measure will consist of two performance rates:

AQI73a: Percentage of patients, regardless of age, who undergo placement of a peripheral intra-arterial line in the brachial, radial, posterior tibial, or dorsalis pedis artery for whom the arterial line was inserted with all indicated elements of sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques followed

AQI73b: Percentage of patients, regardless of age, who undergo placement of a peripheral intra-arterial line in the femoral or axillary artery for whom the arterial line was inserted with all indicated elements of maximal sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound technique is followed

NOTE: The overall measure score will be calculated as an average of the total cases of part A and part B.

NQS Domain/Meaningful Measures Area

Patient Safety/Healthcare Associated Infections

Measure Type

Composite

High Priority Status

Yes

Inverse Measure

No

Instructions

This measure consists of two performance rates: AQI73a and AQI73b. Each measure should be reported, as appropriate, for each time a patient undergoes a procedure undergo placement of a peripheral intra-arterial catheter for whom the arterial line was inserted. This measure has two sub-metrics which are used to calculate the total composite score. The overall measure score will be calculated as an average of the total cases of part A and part B. 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

Arterial lines have been shown to be a significantly under-recognized source of catheter-related bloodstream infections. Though arterial catheter infection rates are similar to those associated with central venous catheters, the use of sterile barrier techniques for arterial line insertion is limited. Appropriate use of sterile techniques is essential to prevent costly and dangerous infections. Furthermore, the insertion of an arterial line in the femoral or axillary artery increases the likelihood of a blood stream infection in adults.[39]

CLINICAL RECOMMENDATION STATEMENTS:

2011 CDC/HICPAC Guidelines for the Prevention of Intravascular Catheter-Related Infections[40]

A minimum of a cap, mask, sterile gloves, and a small sterile fenestrated drape should be used during peripheral arterial catheter insertion (Category IB)

Use maximal sterile barrier precautions, including the use of a cap, mask, sterile gown, sterile gloves, and a sterile full body drape, for the insertion of CVCs, PICCs, or guidewire exchange. (Category IB)

During axillary or femoral artery catheter insertion, maximal sterile barriers precautions should be used. (Category II)

Prepare clean skin with a >0.5% chlorhexidine preparation with alcohol before central venous catheter and peripheral arterial catheter insertion and during dressing changes. If there is a contraindication to chlorhexidine, tincture of iodine, an iodophor, or 70% alcohol can be used as alternatives (Category IA)

Data Source: Claims/Paper Medical Record, Registry

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

Number of Performance Rates: 3

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

Care Setting: Hospital

Telehealth Reporting Option: No

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[39] Munoz-Price LS, Bowdle A, Johnston BL, Bearman G, Camins BC, Dellinger EP, Geisz-Everson MA, Holzmann-Pazgal G, Murthy R, Pegues D, Prielipp RC, Rubin ZA, Schaffzin J, Yokoe D, Birnbach DJ. Infection prevention in the operating room anesthesia work area. Infect Control Hosp Epidemiol. 2018 Dec 11:1-17. doi: 10.1017/ice.2018.303. Epub ahead of print. Erratum in: Infect Control Hosp Epidemiol. 2019 Apr;40(4):500. PMID: 30526699.

[40] O'Grady NP, Alexander M, Burns LA, et al. Guidelines for the prevention of intravascular catheter-related infections. Clin Infect Dis. 2011;52(9):e162-e193. doi:10.1093/cid/cir257.

AQI73a: Brachial, Radial, Posterior Tibial, or Dorsalis Pedis Arterial Lines

Description

Percentage of patients, regardless of age, who undergo an arterial line insertion in the brachial, radial, posterior tibial, or dorsalis pedis artery for whom the arterial line was inserted with all indicated elements of sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques followed

Denominator:

All patients, regardless of age, who undergo placement of an intra-arterial catheter in the brachial, radial, posterior tibial or dorsalis pedis artery

Denominator Criteria (Eligible Cases):

All patients, regardless of age

AND

Patient encounter during the reporting period (CPT): 36620

AND

Intra-arterial catheter placed in brachial, radial, posterior tibial, or dorsalis pedis artery: 11A71

Denominator Exclusions:

None

Numerator:

Patients for whom intra-arterial catheter was inserted with all indicated elements of sterile barrier technique, hand hygiene, skin preparation (including >0.5% chlorhexidine with alcohol, unless there is a contraindication to chlorhexidine), and, if ultrasound is used, sterile ultrasound techniques followed

Numerator Definitions:

Sterile Barrier Technique: Includes all of the following elements: Cap AND mask AND sterile gloves AND sterile draping.

Sterile Ultrasound Techniques: Require sterile gel and sterile probe covers

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A74 All indicated elements of sterile barrier technique, hand hygiene, skin preparation, and, if ultrasound is used, sterile ultrasound techniques followed

OR

Denominator Exception:

11A75 Documentation of medical reason(s) for not following all indicated elements of sterile barrier technique, hand hygiene, skin preparation, and, if ultrasound is used, sterile ultrasound techniques during intra-arterial catheter insertion (e.g., An emergency surgical, therapeutic, or diagnostic procedure or an unanticipated worsening of the patient's clinical condition so that adherence would cause delay in arterial line insertion resulting in increased risk of harm to patient)

OR

Performance Not Met:

11A76 All indicated elements of sterile barrier technique, hand hygiene, skin preparation, and if ultrasound is used, sterile ultrasound techniques not followed, reason not otherwise specified

AQI73b: Femoral and Axillary Arterial Lines

Description:
Percentage of patients, regardless of age, who undergo an arterial line insertion in the femoral or axillary artery for whom the arterial line was inserted with all indicated elements of maximal sterile barrier technique, hand hygiene, skin preparation and, if ultrasound is used, sterile ultrasound techniques followed.

Denominator:
All patients, regardless of age, who undergo placement of an intra-arterial catheter in the femoral or axillary artery

Denominator Criteria (Eligible Cases):
All patients, regardless of age
AND
Patient encounter during the reporting period (CPT): 36620
AND
Intra-arterial catheter placed in femoral or axillary artery: **11A72**

Denominator Exclusions:
None

Numerator:
Patients for whom intra-arterial catheter was inserted with all elements of maximal sterile barrier technique, hand hygiene, skin preparation (including >0.5% chlorhexidine with alcohol, unless there is a contraindication to chlorhexidine), and, if ultrasound is used, sterile ultrasound techniques followed

Numerator Definitions:
Maximal Sterile Barrier Technique – includes all of the following elements: Cap AND mask AND sterile gloves AND sterile gown AND sterile full body draping
Sterile Ultrasound Techniques – Require sterile gel and sterile probe covers
Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A77	All elements of maximal sterile barrier technique, hand hygiene, skin preparation, and, if ultrasound is used, sterile ultrasound techniques followed.

OR

Denominator Exception:

11A78	Documentation of medical reason(s) for not following all elements of maximal sterile barrier technique, hand hygiene, skin preparation, and, if ultrasound is used, sterile ultrasound techniques during intra-arterial catheter insertion (e.g., An emergency surgical, therapeutic, or diagnostic procedure or an unanticipated worsening of the patient's clinical condition so that adherence would cause delay in arterial line insertion resulting in increased risk of harm to patient).

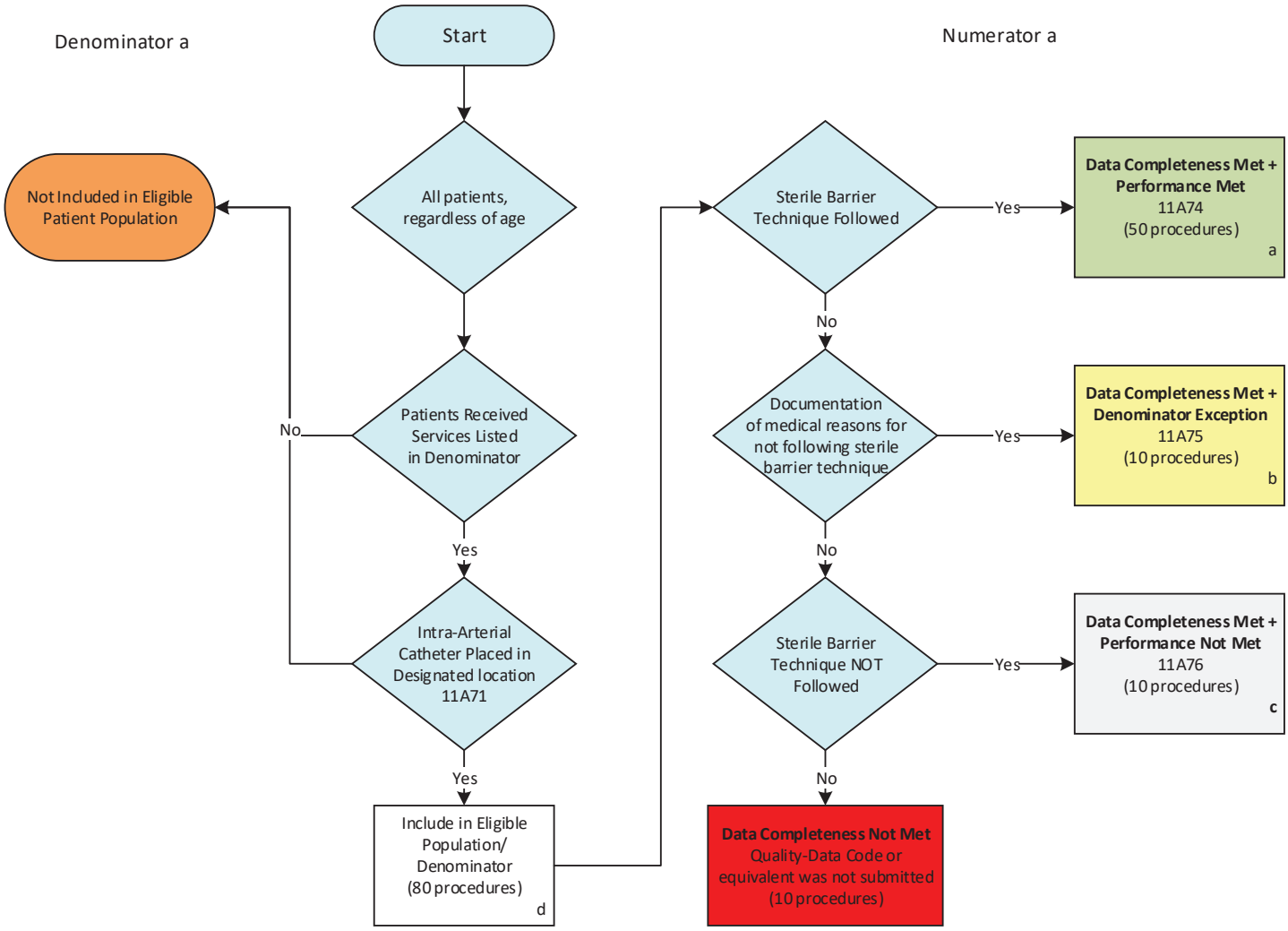
OR

Performance Not Met:

11A79	All elements of maximal sterile barrier technique, hand hygiene, skin preparation, and if ultrasound is used, sterile ultrasound techniques not followed, reason not otherwise specified.

2023 Quality Clinical Data Registry Measure Flow for AQI ID #73a: Prevention of Arterial Line Related Bloodstream Infections: Brachial, Radial, Posterior Tibial, or Dorsalis Pedis Arterial Lines

Multiple Submission Criteria



SAMPLE CALCULATIONS

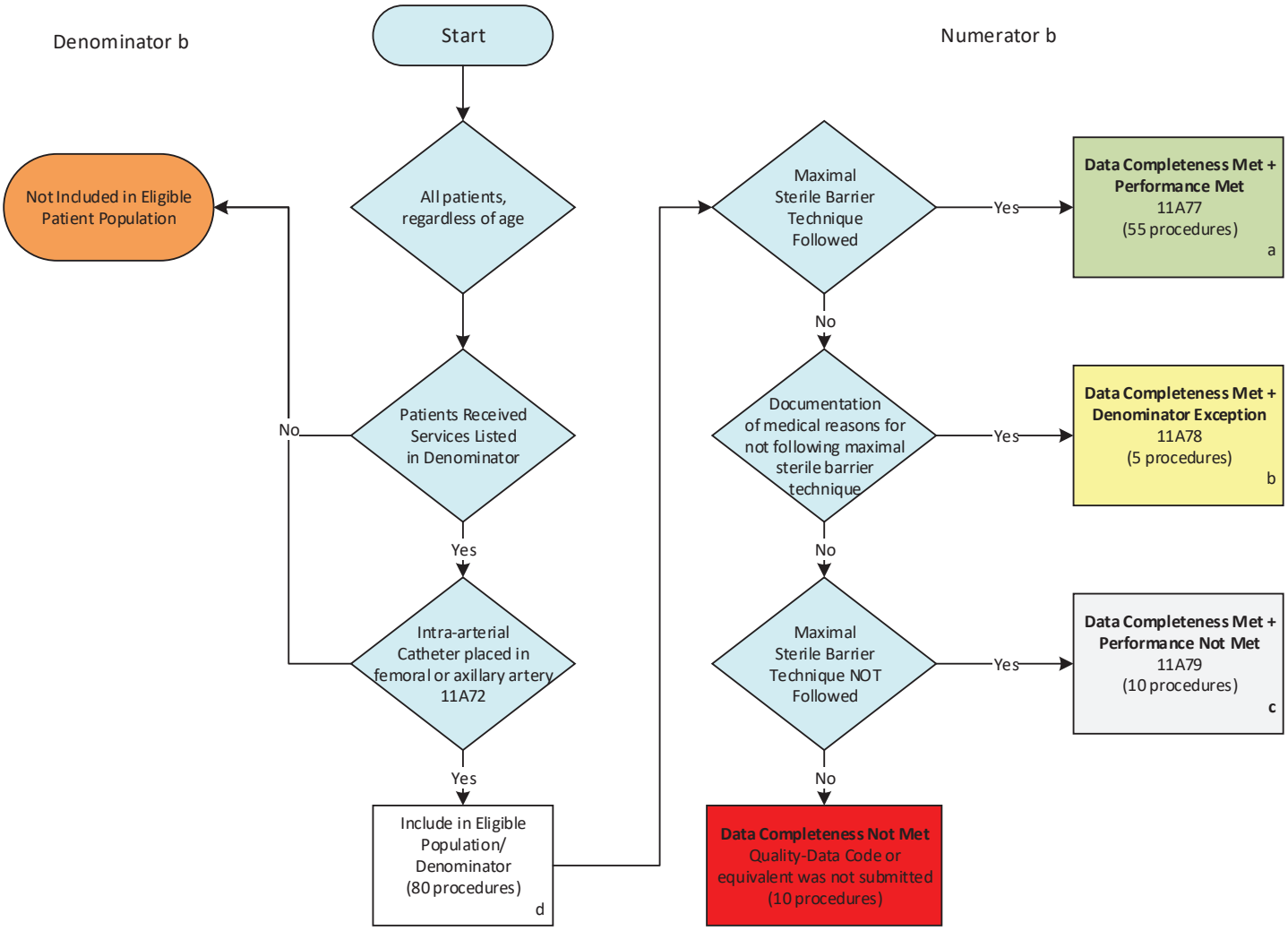
Data Completeness =
Performance Met (a=50 procedures) + Denominator Exceptions (b=10 procedures) + Performance Not Met (c=10 procedure) = 70 procedures = 87.50%
Eligible Population / Denominator (d=80 procedures) = 80 procedures

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 2022

2023 Quality Clinical Data Registry Measure Flow for AQI ID #73b: Prevention of Arterial Line Related Bloodstream Infections: Femoral and Axillary Arterial Lines

Multiple Submission Criteria



SAMPLE CALCULATIONS

Data Completeness =
Performance Met (a=55 procedures) + Denominator Exceptions (b=5 procedures) + Performance Not Met (c=10 procedure) = 70 procedures = 87.50%
Eligible Population / Denominator (d=80 procedures) = 80 procedures

Performance Rate =
Performance Met (a=55 procedures) = 55 procedures = 84.62%
Data Completeness Numerator (70 procedures) – Denominator Exceptions (b=5 procedures) = 65 procedures

SAMPLE OVERALL PERFORMANCE RATE CALCULATION

Overall Performance Rate =
Performance Met (AQI73a + AQI73b = 50 + 55 = 105) = 105 procedures = 84.00%
Data Completeness Numerator (AQI73a + AQI73b = 70 + 70= 140 procedures) – = 125 procedures
Denominator Exceptions (AQI73a + AQI73b = 10 + 5 = 15 procedures)

Version 1.0
January 2022

Measure Title

ABG41: Upper Extremity Nerve Blockade in Shoulder Surgery

ASA LICENSED THIS MEASURE FROM ABG

Measure Description: Percentage of patients who undergo elective shoulder arthroscopy or arthroplasty who have an upper extremity nerve blockade performed before or immediately after the procedure.

NQS Domain/Meaningful Measures Area
Effective Clinical Care/ Patient Focused Episode of Care

Measure Type
Process

High Priority Status
No

Inverse Measure
No

Instructions:
This measure is to be reported each time an adult patient presents for elective shoulder arthroscopy or elective shoulder arthroplasty. 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: Patients who have elective shoulder arthroscopy or shoulder arthroplasty.

Denominator Criteria (Eligible Cases):
(ASA and CPT): CPT: 23470, 23472, 23473, 23474, 29805, 29806, 29807, 29819, 29820, 29821,29822, 29823, 29824, 29825, 29826, 29827, 29828

AND/OR
ASA: 01630, 01634, 01636, 01638

Denominator Exclusions:
- Age < 18 years
- Emergent cases

Numerator:
Patients who have an upper extremity nerve block placed before or immediately after the procedure.

Numerator Note: Upper extremity block may include any one or a combination of the following: Interscalene, Supraclavicular, Suprascapular, Infraclavicular, Axillary

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A83 Upper extremity nerve block performed

OR

Denominator Exception:

11A84 Contraindication to/refusal of upper extremity nerve block

OR

Denominator Exception:

11A85 Surgeon administered upper extremity nerve block

OR

Performance Not Met:

11A86 Upper extremity nerve block NOT performed

Rationale

Quoted Verbatim: "What are the benefits of nerve blocks?

Nerve blocks have several advantages in shoulder surgery. First, nerve blocks provide better pain relief after surgery than the combination of general anesthesia and systemic pain-relieving medications such as opioids that are given after surgery. This is because pain relief provided by nerve blocks is much more specific to the location of the pain. You will also need lower doses of opioids after surgery to control your pain. Opioids have a number of side effects, which are discussed below, so minimizing their use is important. Regional anesthesia provides greater muscle relaxation than general anesthesia. You will also need less anesthesia for the surgery because your shoulder is totally numb during and after the procedure. That means that you will have less pain, your recovery will be quicker, and your rehabilitation will be easier.

If you happen to receive a block and sedation for surgery instead of receiving general anesthesia, you may avoid many of the side effects and complications associated with general anesthesia, including feeling sick to your stomach or throwing up after anesthesia, commonly known as postoperative nausea and vomiting (PONV)."[41,42,43]

Measure Steward:	ABG QCDR
Data Source:	Claims, Hybrid, other
Number of Performance Rates:	1
Proportional Measure:	Yes
Continuous Variable Measure:	No
Ratio Measure:	No
Risk Adjustment:	No
High Priority Type:	Patient Safety
Care Setting:	Ambulatory, Ambulatory Care: Clinician Office/Clinic, Ambulatory Care: Hospital, Ambulatory Surgical Center, Hospital, Hospital Inpatient, Hospital Outpatient
Telehealth Reporting Option:	No

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[41] American Society of Regional Anesthesia and Pain Medicine: Outpatient orthopedic shoulder surgery: Your pain relief options. (https://www.asra.com/page/1546/outpatient-orthopedic-shoulder-surgery-your-painrelief-options)

[42] Bowens C and Sripada R. Regional blockade of the shoulder: approaches and outcomes. Anesthesiology Research and Practice. 2012; 2012(4):1-12.

[43] Hussain N et al. Suprascapular and Interscalene Nerve Block for Shoulder Surgery: A Systematic Review and Meta-analysis. Anesthesiology. 2017 Dec; 127(6):998-1013

Measure Title

ABG43: Use of Capnography for non-Operating Room anesthesia Measure

ASA LICENSED THIS MEASURE FROM ABG

Measure Description: Percentage of patients receiving anesthesia in a non-operating room setting who have end-tidal carbon dioxide (E_TCO_2) monitored using capnography.

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 receives anesthesia in a non-operating room setting. End-tidal carbon dioxide (E_TCO_2) can be recorded in the medical record with either a qualitative ("+") or quantitative measure (numerical value)

Measure Reporting via the Qualified Clinical Data Registry
CPT codes, type of anesthesia, and patient location are used to identify patients who are included in the measure's denominator. Registry codes are used to report the numerator of the measure.

Denominator: All patients receiving anesthesia in a non-operating room setting for whom select CPT codes are reported.

Denominator Criteria (Eligible Cases):
Patients receiving anesthesia in a non-operating room setting. **11A87**
AND
Patient encounter reported with one of the following applicable setting anesthesia services: 00104, 00410, 00731, 00732, 00811, 00812, 00813, 01922

Denominator Exclusions:

- Patients receiving anesthesia in an operating room setting: **11A88**

Numerator: Patients who have end-tidal carbon dioxide (E_TCO_2) monitoring using capnography.

Numerator Definition: Operating room is defined as a permanent fixed location in which procedures are performed and is equipped with a dedicated anesthesia machine (mechanical ventilator and inhalational anesthetic delivery system) with standard OR monitors (BP, EKG, pulse oximetry, end tidal CO2). Procedure rooms where anesthesia machines and standard monitors are made available on an "as needed" basis are not considered operating rooms for the purposes of this measure.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A90	Clinician monitored end-tidal carbon dioxide (E_TCO_2) using capnography. End-tidal carbon dioxide can be recorded in the medical record with either a qualitative ("+") or quantitative measure (numerical value).

OR

Performance Not Met:

11A91	Clinician did not monitor end-tidal carbon dioxide using capnography

Rationale

The use of capnography when administering anesthesia in non-operating room sites is highly variable. To assess current use of capnography in non-OR settings, MEDNAX conducted a random audit of 100 anesthesia cases among all MEDNAX group practices participating in the MEDNAX QCDR. These cases were performed during the first 6 months of 2018 and represented either anesthesia for screening colonoscopy (CPT 00812) or anesthesia for non-invasive radiologic imaging (CPT 01922). In 76% of these cases, anesthesiologists documented use of end-tidal CO2 monitoring while in 24% of cases, such monitoring was not documented.

Anecdotally, monitoring of end-tidal carbon dioxide (E_TCO_2) occurs in a minority of cases outside of the operating room. This is despite evidence that it reduces hypoxemic events: "Meta-analysis of RCTs indicate that the use of continuous end-tidal carbon dioxide monitoring (i.e., capnography) is associated with a reduced frequency of hypoxemic events (i.e., oxygen saturation less than 90%) when compared to monitoring without capnography (e.g., practitioners were blinded to capnography results) during procedures with moderate sedation (category A1-B evidence)."[44]

Capnography use helps avoid adverse events in numerous settings, including the pediatric emergency room:

"Hypoventilation is common during sedation of pediatric emergency department patients. This can be difficult to detect by current monitoring methods other than capnography. Providers with access to capnography provided fewer but more timely interventions for hypoventilation. This led to fewer episodes of hypoventilation and of oxygen desaturation."[45,46] In addition, monitoring of end-tidal carbon dioxide reduces complications in advanced endoscopic procedures: "Capnographic monitoring of respiratory activity improves patient safety during procedural sedation for elective ERCP/EUS by reducing the frequency of hypoxemia, severe hypoxemia, and apnea."[47]

Finally, the use of capnography is not only cost efficient, it may create cost savings: "Capnography is estimated to be cost-effective if not cost saving during PSA (procedural sedation/analgesia) for gastrointestinal endoscopy. Savings were driven by improved patient safety, suggesting that capnography may have an important role in the safe provision of PSA."[48,49]

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[44] ASA Practice Guidelines for Moderate Procedural Sedation and Analgesia 2018:http://anesthesiology.pubs.asahq.org/article.aspx?articleid=2670190&_ga=2.238907456.1334756999.1531922211-1495262938.1525547862

[45] Beitz, A, Riphaus, A, Meining, A, Kronshage, T, Geist, C, Wagenpfeil, S, Weber, A, Jung, A, Bajbouj, M, Pox, C, Schneider, G, Schmid, RM, Wehrmann, T, von Delius, S. Capnographic monitoring reduces the incidence of arterial oxygen desaturation and hypoxemia during propofol sedation for colonoscopy: A randomized, controlled study (ColoCap Study). Am J Gastroenterol 2012; 107:1205–12.

[46] Langhan, ML, Shabanova, V, Li, FY, Bernstein, SL, Shapiro, ED. A randomized controlled trial of capnography during sedation in a pediatric emergency setting. Am J Emerg Med 2015; 33:25–30.

[47] Qadeer, MA, Vargo, JJ, Dumot, JA, Lopez, R, Trolli, PA, Stevens, T, Parsi, MA, Sanaka, MR, Zuccaro, G. Capnographic monitoring of respiratory activity improves safety of sedation for endoscopic cholangiopancreatography and ultrasonography. Gastroenterology 2009; 136:1568–76.

[48] Slagelse, C, Vilmann, P, Hornslet, P, Jørgensen, HL, Horsted, TI. The role of capnography in endoscopy patients undergoing nurse-administered propofol sedation: A randomized study. Scand J Gastroenterol 2013; 48:1222–30

[49] Saunders, R, Erslon, M, Vargo, J. Modeling the costs and benefits of capnography monitoring during procedural sedation for gastrointestinal endoscopy. Endosc Int Open 2016; 4(3): E340–E351.

Data Source:	Claims, Hybrid, other
Measure Steward:	ABG QCDR
Number of Performance Rates:	1
Proportional Measure:	Yes
Continuous Variable Measure:	No
Ratio Measure:	No
Risk Adjustment:	No
Care Setting:	Ambulatory Care sites, Ambulatory surgery center, emergency department, hospital inpatient, hospital outpatient, imaging facility, office-based surgery center, clinic
Telehealth Reporting Option:	No

Measure Title

ePreop31: Intraoperative Hypotension 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 = 1/3 (SBP) + 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, 00625, 00626, 00630, 00632, 00635, 00640, 00670, 00700, 00702, 00730, 00750, 00752, 00756, 00770, 00790, 00792, 00794, 00797, 00800, 00802, 00820, 00830, 00832, 00840, 00844, 00846, 00848, 00851, 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, 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 = 1/3 (SBP) + 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

Numerator

Patients who 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

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).

Data Source:	Claims, EHR (AIMS, patient record)
Care Setting:	Hospital
Telehealth:	No
Measure Steward:	ePreop Anesthesia Quality Registry/Cleveland Clinic
Number of Multiple Performance Rates:	Not applicable
Proportional Measure:	No
Continuous Variable Measure:	No
Ratio Measure:	Yes - This is a ratio measure that will score greater than or equal to zero
Risk Adjusted:	Yes

Risk adjustment: Variables incorporated into the risk adjustment model include the following:

- Age
- ASA physical status classification
- Body mass index
- Duration of surgery
- Gender