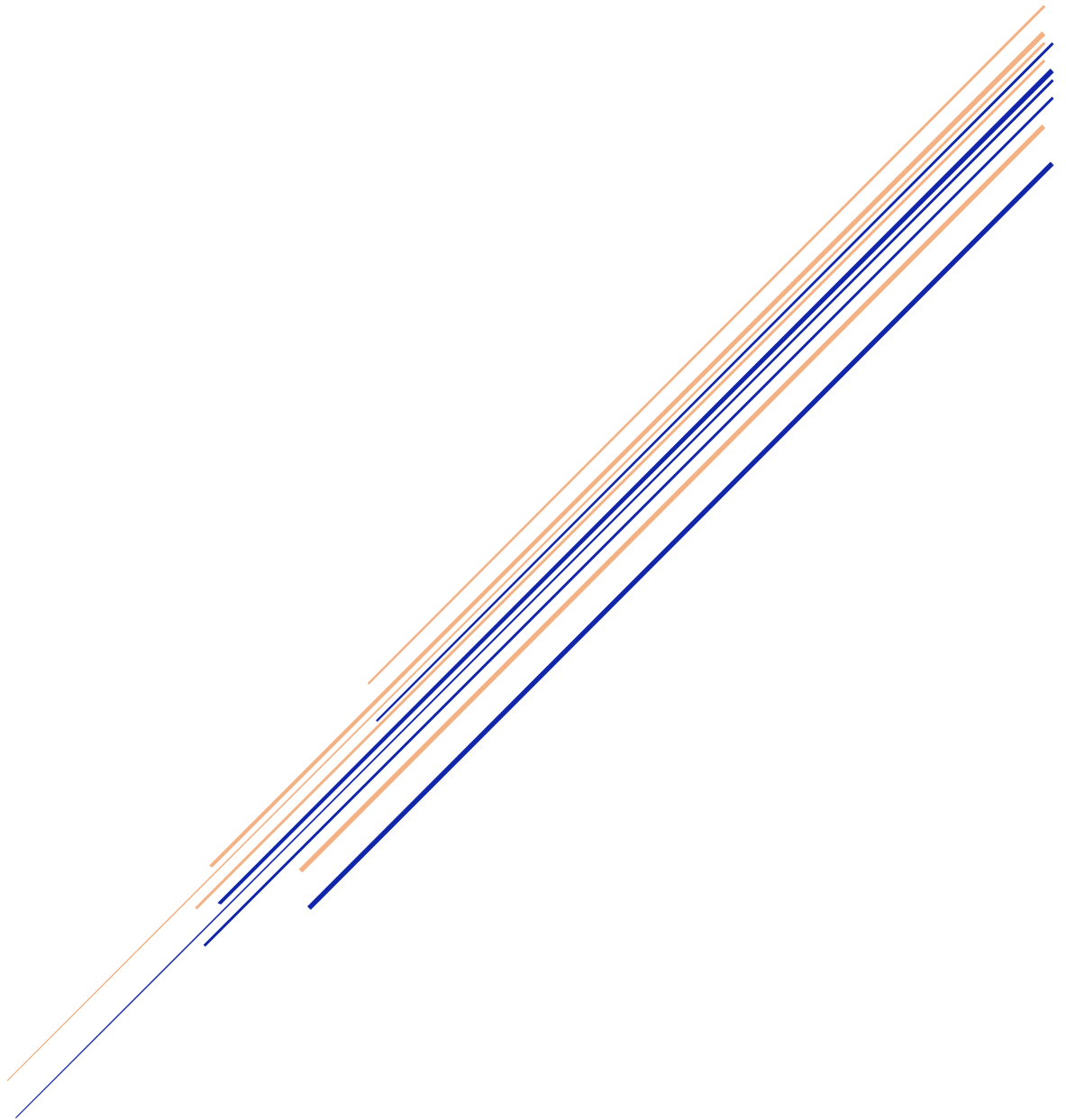


2022 INTERNAL IMPROVEMENT MEASURES

Anesthesia Quality Institute



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

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‡‡ The efforts and contributions of ePREOP and MEDNAX to harmonize this Measure with other similar anesthesia quality measures and to update this Measure on an ongoing basis is acknowledged.

Introduction

The Anesthesia Quality Institute's National Anesthesia Clinical Outcomes Registry (AQI NACOR), established by the American Society of Anesthesiologists® (ASA), assists anesthesiologists in assessing and improving patient care.

Measures used in regulatory programs are altered or retired annually due to changing regulatory requirements and program objectives set out by The Centers for Medicare & Medicaid Services (CMS). AQI NACOR recognizes that retired measures or those not suitable for CMS programs may still be meaningful for anesthesiologists and other qualified anesthesia providers. Reporting these measures may aid a practice in benchmarking their performance, demonstrating their value and quality care to payers and facility administrations or as part of practice and quality improvement initiatives.

Measures in this book, identified as Internal Improvement Measures (IIM), are a collection of measures available for reporting to NACOR for internal improvement purposes only. These measures are optional for practices to report. CMS has not recognized and will not accept these measures as part of an anesthesiologist's or practice's participation in the Merit-based Incentive Payment System (MIPS) or as part of an Advanced Alternative Payment Model (APM). AQI NACOR will not send data gathered on these measures to CMS.

Participants in NACOR Basic and Quality Concierge® can report IIMs regardless of their participation in the MIPS or an APM. If MIPS-eligible or within an APM, NACOR participants can submit data to AQI NACOR on these IIMs in addition to reporting MIPS and QCDR measures through the Qualified Registry and Qualified Clinical Data Registry (QCDR).

IIM001: Assessment of Acute Postoperative Pain

Measure Description

Percentage of patients aged 18 years or older admitted to the postanesthesia care unit (PACU) following an anesthetic with an initial pain score < 7 out of 10.

Measure Type

Intermediate Outcome

Inverse Measure

No

Instructions

This measure is to be reported each time a patient is admitted to the PACU following a procedure that included an anesthetic during the reporting period.

Measure Reporting via NACOR

CPT codes, registry codes and patient demographics are used to identify patients who are included in the measure's denominator. Registry codes are used to identify the numerator.

Denominator

All patients age 18 years and older admitted to PACU who are assessed for pain.

Denominator Criteria (Eligible Cases):

Patients age 18 years or older on date of encounter

AND

Patient assessed for pain in the postanesthesia care unit: **11A02**

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, 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

- Organ Donors as designated by ASA Physical Status 6

Numerator

Patients with an initial pain score < 7 out of 10

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A03 Patient has an initial pain score of < 7 out of 10

OR

Performance Not Met:

11A04 Patient has an initial pain score of \geq 7 out of 10

Rationale

Alleviation of pain is a core responsibility of the anesthesia provider, and adequate postoperative pain control is an important component of patient satisfaction with anesthesia and surgery. Significant variability in outcomes exists at the practice, facility and individual provider level. Capture of this metric under a common definition will greatly enhance anesthesia quality management and lead directly to improvements in patient outcome.

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM002: Patient Education on Safe Opioid Storage and Disposal†

Measure Description

Percentage patients prescribed opioid medications in an outpatient setting who were provided oral and written education on safe storage and disposal of opioid medications.

Measure Type

Process

Inverse Measure

No

Instructions

This measure is to be reported each time a patient is prescribed opioid medications in the outpatient setting. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via NACOR

Patient demographics and 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 are prescribed opioid medications in an outpatient setting

Denominator Criteria (Eligible Cases):

All patients, regardless of age

AND

Patient encounter during the reporting period (CPT):

99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99217, 99218, 99219, 99220, 99224, 99225, 99226, 99241, 99242, 99243, 99244, 99245, 99281, 99282, 99283, 99284, 99285

AND

Opioid prescribed during visit: **10A32**

Denominator Exclusions

- None

Numerator

Patients who were provided oral and written education on safe storage and disposal of opioid medications.

Numerator Note: To meet this measure, the prescribing provider, or other member of the care team under the direction of the prescribing provider, must provide both oral and written education. Provision of written educational materials alone is not sufficient. Education can be documented by provider in an encounter note, visit summary, or discharge instructions.

The content of written educational materials will vary depending on location. Some examples of written educational materials are included below for reference:

http://www.aafp.org/dam/AAFP/documents/patient_care/pain_management/safe-storage.pdf

https://productstewardship.site-ym.com/page/What_To_Do_With_Meds

<https://www.fda.gov/ForConsumers/ConsumerUpdates/ucm101653.htm>

https://www.deadiversion.usdoj.gov/drug_disposal/non_registrant/index.html

<https://apps.deadiversion.usdoj.gov/pubdispsearch/spring/main?execution=e1s1>

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A73

Oral and written education was provided on safe storage and disposal of opioid medications

OR

Performance Not Met:

10A74

Oral and written education was not provided on safe storage and disposal of opioid medications

Rationale

The prescription opioid epidemic continues to grapple the nation. Most adolescents and adults reporting nonmedical use of opioid medications obtain these medications through their family or friends.ⁱ Recent literature suggests that current practices related to sharing, storing, and disposing of opioid medications, as well as communication of information on these topics, are suboptimal.ⁱⁱ There is literature to support that educating patients on safe opioid use, storage, and disposal improves outcomes.ⁱⁱⁱ Patients who received educational material were:

1. More likely to keep their medication hidden or locked in a safe place
2. Less likely to have unused medication at home
3. More aware of the proper opioid disposal methods
4. More likely to be aware of the potential danger of their opioids being taken by others
5. Significantly less likely to share their opioids with someone else
6. Less likely to practice unsafe use of opioids, defined as sharing or losing their opioids

This underscores the importance of including safe opioid storage and disposal education at every instance in which patients are prescribed opioids for their pain.

Clinical Recommendation Statements

2016 CDC Guideline for Prescribing Opioids for Chronic Pain-United States^{iv}

“Discuss risks to household members and other individuals if opioids are intentionally or unintentionally shared with others for whom they are not prescribed, including the possibility that others might experience overdose at the same or at lower dosage than prescribed for the patient and that young children are susceptible to unintentional ingestion. Discuss storage of opioids in a secure, preferably locked location and options for safe disposal of unused opioids.”

2017 VA/DoD Clinical Practice Guideline for Opioid Therapy for Chronic Pain^v

“When prescribing opioids, provide in-depth and patient-specific education on medication (e.g., side effects, dosing, administration, storage, safety, disposal, take back programs) during medical visits in conjunction with distributing or otherwise enabling access to educational materials.”

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not Applicable

Proportion Measure Scoring:	Yes
Continuous Measure Scoring:	No
Risk Adjustment:	No

IIM003: Perioperative Cardiac Arrest

Measure Description

Percentage of patients, regardless of age, who undergo a procedure* under anesthesia who experience an unanticipated cardiac arrest under the care of a qualified anesthesia provider prior to anesthesia end time.**

Measure Type

Outcome

Inverse Measure

Yes

Instructions

This measure is to be reported each time a patient undergoes a surgical, therapeutic or diagnostic procedure under anesthesia that does not include planned cardiac arrest. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via NACOR

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, regardless of age, who undergo a procedure* under anesthesia.

Definition: *Any procedure including surgical, therapeutic or diagnostic

Denominator Criteria (Eligible Cases):

All patients, regardless of age

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, 00326, 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, 00566, 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, 00834, 00836, 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

- Organ Donors as designated by ASA Physical Status 6
- Cases with a documented planned cardiac arrest (i.e., use of CPT Code 99116 for deep hypothermia)

Numerator

Patients who experienced an unanticipated cardiac arrest* under the care of a qualified anesthesia provider prior to anesthesia end time**.

Definitions: * Cardiac arrest is the unplanned cessation of the mechanical activity of the heart as confirmed by the absence of signs of effective circulation. Cardiac compression and/or defibrillation may be required for treatment.^{vi}

** Anesthesia End (Finish) Time is the time at which the anesthesiologist turns over care of the patient to a post anesthesia care team (either PACU or ICU). This time ends when the anesthesia team is no longer furnishing anesthesia services to the patient, that is when the patient may be placed safely under postoperative care and when the anesthesia team has completed transfer of patient care.^{vi}

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A28 Patient experienced an unanticipated cardiac arrest

OR

Performance Not Met:

10A29 Patient did not experience unanticipated cardiac arrest

Rationale

Cardiac arrest in the perioperative period is an unplanned event where the actions of an anesthesiologist or other qualified anesthesia provider are essential to preventing patient harm and, should cardiac arrest occur, to effectively treat cardiac arrest and prevent further complications. Prevention of cardiac arrest is a core goal of anesthesia providers as they are the clinicians responsible for cardiopulmonary function of the patient and in ensuring proper airway management.

The *Perioperative Cardiac Arrest* measure reflects the performance of qualified anesthesia providers in preventing perioperative cardiac arrest. A number of recent studies have identified the central role anesthesiologists play in preventing cardiac arrest of patients. Approximately 23-28% of perioperative cardiac arrests are directly attributable to complications from anesthesia.^{vii, viii, ix} One study found that 54% of cardiac arrests under neuraxial anesthesia were directly related to the anesthetic.^{viii} Overall, airway management and medication factors were the most common causes of anesthesia-related cardiac arrests, with airway management issues accounting for 64% of anesthesia-related cardiac arrests^{viii}. Studies found mortality resulting from cardiac arrest cases directly related to anesthesia was approximately 30%.ⁱⁱ

These findings suggest anesthetic complications may occur in part due to physician decision-making related to airway management and other factors, which can significantly influence and affect patient outcomes, including mortality.^{viii} With about 25% of perioperative cardiac arrests attributable to anesthesia-related causes, this measure addresses a serious medical event often related to the decisions of the qualified

anesthesia providers.^{vii} Moreover, it is the responsibility of the qualified anesthesia providers to manage perioperative cardiac arrest, including resuscitating and treating the patient as well investigating the etiology of the cardiac arrest regardless of its cause. Although several providers impact patient safety and outcomes, qualified anesthesia providers play a leading role in ensuring patient safety in the perioperative period. One study examining closed claims of anesthesia malpractice found delays in recognition and treatment of hemorrhage and communication breakdowns including between the anesthesiologist and surgeon contributed to adverse patient outcomes.^x Evidence supports the integral position of anesthesiologists and other qualified anesthesia providers during the perioperative period, and demonstrates how anesthesiology practice can influence patient outcomes, including perioperative cardiac arrest.

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM004: Perioperative Care: Timing of Prophylactic Antibiotic – Administering Physician

Measure Description

Percentage of surgical patients aged 18 years and older who receive an anesthetic when undergoing procedures with the indications for prophylactic parenteral antibiotics for whom administration of a prophylactic parenteral antibiotic ordered has been initiated within one hour (if fluoroquinolone or vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required)

Measure Type

Process

Inverse Measure

No

Instructions

This measure is to be reported **each time** an anesthesia service in the denominator is provided for surgical patients during the reporting period. There is no diagnosis associated with this measure. It is anticipated that **clinicians who provide anesthesia services, as specified in the denominator coding***, will submit this measure - reporting on the timeliness of parenteral antibiotic administration. The clinician providing anesthesia services does not need to be the clinician who ordered the prophylactic parenteral antibiotic.

*The anesthesia services included in the denominator are associated with some surgical procedures for which prophylactic parenteral antibiotics may not be indicated. As a result, clinicians should report **4047F-8P** for those instances in which anesthesia services are provided but not associated with surgical procedures for which prophylactic parenteral antibiotics are indicated.

If the clinician providing anesthesia services orders AND administers the prophylactic parenteral antibiotic within the appropriate timeframe, report quality-data code **CPT II 4048F**. Report **CPT II 4048F** with the **1P** modifier in circumstances where the prophylactic parenteral antibiotic was not given for medical reasons (e.g., contraindicated, patient already receiving antibiotics).

Measure Reporting via NACOR

CPT codes and patient demographics are used to identify patients who are included in the measure's denominator. The listed numerator options are used to report the numerator of the measure.

The quality-data codes listed do not need to be submitted for registry-based submissions; however, these codes may be submitted for those registries that utilize claims data.

Denominator

All surgical patients aged 18 years and older who receive an anesthetic when undergoing procedures* with the indications for prophylactic parenteral antibiotics

Denominator Note: Anesthesia services included in denominator are associated with some surgical procedures for which prophylactic parenteral antibiotics may not be indicated. Clinicians should report 4047F-8P for those instances in which anesthesia services are provided but not associated with surgical procedures for which prophylactic parenteral antibiotics are indicated.

Denominator Criteria (Eligible Cases):

Patients aged ≥ 18 years on date of encounter

AND

Patient encounter during the reporting period (CPT): Anesthesia codes for which prophylactic parenteral antibiotics are commonly indicated for associated surgical procedure(s):

00100, 00102, 00103, 00120, 00140, 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, 00450, 00454, 00470, 00472, 00474, 00500, 00528, 00529, 00530, 00532, 00534, 00537, 00539, 00540, 00541, 00542, 00546, 00548, 00550, 00560, 00561, 00562, 00563, 00566, 00567, 00580, 00600, 00604, 00620, 00625, 00626, 00630, 00632, 00670, 00700, 00730, 00750, 00752, 00754, 00756, 00770, 00790, 00792, 00794, 00796, 00797, 00800, 00802, 00820, 00830, 00832, 00840, 00844, 00846, 00848, 00851, 00860, 00862, 00864, 00865, 00866, 00868, 00870, 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, 01120, 01140, 01150, 01170, 01173, 01202, 01210, 01212, 01214, 01215, 01230, 01232, 01234, 01250, 01260, 01270, 01272, 01274, 01320, 01360, 01382, 01392, 01400, 01402, 01404, 01430, 01432, 01440, 01442, 01444, 01464, 01470, 01472, 01474, 01480, 01482, 01484, 01486, 01500, 01502, 01520, 01522, 01610, 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, 01924, 01925, 01926, 01951, 01952, 01961, 01962, 01963, 01965, 01966

Denominator Exclusions

- None

Numerator

Surgical patients for whom administration of a prophylactic parenteral antibiotic ordered has been initiated within one hour (if fluoroquinolone or vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required)

Numerator Instructions: This measure seeks to identify the timely administration of prophylactic parenteral antibiotic. This administration should begin within one hour (if fluoroquinolone or vancomycin, two hours) prior to surgical incision.

Numerator Quality-Data Coding Options for Reporting Satisfactorily:

The antimicrobial drugs listed below are considered prophylactic parenteral antibiotics for the purposes of this measure. **4048F-8P** should be reported when antibiotics from this table were not ordered.

<ul style="list-style-type: none"> • Ampicillin/sulbactam • Aztreonam • Cefazolin • Cefmetazole • Cefotetan • Cefoxitin 	<ul style="list-style-type: none"> • Cefuroxime • Ciprofloxacin • Clindamycin • Ertapenem • Erythromycin base • Fluoroquinolone • Gatifloxacin 	<ul style="list-style-type: none"> • Gentamicin • Levofloxacin • Metronidazole • Moxifloxacin • Neomycin • Vancomycin
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Numerator Note: “Ordered” includes instances in which the prophylactic parenteral antibiotic is ordered by the clinician performing the surgical procedure OR is ordered by the clinician providing the anesthesia services.

Documentation that Prophylactic Parenteral Antibiotic was Administered Within Specified Timeframe

CPT II 4048F: Documentation that administration of prophylactic parenteral antibiotic was initiated within one hour (if fluoroquinolone or vancomycin, two hours) prior to surgical incision (or start of procedure when no incision is required) as ordered

OR

Prophylactic Parenteral Antibiotic not Administered for Medical Reasons (eg, contraindicated, patient already receiving antibiotics)

Append a modifier (**1P**) to CPT Category II code **4048F** to report documented circumstances that appropriately exclude patients from the denominator.

4048F with 1P: Documentation of medical reason(s) for not initiating administration of prophylactic parenteral antibiotics as specified (eg, contraindicated, patient already receiving antibiotics)

OR

If patient is not eligible for this measure because prophylactic parenteral antibiotic not ordered, report:

Prophylactic Parenteral Antibiotic not Ordered

Append a reporting modifier (**8P**) to CPT Category II code **4047F** to report circumstances when the patient is not eligible for the measure.

4047F with 8P: No documentation of order for prophylactic parenteral antibiotics to be given within one hour (if fluoroquinolone or vancomycin, two hours) prior to surgical incision (or start of procedure when no incision is required)

OR

Prophylactic Parenteral Antibiotic Ordered but not Initiated Within One Hour, Reason not Otherwise Specified

Append a reporting modifier (**8P**) to CPT Category II code **4048F** to report circumstances when the action described in the numerator is not performed and the reason is not otherwise specified.

4048F with 8P: Administration of prophylactic parenteral antibiotic was **not** initiated within one hour (if fluoroquinolone or vancomycin, two hours) prior to the surgical incision (or start of procedure when no incision is required), reason not otherwise specified

Rationale

The appropriate timing of administration of prophylactic parenteral antibiotics has been demonstrated to reduce the incidence of surgical wound infections. Available evidence suggests that although most surgical patients receive a prophylactic antibiotic, many do not receive the drug within one hour before incision as recommended.

Clinical Recommendation Statements

Overall, administration of the first dose of antimicrobial beginning within 60 minutes before surgical incision is recommended. Administration of vancomycin and fluoroquinolones should begin within 120 minutes before surgical incision because of the prolonged infusion times required for these drugs. (ASHP, 2013)

Infusion of the first antimicrobial dose should begin within 60 minutes before incision. However, when a fluoroquinolone or vancomycin is indicated, the infusion should begin within 120 minutes before incision to prevent antibiotic-associated reactions. Although research has demonstrated that administration of the antimicrobial at the time of anesthesia induction is safe and results in adequate serum and tissue drug levels at the time of incision, there was no consensus that the infusion must be completed before incision. (SIPGWW, 2004)

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM005: Perioperative Mortality Rate††

Measure Description

Percentage of patients, regardless of age, who undergo a procedure* under anesthesia and who experience mortality under the care of an anesthesia provider prior to anesthesia end time.**

Measure Type

Outcome

Inverse Measure

Yes

Instructions:

This measure is to be reported each time a patient undergoes a surgical, therapeutic or diagnostic procedure under anesthesia. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via NACOR

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, regardless of age, who undergo a procedure* under anesthesia.

Definition: *Any procedure including surgical, therapeutic or diagnostic

Denominator Criteria (Eligible Cases):

All patients, regardless of age

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, 00326, 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, 00561, 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, 00834, 00836, 00840, 00842, 00844, 00846, 00848, 00851, 00860, 00862, 00864, 00865, 00866, 00868, 00870, 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

- Organ Donors as designated by ASA Physical Status 6

Numerator

Patients who experience mortality* under the care of an anesthesia provider prior to anesthesia end time**.

Definitions: * Death or mortality is defined as the irreversible cessation of all vital functions as indicated by permanent stoppage of the heart, respiration and brain activity; the end of life.^{vi}

** Anesthesia End (Finish) Time is the time at which the anesthesiologist turns over care of the patient to a post anesthesia care team (either PACU or ICU). This time ends when the anesthesia team is no longer furnishing anesthesia services to the patient, that is when the patient may be placed safely under postoperative care and when the anesthesia team has completed transfer of patient care.^{vi}

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A30 Patient experienced mortality under the care of a qualified anesthesia provider prior to anesthesia end time.

OR

Performance Not Met:

10A31 Patient did not experience mortality under the care of a qualified anesthesia provider prior to anesthesia end time.

Rationale

Anesthesiologists and qualified anesthesia providers provide a multi-faceted approach to ensuring patient safety during a procedure and in the postanesthesia care unit. Among other responsibilities, anesthesiologists and qualified anesthesia providers are responsible for the cardiopulmonary management of the patient.^{xi} The mortality rate reflects deaths that occur while a patient is undergoing a procedure under the care of an anesthesia provider during the perioperative period. The measure extends beyond the intraoperative component of care (within the operating room) since a significant number of complications develop during the recovery phase (after leaving the operating room).^{xii}

Patient mortality is a primary concern for anesthesiologists and qualified anesthesia providers, patients and the families and caregivers of the patients. Immediate perioperative death either in the operating room or postanesthesia care unit is a catastrophic event that should rarely occur. All deaths should trigger an investigation into the causes and events that led to the death with subsequent new procedures or training put in place to prevent such deaths from happening in the future.

Capturing this data in a uniform fashion allows for an assessment of variability across practices and identify outliers at the individual physician level.

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM006: Postanesthesia Care Unit (PACU) Re-intubation Rate‡

Measure Description

Percentage of patients, regardless of age, who received general anesthesia for a procedure via endotracheal tube who were extubated in the operating room or the postanesthesia care unit (PACU) and required re-intubation prior to PACU discharge.

Measure Type

Intermediate Outcome

Inverse Measure

Yes

Instructions

This measure is to be reported each time a patient, regardless of age, undergoes a procedure under the care of an anesthesia provider under general anesthesia via endotracheal tube who was extubated in the operating room or the postanesthesia care unit (PACU). It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via NACOR

CPT codes, registry 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 this measure.

Denominator

All patients, regardless of age, who received general anesthesia for a procedure via endotracheal tube who were extubated in the operating room or postanesthesia care unit.

Denominator Criteria (Eligible Cases):

All patients, regardless of age

AND

Patient received general anesthesia that includes an endotracheal tube: **10A15**

AND

Patient was extubated in the operating room or postanesthesia care unit (PACU): **10A33**

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, 00326, 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, 00561, 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, 00834, 00836, 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, 01960, 01961, 01962, 01963, 01965, 01966, 01991, 01992

Denominator Exclusions

- Organ Donors as designated by ASA Physical Status 6
- Patients who bypassed PACU care: **10A25**
- Patient received a planned trial of extubation documented in the medical record prior to removal of the original endotracheal tube: **10A34**

Numerator

Patients who required re-intubation in the postanesthesia care unit

Definition: Reintubation is defined as the need to insert an endotracheal tube resulting from the inability to sustain adequate spontaneous breathing occurring after the removal of an artificial airway.^{vi}

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A35 Patient required re-intubation in the postanesthesia care unit

Performance Not Met:

10A36 Patient did not require re-intubation in the postanesthesia care unit

Rationale

Anesthesiologists and qualified anesthesia providers are responsible for safe and appropriate airway management of patients undergoing a procedure under the care of an anesthesia provider during the perioperative period. The need for early repeat airway management of surgical patients is strongly associated with subsequent serious adverse outcomes including, but not limited to, prolonged hospital stays, transfer to the Intensive Care Unit (ICU) and increased costs of care. Assessment of this measure under a unified definition is an important tool for benchmarking the performance of anesthesia practices and individual anesthesiologists and qualified anesthesia providers.

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM007: Postdural Puncture Headache after Epidural Anesthesia/Analgesia

Measure Description

Percentage of patients, regardless of age, who undergo an obstetric procedure using epidural anesthesia or analgesia who experience a postdural puncture headache.

Measure Type

Outcome

Inverse Measure

Yes

Instructions

This measure is to be reported each time a patient undergoes an obstetric procedure using epidural anesthesia or analgesia 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 NACOR

Patient demographics and 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 an obstetric procedure using epidural anesthesia

Denominator Criteria (Eligible Cases):

All patients, regardless of age

AND

Anesthesia Type: Epidural

AND

Obstetric Procedure (CPT): 01958, 01960, 01961, 01962, 01963, 01965, 01966, 01967

Denominator Exclusions / Exceptions

- None

Numerator

Patients who experienced a postdural puncture headache.

Definition: *Postdural Puncture Headache:* The new onset of pain in various parts of the head, not confined to the area of distribution of any nerve, usually occurring within 72 hours of an intended or unintended dural puncture. Signs and symptoms include the headache worsening in the sitting or upright position, usually relieved when the patient is supine, may be accompanied by visual or auditory changes, and may occur more frequently in younger patients when the dura has been punctured. A clinical scenario in which a postdural puncture headache may present may be following placement of an epidural or spinal anesthetic or sometimes following a nerve block in close proximity to the neuraxis (e.g. paravertebral or interscalene block).

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A64

Patient experienced a postdural puncture headache

OR

Performance Not Met:

10A65

Patient did not experience a postdural puncture headache

Rationale

Postdural puncture headache is a significant and painful complication of anesthesia care, most often associated with obstetric patients following labor and delivery. While 30% of obstetric patients present with headache following birth for various reasons such as caffeine withdrawal or lack of sleep, postdural puncture headaches differ in that they are a direct result of dura puncture during administration of spinal anesthesia. Research suggests that 20,000 to 50,000 patients experience postdural puncture headache each year.^{xiii}

Postdural puncture headaches can leave patients debilitated for days, slowing recovery and reducing ambulation and mother-to-child interaction during the first few days following birth. Although an adverse outcome on its own, postdural puncture headache can also be a precursor to other serious conditions such as chronic headache, subdural hematoma, cerebral herniation and even death^{xiv} There is a range of activities that a provider can take to reduce the likelihood of a postdural puncture headache, including needle selection and anesthesia technique. As administrators of anesthesia, physician anesthesiologists and other qualified anesthesia providers are able to influence behaviors and practices that may contribute directly to postdural puncture headaches. With an abundance of research supporting the use of pencil-point needles for spinal anesthesia and the prevalence of postdural puncture headaches, anesthesiologists are well suited to address this significant gap in care.^{xv}

Clinical Recommendation Statement

2016 ASA/SOAP Practice Guidelines for Obstetric Anesthesia^{xvi}

“Use pencil-point spinal needles instead of cutting-bevel spinal needles to minimize the risk of postdural puncture headache.” (Category A1-B evidence)

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not Applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM008: Pre-Procedural Timeout Checklist†

Measure Description

Percentage of patients, regardless of age, that undergo an interventional pain procedure or other procedure under regional anesthesia and that have documentation that all applicable safety checks from the ASRA Checklist for Performing Regional Nerve Blocks were performed prior to the administration of anesthesia/analgesia.

Measure Type

Process

Inverse Measure

No

Instructions

This measure is to be reported each time a patient undergoes an interventional pain procedure or procedure under regional 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 NACOR

Anesthesia type used and 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 an acute or chronic interventional pain procedure or other procedure under regional anesthesia

Denominator Criteria (Eligible Cases):

All patients regardless of age

AND

Anesthesia type: Neuraxial or Peripheral Nerve Block

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, 00326, 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, 00561, 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, 00834, 00836, 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, 62263, 62264, 62270, 62272, 62273, 62280, 62281, 62282, 62320, 62321, 62322, 62323, 62324, 62325, 62326, 62327, 62328, 62329, 62350, 62355, 62360, 62361, 62362, 62365, 62367, 62368, 62369, 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, 76942, 95990, 95991

Denominator Exclusions

- Peripheral Nerve Block not associated with invasive procedure: **10A75**

Numerator

Patients who have documentation that all applicable safety checks from the ASRA Checklist for Performing Regional Nerve Blocks were performed prior to the administration of anesthesia/analgesia

Definition: The ASRA Checklist for Performing Regional Nerve Blocks includes the following items:

- Patient identification (2 criteria)
- Allergies and anticoagulation status, including anticoagulation medications, *reviewed*
- Surgical procedure/consent confirmed
- Block plan confirmed; site marked by proceduralist; separately from surgical marking
- Necessary equipment present; drugs/solutions labeled
- Resuscitation equipment immediately available (e.g., airway devices, suction, vasoactive drugs, lipid emulsion)
- Appropriate ASA monitors applied; IV access, sedation, and supplemental oxygen provided if indicated
- Aseptic technique used: hand cleansing performed; mask and sterile gloves used
- “Time Out” performed before needle insertion for each new block site if position changed or separated in time or performed by another team

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A76

All applicable safety checks from the ASRA Checklist for Performing Regional Nerve Blocks were performed prior to the administration of anesthesia/analgesia

OR

Performance Not Met:

10A77

All applicable safety checks from the ASRA Checklist for Performing Regional Nerve Blocks were NOT performed prior to the administration of anesthesia/analgesia

Rationale

In 2010, Cohen et al. examined the incidence and root cause analysis of wrong site pain management procedures.^{xvii} Records were evaluated during the two-year period from four civilian academic teaching hospitals, three military treatment facilities, and three private practices. 13 cases were identified (incidence 0.027%). Only one case followed the universal protocol. The authors concluded that there should be

adaptation of the universal protocol to nerve blocks and strict adherence to guidelines in order to prevent wrong site interventional pain procedures.

Clinical Recommendation Statements

2017 The Joint Commission Hospital National Patient Safety Goals: Universal Protocol for Preventing Wrong Site, Wrong Procedure, and Wrong Person Surgery^{xviii}

- “1. Conduct a time-out immediately before starting the invasive procedure or making the incision.
2. The time-out has the following characteristics:
 - It is standardized, as defined by the hospital.
 - It is initiated by a designated member of the team.
 - It involves the immediate members of the procedure team, including the individual performing the procedure, the anesthesia providers, the circulating nurse, the operating room technician, and other active participants who will be participating in the procedure from the beginning.
3. When two or more procedures are being performed on the same patient, and the person performing the procedure changes, perform a time-out before each procedure is initiated.
4. During the time-out, the team members agree, at a minimum, on the following:
 - Correct patient identity
 - The correct site
 - The procedure to be done
5. Document the completion of the time-out.
Note: the hospital determines the amount and type of documentation.”

Data Source:	Claims/Paper Medical Record, Registry
Measure Steward:	American Society of Anesthesiologists (ASA)
Number of Multiple Performance Rates:	Not Applicable
Proportion Measure Scoring:	Yes
Continuous Measure Scoring:	No
Risk Adjustment:	No

IIM009: Procedural Safety for Central Line Placement††

Measure Description

Percentage of patients, regardless of age, who underwent a central venous cannulation insertion and did not experience a central line placement injury.

Measure Type

Intermediate Outcome

Inverse Measure

No

Instructions

This measure is to be reported each time a central venous cannulation is attempted during the reporting period and the appropriate denominator criteria were recorded. It is anticipated that clinicians who attempt central venous cannulation insertions will submit this measure.

Measure Reporting via NACOR

CPT codes and patient demographics are used to identify patients who are included in the measure's denominator. CPT Category codes are used to report the numerator of the measure.

Denominator

All patients, regardless of age, who undergo central venous cannulation insertion.

Denominator Criteria (Eligible Cases):

All patients, regardless of age

AND

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

Denominator Exclusions

- Organ Donors as designated by ASA Physical Status 6

Numerator

Patients who did not experience a central line placement injury.

Definition: A Central Line Placement Injury includes a pneumothorax, hemothorax or thoracic duct, cardiac or vascular injury that results from an attempted or completed insertion of a central venous catheter.^{vi}

Numerator Note: The measure should be reported as "Performance Not Met" for patients whom central venous catheter (CVC) with documented arterial injury (from the medical record or PSI code) or pneumothorax (ICD-10-CM: J93.83, J93.9) requiring thoracostomy placement. For this indicator, the trauma can only be attributed to the attempted placement of central venous line by the anesthesia team and cannot be attributed to other causes.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met.

10A40

Patient did not experience a central line placement injury

OR

Performance Not Met

10A41 Patient experienced a central line placement injury

Rationale

A number of patients undergoing anesthesia for various surgical procedures require a more precise and sophisticated level of cardiovascular monitoring than can be obtained from standard, noninvasive techniques. Placement of an arterial catheter, central venous catheter and/or flow directed pulmonary artery catheter may be required to obtain additional and more precise information necessary for safe and effective anesthesia and life support in the perioperative period.

Anesthesiologists and qualified anesthesia providers are often responsible for placing arterial catheters, central venous catheters and pulmonary artery catheters. Anesthesiologists and qualified anesthesia providers protect patient safety and are responsible for preventing injuries that may occur because of central line placement. Scientific literature has documented that the risk for these complications can be reduced through evidence-based practices that address placement and management of central venous catheters and the reduction of infections, mechanical, thrombotic and other adverse outcomes associated with central venous catheterization.^{xix}

Practice guidelines in support of this measure also address how clinicians can improve the management of arterial trauma or injury arising from central venous catheterization. Central line placement injuries may result in adverse events and contribute to patient discomfort.^{xx} Arterial injury and pneumothorax each require additional treatment that adds to health care cost and increases patient discomfort as well. Capturing this data in a uniform fashion allows for an assessment of variability across practices and identify outliers at the individual physician level.

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM010: Surgical Safety Checklist – Applicable Safety Checks Completed before Induction of Anesthesia

Measure Description

Percentage of patients, regardless of age, who undergo a surgical procedure under general anesthesia who have documentation that all applicable safety checks from the World Health Organization (WHO) Surgical Safety Checklist (or other surgical checklist that includes the applicable safety checks for the specific procedure) were performed before induction of general anesthesia.

Measure Type

Process

Inverse Measure

No

Instructions

This measure is to be reported each time a patient undergoes a surgical procedure under general anesthesia. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via NACOR

For this measure, report the appropriate registry codes for each patient for whom all applicable safety checks of the WHO Surgical Safety Checklist (or other surgical checklist that includes the safety checks for specific procedure) were performed before induction of general anesthesia.

Denominator

All patients, regardless of age, who undergo a surgical procedure under general anesthesia.

Denominator Criteria (Eligible Cases):

All patients, regardless of age

AND

Patient underwent a surgical procedure under general anesthesia: **10A42**

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, 00326, 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, 00561, 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, 00834, 00836, 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, 01924, 01925, 01926, 01930, 01931, 01932, 01933, 01937, 01938, 01939, 01940, 01941, 01942, 01951, 01952, 01961, 01962, 01963, 01965, 01966, 01991, 01992

Denominator Exclusions

- Organ Donors as designated by ASA Physical Status 6

Numerator

Patients who have documentation that all applicable safety checks of the WHO Surgical Safety Checklist (or other surgical checklist that includes the safety checks for specific procedure) were performed before induction of general anesthesia.

Definition: The WHO Surgical Safety Checklist includes the following items:

Before Induction of Anesthesia

- Has the patient confirmed his/her identity, site, procedure and consent?
- Is the site marked?
- Is the anesthesia machine and medication check complete?
- Is the pulse oximeter on the Patient And Functioning?
- Does the Patient have a:
 - o Known Allergy?
 - o Difficult Airway/Aspiration Risk?
 - o Risk of >500 ml Blood Loss (7ml/kg in children)?

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A43

All applicable safety checks of the WHO Surgical Safety Checklist (or other surgical checklist that includes the safety checks for specific procedure) performed before induction of anesthesia

OR

Performance Not Met:

10A44

All applicable safety checks of the WHO Surgical Safety Checklist (or other surgical checklist that includes the safety checks for specific procedure) NOT performed before induction of anesthesia

Rationale

In 2009, the World Health Organization (WHO) Safe Surgery Saves Lives Study Group published a study showing that utilization of a surgical safety checklist resulted in reduced perioperative mortality and complication rates. Since then, surgical safety checklists have been widely implemented around the world. Further studies confirm the WHO findings that implementation of the surgical safety checklist improves communication among members of the surgical team and reduces perioperative morbidity and mortality.

While the number of surgery-related sentinel events has decreased over the past several years, operative care still remains one of the top ten root causes for sentinel events. To address patient safety concerns in the operating room, surgical safety checklists have been widely implemented in recent years. However, compliance with surgical safety checklists and safety checklist protocols has been shown to vary widely. The level of checklist compliance has been shown to vary depending on the implementation strategy.

WHO Guidelines for Safe Surgery

The World Health Organization's Guidelines for Safe Surgery and accompanying Surgical Safety Checklist reinforce established safety practices and ensures beneficial preoperative, intraoperative and postoperative steps are undertaken in a timely and efficient way.^{xxi}

Introducing key safety elements into the operating routine, teams could maximize the likelihood of the best outcome for all surgical patients without placing an undue burden on the system or the providers.

WHO Surgical Safety Checklist is available at <http://www.who.int/patientsafety/safesurgery/en/>

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM011: Treatment of Hyperglycemia with Insulin

Measure Description

The percentage of patients aged 18 years and older, who undergo elective inpatient surgery and who have a blood glucose level of > 180 mg/dL after anesthesia start time and who receive insulin during anesthesia or PACU care.

Measure Type

Process

Inverse Measure

No

Instructions

This measure is to be reported each time a patient undergoes elective inpatient surgery 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 NACOR

Patient demographics, place of service indicators, CPT codes, G-codes and Registry codes 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

Patients, aged 18 years and older, who undergo elective inpatient surgery under anesthesia and have a blood glucose level > 180 mg/dL after anesthesia start time and prior to anesthesia end time.

Definitions: **Anesthesia Start Time** is the time when the anesthesia team assumes continuous care of the patient and begins preparing the patient for anesthetic services in the operating room or an equivalent area.

Anesthesia End (Finish) Time is the time at which the anesthesiologist turns over care of the patient to a post anesthesia care team (either PACU or ICU). This time ends when the anesthesia team is no longer furnishing anesthesia services to the patient, that is when the patient may be placed safely under *postoperative* care and when the anesthesia team has completed transfer of patient care.^{vi}

Denominator Criteria (Eligible Cases):

Patient aged 18 years or older on date of encounter

AND

Elective surgery: **G9643**

AND

Place of Service Code: 21 (Inpatient)

AND

Patient experienced a blood glucose level > 180 mg/dL after anesthesia start time and prior to anesthesia end time: **11A92**

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, 00326, 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, 00561, 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, 00834, 00836, 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

Denominator Exclusions

- None

Numerator

Patients who are administered insulin during anesthesia or PACU care after having a blood glucose level > 180 mg/dL

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A46

Patient received insulin during anesthesia or PACU care after having a blood glucose level >180 mg/dL.

OR

Denominator Exception:

10A47

Patient did not receive insulin because of previous history of adverse reaction or documented allergy to insulin.

OR

Performance Not Met:

10A48

Patient did not receive insulin during anesthesia or PACU care after having a blood glucose level >180 mg/dL.

Rationale

Perioperative hyperglycemia is associated with significant morbidity. Target values for perioperative glucose management in practice guidelines and in outcome studies vary, but usual target blood glucose levels vary from 140 mg/dL to 200 mg/dL. Anesthesiologists and qualified anesthesia providers can foster high quality care and improve clinical outcomes by ensuring that hyperglycemia is treated appropriately. The Anesthesia Quality Institute Outcomes Glossary 2016 defines hyperglycemia as an abnormally high concentration of glucose (greater than 200 mg/dl or 11.1 mmol/l) in the circulating blood. As a minimal indicator of appropriate perioperative management of hyperglycemia during anesthesia care, this measure determines the proportion of patients in whom a blood glucose level of >200 mg/dL obtained during anesthesia care is treated with insulin. It is intended to apply to adult inpatients undergoing surgery.

One retrospective study of 995 patients who had undergone major general and vascular surgery investigated the association of perioperative acute hyperglycemia and risk of 30-day postoperative infection

(POI) over an 18-month period. Postoperative hyperglycemia increased the risk of POI by 30% with every 40-point increase from normoglycemia (<110 mg/dL).^{xxii}

In both mastectomy and major vascular surgery, glucose level > 150 mg/dL was associated with an increased risk of surgical site infection.^{xxiii,xxiv}

In one study of 55,408 patients with diabetes undergoing a variety of noncardiac operations, elevated 24-hour postoperative glucose concentrations were independently associated with postoperative infection: Adjusted incidence rate ratio for glucose 150-250 mg/dL = 1.22; for >250 mg/dL, adjusted incidence rate ratio = 1.43.^{xxv}

The Endocrine Society states that postoperative blood glucose values greater than 200 mg/dL are associated with prolonged hospital length of stay and an increased risk of postoperative complications, including wound infections and cardiac arrhythmias. As a glycemic target, The Endocrine Society recommends random blood glucose level of less than 180 mg/dl for the majority of hospitalized patients with non-critical illness, and this threshold is also recommended for ambulatory surgical patients and most cardiac surgical patients.^{xxvi}

Cardiac surgical patients with blood glucose > 200 mg/dL within 48 hours of surgery was associated with an increased incidence of surgical site infections.^{xxvii}

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM012: Unplanned Transfer or Admission to Hospital

Measure Description

Percentage of patients, regardless of age, scheduled for outpatient surgery with plans to be discharged the same day as surgery who have an unplanned hospital transfer or hospital admission within 48 hours of anesthesia start time.

Measure Type

Outcome

Inverse Measure

No

Instructions

This measure is to be reported each time a patient, regardless of age, undergoes an elective outpatient procedure under anesthesia. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via NACOR

CPT codes, registry 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 this measure.

Denominator

All patients, regardless of age, who undergo an outpatient, elective surgical procedure, regardless of facility, under anesthesia who did not have a planned stay documented prior to procedure.

Definition: A planned stay includes inpatient admission or observational stay.

Denominator Note: "Day of surgery" includes all patients in which the expected duration of services does not exceed 24 hours.

Denominator Criteria (Eligible Cases):

All patients, regardless of age

AND

POS Code: **11, 19, 22 or 24**

AND

Elective surgery: **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, 00326, 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, 00561, 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, 00834, 00836, 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, 01937, 01938, 01939, 01940, 01941, 01942, 01951, 01952, 01958, 01960, 01961, 01962, 01963, 01965, 01966, 01967, 01991, 01992

AND

Patient did NOT have a documented planned stay prior to procedure: **11A05**

AND

Patient did NOT have an inpatient or under observational status at time of encounter: **11A06**

Denominator Exclusions

- Organ Donors as designated by ASA Physical Status 6

Numerator

Patients who have an unplanned hospital transfer or admission within 48 hours anesthesia start time who were scheduled to be discharged from the facility on the same day as surgical procedure is performed.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A07

Patient who was scheduled to be discharged from the facility on the same day as surgical procedure was performed experienced an unplanned hospital transfer or admission within 48 hours of anesthesia start time.

OR

Performance Not Met:

11A08

Patient did not experience an unplanned hospital transfer or admission within 48 hours anesthesia start time.

Rationale

Adverse events that result in an unplanned transfer or admission to the hospital may cause patients and their caregivers financial and social distress as well as significantly increase the cost of care. The need for hospital admission following ambulatory surgery may indicate a lack of appropriate risk stratification or suboptimal preoperative evaluation and testing. This represents a potentially preventable burden on hospital resources and healthcare system finances. While it is not always possible to predict who will require hospital admission following ambulatory surgery, a high rate of admission may indicate poor quality care to include inadequate preoperative risk stratification and medical optimization. The goal for outpatient surgery should be zero hospital admissions. Any outpatient admission to a hospital should be captured and reviewed.^{xxviii,xxix}

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM013: Post-Anesthetic Transfer of Care Measure: Procedure Room to a Post Anesthesia Care Unit (PACU)

Measure Description

Percentage of patients, regardless of age, who are under the care of an anesthesia practitioner and are admitted to a PACU or other non-ICU location in which a post-anesthetic formal transfer of care protocol or checklist which includes the key transfer of care elements is utilized

Measure Type

Process

Inverse Measure

No

Instructions

This measure is to be submitted each time a procedure including surgical, therapeutic or diagnostic is performed under anesthesia during the performance period and patients are admitted to a PACU or other non-ICU location. There is no diagnosis associated with this measure. It is anticipated that eligible clinicians who provide the listed anesthesia services as specified in the denominator coding will submit this measure

Measure Reporting via NACOR

The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions allowed by the measure.

Denominator

All patients, regardless of age, who are cared for by an anesthesia practitioner and transferred directly from the anesthetizing location to PACU or other non-ICU location.

Denominator Note: In order to meet the denominator criteria of the measure, a patient would need to be directly transferred from the anesthetizing location to PACU or other non-ICU location after the procedure where a transfer of care occurs. A patient that does not transfer directly to these locations is not included within the denominator.

Denominator Criteria (Eligible Cases):

All patients, regardless of age

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, 00326, 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, 00566, 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, 00834, 00836, 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

AND

Patient transferred directly from anesthetizing location to PACU or other non-ICU location: **G9656**

Denominator Exclusions

- None

Numerator

Patients transferred directly from the procedure room to post-anesthesia care unit (PACU) for post-procedure care for whom a checklist or protocol which includes the key transfer of care elements is utilized

Definitions: Checklist or Protocol: The key handoff elements that must be included in the transition of care include:

1. Identification of patient
2. Identification of responsible practitioner (PACU nurse or advanced practitioner)
3. Discussion of pertinent medical history
4. Discussion of the surgical/procedure course (procedure, reason for surgery, procedure performed)
5. Intraoperative anesthetic management and issues/concerns.
6. Expectations/Plans for the early post-procedure period.
7. Opportunity for questions and acknowledgement of understanding of report from the receiving PACU team

Identification of patient: In the instance the identity of the patient is unable to be confirmed, identification provided by the clinical facility would suffice toward meeting performance of the measure

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

G9655 A transfer of care protocol or handoff tool/checklist that includes the required key handoff elements is used

OR

Performance Not Met:

G9658 A transfer of care protocol or handoff tool/checklist that includes the required key handoff elements is not used

Rationale

Hand-offs are a vulnerable moment for patient safety but required in any 24/7 healthcare system. Anesthesia providers routinely transfer patients from the operating room (OR) to the PACU, and are responsible for transmitting knowledge about patient history, a summary of intra-operative events, and future plans for hemodynamic and pain management to the new care team. Evidence demonstrates that this process can be facilitated by use of a standardized checklist to ensure completion of all key components of the transfer and is seen as an emerging best practice in anesthesia care. The Agency for Healthcare Research and Quality found that current signout mechanisms are generally ad-hoc, varying from hospital to hospital and unit to unit.” ([Link to PS Net Handoffs and Signouts Article](#) [accessed June 30, 2015]). According to data published by the Joint Commission, communication errors were indicated in 59% of reported sentinel events in 2012 and in 54% of operative/post-operative complications between 2004 and 2012. A 2006 survey among residents at Massachusetts General Hospital found that 59% of respondents reported one or more patients experiencing harm as a result of ineffective patient handoff practices during their most recent clinical rotation.

Clinical Recommendation Statements

Standards for Postanesthesia Care; American Society of Anesthesiologists, 2014

Upon arrival in the PACU, the patient shall be re-evaluated and a verbal report provided to the responsible PACU nurse by the member of the Anesthesia Care Team who accompanies the patient.

1. The patient's status on arrival in the PACU shall be documented.
2. Information concerning the preoperative condition and the surgical/anesthetic course shall be transmitted to the PACU nurse.
3. The member of the Anesthesia Care Team shall remain in the PACU until the PACU nurse accepts responsibility for the nursing care of the patient.

2014 Institute for Clinical Systems Improvement Perioperative Protocol

To increase efficiency and consistency in the exchange of information, it is recommended that a standard format be developed for giving "report" from one health care clinician to another. This includes, but is not limited to, patient name, procedure, medications given and to be given, pertinent problems, allergies, fluid status, cardiorespiratory status, and laboratory values received or pending. The receiving health care clinician must be given the opportunity to ask questions and receive answers. It is **STRONGLY** recommended that this information be given verbally person to person, e.g., for transfer of the patient from the operating/procedure room or post-anesthesia care unit to the intensive care unit, physician-to-physician personal communication is optimal rather than information given through one or more intermediaries.

A structured hand-off is a standardized method of communication to ensure a complete exchange of information occurs when the patient is transitioned from health care clinician to health care clinician whether or not that transition includes a geographic change. It is recommended that a safety checklist be used to note information needed to be handed off to the next caregiver. The kind of information that should be provided during the transition includes the following:

- Patient name
- Type of procedure to be performed, being performed, or performed
- Critical test results
- Patient status
- Recent/anticipated changes in patient condition
- Plan of care/goals
- What to watch for in next interval of care

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM014: Post-Anesthetic Transfer of Care: Use of Checklist or Protocol for Direct Transfer of Care from Procedure Room to Intensive Care Unit (ICU)

Measure Description

Percentage of patients, regardless of age, who undergo a procedure under anesthesia and are admitted to an Intensive Care Unit (ICU) directly from the anesthetizing location, who have a documented use of a checklist or protocol for the transfer of care from the responsible anesthesia practitioner to the responsible ICU team or team member

Measure Type

Outcome

Inverse Measure

No

Instructions

This measure is to be submitted **each time** a procedure including surgical, therapeutic or diagnostic is performed under anesthesia during the performance period and are admitted to an ICU directly from anesthetizing location. There is no diagnosis associated with this measure. It is anticipated that eligible clinicians who provide the listed anesthesia services as specified in the denominator coding will submit this measure.

Measure Reporting via NACOR

The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions allowed by the measure.

Denominator

All patients, regardless of age, who undergo a surgical, therapeutic or diagnostic procedure under anesthesia and are admitted to an ICU directly from the anesthetizing location

Denominator Note: In order to meet the denominator criteria of the measure, a patient must be directly transferred from the anesthetizing location to an ICU. A patient that does not transfer directly to the ICU post-surgery is not included within in the denominator.

Denominator Criteria (Eligible Cases):

All patients, regardless of age

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, 00326, 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, 00561, 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, 00834, 00836, 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, 01922, 01924, 01925, 01926, 01930, 01931, 01932, 01933, 01937, 01938, 01939, 01940, 01941, 01942, 01951, 01952, 01961, 01962, 01963, 01965, 01966

AND

Patient transferred directly from anesthetizing location to critical care unit: **0581F**

Denominator Exclusions

- None

Numerator

Patients who have a documented use of a checklist or protocol for the transfer of care from the responsible anesthesia practitioner to the responsible ICU team or team member

Numerator Definitions:

Checklist or Protocol - The key handoff elements that must be included in the transfer of care protocol or checklist include:

- 1) Identification of patient, key family member(s) or patient surrogate
- 2) Identification of responsible practitioner (primary service)
- 3) Discussion of pertinent/attainable medical history
- 4) Discussion of the surgical/procedure course (procedure, reason for surgery, procedure performed)
- 5) Intraoperative anesthetic management and issue/concerns to include things such as airway, hemodynamic, narcotic, sedation level and paralytic management and intravenous fluids/blood products and urine output during the procedure
- 6) Expectations/Plans for the early post-procedure period to include things such as the anticipated course (anticipatory guidance), complications, need for laboratory or ECG and medication administration
- 7) Opportunity for questions and acknowledgement of understanding of report from the receiving ICU team

Identification of patient – In the instance the identity of the patient is unable to be confirmed, identification provided by the clinical facility would suffice toward meeting performance of the measure

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

0583F Transfer of care checklist used

OR

Performance Not Met:

0583F with 8P Transfer of care checklist not used

Rationale

The Agency for Healthcare Research and Quality found that “current signout mechanisms are generally ad-hoc, varying from hospital to hospital and unit to unit.” ([Link to Patient Safety Network - Handoffs and Signouts Article](#) [accessed June 30, 2015]). According to data published by the Joint Commission, communication errors were indicated in 59% of reported sentinel events in 2012 and in 54% of

operative/post-operative complications between 2004 and 2012. A 2006 survey among residents at Massachusetts General Hospital found that 59% of respondents reported one or more patients experiencing harm as a result of ineffective patient handoff practices during their most recent clinical rotation. Therefore, a standardized transfer of care protocol or handoff tool/checklist that is utilized for all patients directly admitted to the ICU after undergoing a procedure under the care of an anesthesia practitioner will facilitate effective communications between the medical practitioner who provided anesthesia during the procedure and the care practitioner in the ICU who is responsible for post-procedural care. This should minimize errors and oversights in medical care of ICU patients after procedures.

Clinical Recommendations Statements

2014 Institute for Clinical Systems Improvement Perioperative Protocol

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A structured hand-off is a standardized method of communication to ensure a complete exchange of information occurs when the patient is transitioned from health care clinician to health care clinician whether or not that transition includes a geographic change. It is recommended that a safety checklist be used to note information needed to be handed off to the next caregiver. The kind of information that should be provided during the transition includes the following:

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- Type of procedure to be performed, being performed, or performed
- Critical test results
- Patient status
- Recent/anticipated changes in patient condition
- Plan of care/goals
- What to watch for in next interval of care

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM015: Coronary Artery Bypass Graft (CABG): Stroke – Inverse Measure

Measure Description

Percentage of patients aged 18 years and older undergoing isolated CABG surgery who have a *postoperative* stroke

Measure Type

Outcome

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, identified by CPT Codes listed below, for isolated CABG will submit this measure. This measure is intended to reflect the quality of surgical services provided for isolated CABG or isolated reoperation CABG patients. Isolated CABG refers to CABG using arterial and/or venous grafts only.

Measure Reporting via NACOR

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. Note that a lower calculated performance rate for this measure indicates better clinical care or control.

Denominator

All patients, aged 18 years and older, undergoing isolated CABG Surgery

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

Denominator Criteria (Eligible Cases):

Patient aged 18 years or older on date of encounter

AND

Patient encounter during the reporting period (CPT): 33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33521, 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, 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

Numerator

Patients who have a postoperative stroke

Definition: A stroke is the sudden death of neurons in a localized area of brain due to inadequate blood flow that produces motor, sensory, or cognitive dysfunction (e.g., hemiplegia, hemiparesis, aphasia, sensory deficit, impaired memory) that persists for more than 24 hours.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

G8573 Stroke following isolated CABG surgery

OR

Performance Not Met:

G8574 No stroke following isolated CABG surgery

Rationale

Stroke is a devastating complication that can occur after coronary bypass surgery. A standardized definition of stroke for physician anesthesiologists and other qualified anesthesia providers will allow for comparing stroke incidence and evaluating management strategies for reducing this devastating complication. The Anesthesia Quality Institute (AQI) defines stroke as the sudden death of neurons in a localized area of brain due to inadequate blood flow that produces motor, sensory, or cognitive dysfunction (e.g., hemiplegia, hemiparesis, aphasia, sensory deficit, impaired memory) that persists for more than 24 hours.^{xxx}

Research demonstrates the incidence of stroke increases with patient age and is often associated with increased length of hospital stay and morbidity and mortality. Outcomes are better when patient age is younger and with beating-heart surgery rather than on-pump surgery.^{xxxi} Research demonstrates varying incidence of stroke following CABG surgery, ranging from 1.1% - 5.7%.^{xxxii} Predictors of post-CABG stroke include, advanced age, prior cardiovascular complications and prolonged intraoperative cardiopulmonary bypass time.^{xxxii} Qualified anesthesia providers assume a unique and critical role during the perioperative period as they can provide safe and appropriate anesthesia care for patients, in relation to the aforementioned predictors of stroke. The expertise and decision-making of qualified anesthesia providers can greatly influence patient outcomes, including stroke.

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM016: Coronary Artery Bypass Graft (CABG): Post-Operative Renal Failure– Inverse Measure

Measure Description

Percentage of patients aged 18 years and older undergoing isolated CABG surgery who develop postoperative renal failure or require dialysis

Measure Type

Outcome

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, identified by CPT Codes listed below, for isolated CABG will submit this measure. This measure is intended to reflect the quality of surgical services provided for isolated CABG or isolated reoperation CABG patients.

Measure Reporting via NACOR

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. Note that a lower calculated performance rate for this measure indicates better clinical care or control.

Denominator

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

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

Denominator Criteria (Eligible Cases):

Patient aged 18 years or older on date of encounter

AND

Patient encounter during the reporting period (CPT): 33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33521, 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, 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
- Documented history of renal failure or baseline serum creatinine ≥ 4.0 mg/dL; renal transplant recipients are not considered to have preoperative renal failure, unless, since transplantation the Cr has been or is 4.0 or higher **G9722**

Numerator

Patients who develop postoperative renal failure or require dialysis.

Definition: Kidney 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.ⁱⁱⁱ

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

G8575 Developed postoperative renal failure or required dialysis

OR

Performance Not Met:

G8576 No postoperative renal failure/dialysis not required

Rationale

Coronary artery bypass graft (CABG) surgeries are among the most frequently performed cardiac surgeries each year.^{xxxiii} Literature suggests the development of renal failure following coronary artery bypass graft (CABG) surgery is associated with poor patient outcomes, including a higher risk for mortality.^{xxxiv} Incidence of renal failure following CABG surgery ranges from 1.1% to 11%, with the incidence of acute kidney injury which can lead to renal failure is much higher, with reported incidence approximately 20%.^{xxxv} There has been a substantial increase in postoperative morbidity, mortality, and cost associated with this relatively common complication, regardless of whether incidence varies between providers.

Qualified anesthesia providers play an integral role in managing patient organ function during surgery, including kidney function. Changing patient population trends require anesthesiologists, surgeons and other members of the perioperative team to use their unique expertise to adjust care and effectively and appropriately manage patients throughout the perioperative period.^{xxxii} A retrospective study examining elective CABG surgery outcomes found development of renal failure following surgery led to increased mortality and morbidity, as well as increased length of stay and use of resources. Another study found that minimal increases in creatinine following CABG surgery increased mortality risk significantly.^{xxxii} Analysis of recent trends in patient characteristics reveals the growing complexity of comorbidities an average CABG patient may have including, diabetes and hypertension.

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM017: Lung-Protective Ventilation during General Anesthesia

Measure Description

Percentage of patients aged 12 years and older, who undergo a procedure under general anesthesia that includes an endotracheal tube who had a median exhaled tidal volume less than 10 mL/kg of ideal body weight during positive pressure ventilation (PPV).

Measure Type

Intermediate Outcome

Inverse Measure

No

Instructions

This measure is to be reported each time a patient receives general anesthesia for a procedure via endotracheal tube 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 NACOR

Patient demographics, CPT codes and CPT Category 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 12 years and older, who undergo general anesthesia care that includes an endotracheal tube.

Denominator Criteria (Eligible Cases):

Patient aged 12 years or older on date of encounter

AND

Patient received general anesthesia care that includes an endotracheal tube: **10A15**

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, 01682, 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, 01991, 01992

Denominator Exclusions

- ASA Physical Status 5 or 6
- Patients continuously receiving inhaled medications (i.e., inhaled epoprostenol or nitric oxide): **10A16**
- Patients with a diagnosis of pulmonary hypertension: **ICD-10-CM I27.0, I27.2**
- Patients who require hyperventilation for therapeutic reasons (e.g. elevated intracranial pressure, malignant hyperthermia, or thyroid storm): **10A17**
- Patient was mechanically ventilated for <45 cumulative minutes **10A99**
- Single-lung ventilation procedure **11A00**

Numerator

Patients who had a median exhaled tidal volume less than 10 mL/kg of ideal body weight during positive pressure ventilation (PPV).

Numerator Note: Positive pressure ventilation strategies include conservative tidal volume, lower peak airway pressures, positive end-expiratory pressure (PEEP) and lung-recruitment interventions to prevent atelectasis.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A18

Patient had a median exhaled tidal volume less than or equal to 10 mL/kg of predicted-body-weight (PBW) during positive pressure ventilation (PPV)

OR

Performance Not Met:

10A19

Patient did not have a median exhaled tidal volume less than or equal to 10 mL/kg of predicted-body-weight (PBW) during positive pressure ventilation (PPV)

Rationale

Anesthesia providers prescribe and implement ventilator settings and monitor tidal volume for patients under general anesthesia. These decisions are aimed at preventing lung injury while maintaining adequate oxygenation and ventilation. Several studies have reported that patients who maintained tidal volumes less than 10 ml per kg of ideal body weight experienced better outcomes than those ventilated with higher volumes. It is thought that higher tidal volumes expose the lungs to the potential for injury either due to over-expansion or pressure. AHRQ NQMC-8459 (Acute respiratory failure: percentage of patients with acute lung injury (ALI)/acute respiratory distress syndrome receiving lung-protective ventilation) recognizes that mechanical ventilation with tidal volumes (TV) of 6-8 ml/kg is associated with fewer pulmonary complications.

There is growing evidence that intraoperative lung-protective mechanical ventilation prevents postoperative pulmonary complications (PPCs). Such complications are associated with longer lengths of hospital stay, often requiring ICU admission.^{xxxvi, xxxvii, xxxviii, xxxix} While half of the risk factors for pulmonary complications are attributable to patient comorbidities, approximately 50% of PPCs are attributable to the surgical procedure and the anesthetic management itself.^{xl} The number of PPCs is associated with postoperative length of stay

and short term and long term mortality.^{xlii} Approximately 5% of patients undergoing general surgery will develop a PPC and one in five patients who develop a PPC will die within 30 days of surgery. The estimated costs of postoperative pulmonary complications has not been specifically estimated, but likely contributes to significant morbidity, suffering, and economic cost.

Wanderer, et al. demonstrated a current gap, noting of 295,540 cases analyzed, 43,934 (14.9%) had a median tidal volume of > 10 mL per kg of PBW.^{xliii} This measure is applicable to all adult patients because it is impossible to predict who may develop PPCs and become critically ill. Additionally, by improving ventilation management for all patients, anesthesia providers will improve the likelihood that critically ill patients are managed appropriately when they come to the operating room.

There are times when the established measure threshold may be exceeded appropriately for a brief period of time (<10 minutes) to verify placement of the endotracheal tube or to reduce atelectasis by recruiting alveoli. As a result, short periods of increased ventilation are excluded. Furthermore, it must be recognized that much of the clinical literature that supports the use of lower tidal volumes also incorporated measures to minimize atelectasis, such and the introduction of PEEP and recruitment maneuvers. Anesthesiologists and qualified anesthesia providers should be cautioned against adopting only reduced tidal volumes without also incorporating measures to minimize atelectasis.

The definition of ideal body weight (IBW) is provided by table and calculation. The method for calculating median TV during PPV will vary depending on the specific software employed for the electronic anesthesia record.

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM018: New Corneal Injury Not Diagnosed Prior to Discharge

Measure Description

Percentage of patients aged 18 years or older, who undergo anesthesia care and did not have a new diagnosis of corneal injury prior to facility discharge.

Measure Type

Outcome

Inverse Measure

No

Instructions

This measure is to be reported each time a patient underwent a procedure with anesthesia not involving patients with pre-existing eye trauma or those patients undergoing ophthalmologic surgery. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via NACOR

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 measure numerator.

Denominator

All patients aged 18 and older, who undergo anesthesia care*

Definition: * Anesthesia care includes general, regional and monitored anesthesia care.

Denominator Note: Measure not applicable to anesthesia care described by code 00300 when the underlying surgical procedure is described by CPT Codes: 67800, 67801, 67805, 67808, 67810, 67840, 67850, 67875, 67900, or 67938.

Denominator Criteria (Eligible Cases):

Patient aged 18 years or older on date of encounter

AND

Patient encounter during the reporting period (CPT):

00100, 00102, 00104, 00120, 00124, 00126, 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, 01968, 01969, 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, 36620, 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, 64421, 64425, 64430, 64435, 64445, 64446, 64447, 64448, 64449, 64450, 64451, 64454, 64461, 64462, 64463, 64479, 64480, 64483, 64484, 64486, 64487, 64488, 64489, 64490, 64491, 64492, 64493, 64494, 64495, 64505, 64510, 64517, 64520, 64530, 64600, 64605, 64610, 64620, 64624, 64625, 64630, 64633, 64634, 64635, 64636, 64640, 64680, 64681, 93503, 95990, 95991

Denominator Exclusions

- Organ Donors as designated by ASA Physical Status 6
- Patient undergoes ophthalmologic surgery or has a diagnosis of either eye trauma or corneal injury before anesthesia care: **10A22**
- Patient has a co-occurring condition that limits ability to communicate at the time of facility discharge (e.g. severe dementia, developmental delay or mechanical ventilation): **10A49**

Denominator Note: Measure not applicable to anesthesia care described by code 00300 when the underlying surgical procedure is described by CPT Codes: 67800, 67801, 67805, 67808, 67810, 67840, 67850, 67875, 67900, or 67938.

Numerator

Patients who do not have a new diagnosis of corneal injury prior to facility discharge.

Definition: A corneal injury is either a corneal abrasion (a scratch or scrape on the cornea, the clear front window of the eye that transmits and focuses light into the eye) or exposure keratitis (inflammation of the cornea from drying of the corneal tear film). Includes both exposure keratitis and corneal abrasion. For the purposes of this measure, the distinction does not need to be made with fluorescein examination of the cornea under ultraviolet light; however, it can be diagnosed in this manner. Corneal injury also includes any new symptom of eye pain treated with topical antibiotic (e.g., erythromycin) while in the post-anesthesia care unit/recovery area. Other causes of eye pain (e.g. acute angle-closure glaucoma) can be excluded by instilling one drop of local anesthetic (e.g., proparacaine) into the eye. If the pain is immediately and completely relieved, corneal injury is confirmed, and acute angle-closure glaucoma is excluded.ⁱⁱⁱ

Numerator Note: Facility refers to the location in which the procedure was performed, including but not limited to inpatient hospital or ambulatory surgical center.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A50 Patient was NOT newly diagnosed with exposure keratitis or corneal abrasion at time of facility discharge.

OR

Performance Not Met:

10A51 Patient was diagnosed with new exposure keratitis or corneal abrasion at time of facility discharge.

Rationale

Corneal abrasion/injury is the most common ophthalmologic complication that occurs during general

anesthesia for non-ocular surgery.^{xiii} These injuries are not only painful for the patient but can lead to significant microbial keratitis with possibility of permanent scarring. There is no standardized method for protecting the eyes during an anesthetic for non-ocular surgery however, adhesive tape, individual, single, sterile packaged eye covers, small bio- occlusive dressings, used with or without eye ointment are some of the options used Some practitioners may simply observe closed, non-taped eyes.^{xiv} Methods described in the literature are not entirely effective at preventing corneal injury and some are associated with unwanted side effects. Physician anesthesiologists administering general anesthesia are responsible for maintaining eye health and safety during surgery.

Measuring the incidence of corneal injury will give practices the data they need to assess performance, compare to national benchmarks, and if gaps are identified, encourage anesthesiologists to undertake techniques that can significantly improve eye protection for patients and reduce corneal injuries.

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM019: Geriatric Cognitive Assessment

Measure Description

Percentage of patients aged 75 years or older who undergo an inpatient procedure under general or neuraxial anesthesia who undergo a cognitive assessment prior to the administration of anesthesia

Measure Type

Process

Inverse Measure

No

Instructions

This measure is to be reported each time a patient underwent a procedure with anesthesia not involving patients with pre-existing eye trauma or those patients undergoing ophthalmologic surgery. It is anticipated that qualified anesthesia providers and eligible clinicians who provide denominator-eligible services will submit this measure.

Measure Reporting via NACOR

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 measure numerator.

Denominator

All patients aged 75 years or older who undergo an inpatient procedure under general or neuraxial anesthesia

Denominator Criteria (Eligible Cases):

Patient aged 75 years or older on date of encounter

AND

Place of Service: 21

AND

Anesthesia Type: **General OR Neuraxial**

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, 00326, 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, 00561, 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, 00834, 00836, 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, 01924, 01925, 01926, 01930, 01931, 01932, 01933, 01937, 01938, 01939, 01940, 01941, 01942, 01951, 01952, 01961, 01962, 01963, 01965, 01966, 01991, 01992

Denominator Exclusions

- Emergent Cases
- Observation Status: **11A38**

Observation status is defined as when a therapeutic or diagnostic procedure is performed in a healthcare facility without a physician's admission order. The patient stays in an in-patient facility overnight (at least one midnight) but does not have a physician's order for admission. A patient who is in the hospital (without admission orders) with an expected stay of one midnight is an observation patient and an outpatient.

Numerator

Patients who undergo a cognitive assessment prior to the administration of anesthesia

Numerator Note: A cognitive assessment can be conducted using a standardized tool such as the Mini-cog, clock-in-the-box, three-word recall, or equivalent tool.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A39 Patient underwent a cognitive assessment prior to administration of anesthesia

OR

Performance Not Met:

11A40 Patient did not undergo a cognitive assessment prior to administration of anesthesia

Rationale

A geriatric patient's preoperative cognitive status should be evaluated and carefully documented in order to establish a baseline status and allow for better evaluation of postoperative function. Evidence indicates that preoperative impaired cognition is an important risk factor for postoperative complications such as delirium, cognitive decline and dysfunction as well as postoperative mortality. Despite its importance as a risk factor, preoperative cognitive impairment often goes unrecognized due to a lack of widespread formal screening. Better identification of preoperative cognitive impairment can help anesthesia tailor perioperative care to the needs of individual patients and to better plan for optimal post-operative care.

Clinical Recommendation Statements

2016 ACS NSQIP/AGS Best Practice Guideline: Optimal Perioperative Management of the Geriatric Surgical Patient^{xlv}

"Health care professionals caring for surgical patients should perform an assessment of delirium risk factors, including age >65 years, chronic cognitive decline or dementia, poor vision or hearing, severe illness (for example, ICU admission), and presence of infection"

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring:	Yes
Continuous Measure Scoring:	No
Risk Adjustment:	No

IIM020: Ambulatory Point-of-Care Glucose Testing

Measure Description: Percentage of patients, regardless of age, with a diagnosis of diabetes receiving anesthesia services in an ambulatory setting whose glucose was tested prior to the start of anesthesia.

Measure Type

Process

Inverse Measure

No

Instructions

This measure is to be reported each time a diabetic patient undergoes a procedure in an ambulatory setting with anesthesia services 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 NACOR

Patient demographics, Place of Service codes, Diagnosis (ICD) codes and CPT codes are used to identify patients who are included in the measure denominator. Registry codes are used to report the numerator.

Denominator

All patients, regardless of age, with a current diagnosis for diabetes mellitus who receive anesthesia services in an ambulatory setting.

Denominator Criteria (Eligible Cases):

Patients aged 18 years and older

AND

Diagnosis of diabetes mellitus: **11A41** OR **ICD-10 CM code** (See Appendix A for a list of applicable ICD-10 diagnosis codes)

AND

Place of Service code: **19, 22, 24**

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, 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

- None

Numerator

Patients who received a glucose test in the ambulatory setting prior to the start of anesthesia

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A42

Patient received a glucose test prior to start of anesthesia

OR

Performance Not Met:

11A43

Patient did NOT receive a glucose test prior to start of anesthesia

Rationale

Diabetes 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^{ix}

“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).”

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM021: Ambulatory Hyperglycemia Control

Measure Description

Percentage of patients, aged 18 years and older, with a diagnosis of diabetes mellitus receiving anesthesia services in an ambulatory setting who experienced a blood glucose level >180 mg/dL (10.0 mmol/L) who received insulin prior to anesthesia end time AND had a follow-up glucose check prior to discharge.

Measure Type

Process

Inverse Measure

No

Instructions

This measure is to be reported each time a diabetic patient undergoes a procedure in an ambulatory setting with anesthesia services 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 NACOR

Patient demographics, Place of Service codes, Diagnosis (ICD) codes and CPT codes are used to identify patients who are included in the measure denominator. Registry codes are used to report the numerator.

Denominator

Patients aged 18 and older, with a diagnosis of diabetes mellitus who receive anesthesia services in an ambulatory setting and have a blood glucose level >180 mg/dL (10.0 mmol/L) prior to anesthesia end time.

Definition: Anesthesia End (Finish) Time is the time at which the anesthesiologist turns over care of the patient to a post anesthesia care team (either PACU or ICU). This time ends when the anesthesia team is no longer furnishing anesthesia services to the patient, that is when the patient may be placed safely under postoperative care and when the anesthesia team has completed transfer of patient care.

Denominator Note: A blood glucose level >180 mg/dL that occurs at any point during the perioperative encounter prior to anesthesia end time should be included in the measure

Denominator Criteria (Eligible Cases):

Patients aged 18 years and older

AND

Diagnosis of diabetes mellitus: **11A41** OR **ICD-10 CM code** (See Appendix A for a list of applicable ICD-10 diagnosis codes)

AND

Place of Service code: **19, 22, 24**

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, 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

AND

Blood glucose >180 mg/dL prior to anesthesia end time: **11A44**

Denominator Exclusions/Exceptions

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

Numerator

Patients who were administered insulin prior to anesthesia end time AND had a follow-up glucose check prior to discharge

Numerator Note: The administration of insulin should occur after the initial blood glucose level >180 mg/dL and prior to the follow-up glucose check.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A46

Patient was administered insulin prior to anesthesia end time AND had a follow-up glucose check prior to discharge

OR

Performance Not Met:

11A47

Patient was NOT administered insulin prior to anesthesia end time and/or did NOT had a follow-up glucose check prior to discharge

Rationale

Perioperative hyperglycemia is associated with significant morbidity. Hyperglycemia in the short-term may cause dehydration and electrolyte imbalance; in the long-term it increases the incidence of surgical site infections. With increasingly complex procedures being performed in outpatient settings, perioperative

glucose management is an essential aspect of quality ambulatory anesthesia care. It is imperative that diabetic patients' glucose is closely monitored and managed perioperatively to ensure the patient is ready for discharge. While target glucose values and recommended management strategies vary among guidelines, there is consensus that close perioperative glucose monitoring and hyperglycemia management are important.

Clinical Recommendation Statements

2010 SAMBA Consensus Statement on Perioperative Blood Glucose Management in Diabetic Patients Undergoing Ambulatory Surgery^{xlvi}

“We suggest that in patients with well-controlled diabetes, intraoperative blood glucose levels be maintained <180 mg/dL (10.0 mmol/L) (LoE category 2A)”

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM022: Discharge to a Responsible Patient Escort

Measure Description

Percentage of patients, regardless of age, who receive anesthesia services for same-day surgery with documented patient escort prior to the start of anesthesia

Measure Type

Process

Inverse Measure

No

Instructions

This measure is to be reported each time a patient undergoes a procedure in an ambulatory setting with anesthesia services 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 NACOR

Patient demographics, Place of Service codes and CPT codes are used to identify patients who are included in the measure denominator. Registry codes are used to report the numerator.

Denominator

Patients regardless of age, who receive anesthesia services for outpatient surgery* in an ambulatory surgery center

Denominator Definition: Outpatient surgery is surgery performed on a patient, and the patient is then discharged home the day of surgery.

Denominator Criteria (Eligible Cases):

Patients regardless of age

AND

Place of Service code: **24**

AND

Outpatient Surgery: **11A50**

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, 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

- None

Numerator

Patients who have a documented patient escort prior to the start of anesthesia

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A48 Patient escort is documented prior to start of anesthesia

Performance Not Met:

11A49 Patient escort is NOT documented prior to start of anesthesia

Rationale

Current CMS regulations require that patients who undergo ambulatory surgery must be discharged in the company of a responsible adult who will accompany the patient after the discharge. However, the regulation includes an allowance for physicians to exempt patients from requiring an escort on a case by case basis. With increasingly complex procedures being performed in the ambulatory setting, we believe that differences in the use of escort exemptions reflect differences in the quality of care provided.

Data Source: Claims/Paper Medical Record, Registry

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

Number of Multiple Performance Rates: Not applicable

Proportion Measure Scoring Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM023: Neuromuscular Blockade: Documented Assessment of Neuromuscular Function Prior to Extubation

Measure Description: Percentage of patients requiring anesthesia services with a documented assessment of neuromuscular blockade reversal after last dose of non-depolarizing neuromuscular blocker

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 a procedure with anesthesia services 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, 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 of the measure.

Denominator

All patients requiring anesthesia services that have received, either by bolus or infusion, a non-depolarizing neuromuscular blocker (NMB) and were extubated post-operatively or in the PACU

Denominator Definition: For the purposes of this measure, qualifying neuromuscular blocker medications include:

- Atracurium
- Cisatracurium
- Pancuronium
- Rocuronium
- Vecuronium

Denominator Criteria (Eligible Cases):

Patient regardless of age

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, 00566, 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

AND

Received non-depolarizing neuromuscular blocker (NMB): **11A17**

AND

Patient was extubated post-operatively or in the PACU: **11A18**

Denominator Exclusions

- ASA Physical Status 5 or 6

Numerator

Cases with a documented assessment of neuromuscular blockade AFTER last dose or stopping of infusion of neuromuscular blocker and before earliest extubation

Numerator Definition: A documented assessment of neuromuscular blockade can include

- Train of Four Count (1,2,3, or 4). A Train of Four value of '0' is accepted for cases in which sugammadex will be administered for reversal.
- Assessment for tetany
- TOF ratio provided by acceleromyography
- Double-burst stimulation

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A19

Patient had documented assessment of neuromuscular blockade AFTER last dose or stopping of infusion of neuromuscular blocker and before earliest extubation

OR

Performance Not Met:

11A20

Patient did not have documented assessment of neuromuscular blockade AFTER last dose or stopping of infusion of neuromuscular blocker and before earliest extubation

NQF Number: Not applicable

eQM: Not applicable

Rationale

Postoperative residual neuromuscular blockade can lead to significant complications. Several studies have found associations between the use of neuromuscular blockade agents (NMBA) and residual neuromuscular blockade in the recovery room. Adverse postoperative respiratory outcomes are even more frequent when patients receive NMBA and reversal agents are not used. A mainstay of residual blockade prevention continues to be monitoring neuromuscular depth, to guide appropriate usage of reversal agents like neostigmine and sugammadex. Due to variability in duration of muscle relaxants, even in defasciculating doses, we recommend that TOF is monitored when any non-depolarizing neuromuscular blockers are administered.

This measure was developed as an adaptation from the Multicenter Perioperative Outcomes Group (MPOG) QCDR measure NMB01: Train of Four Taken. ASA worked with MPOG during the development of this measure to ensure the measures are aligned and harmonized.

Clinical Recommendation Statements:

2013 ASA Practice Guidelines for Postanesthetic Care^{xlvii}

“Assessment of neuromuscular function should be performed during emergence and recovery for patients who have received nondepolarizing neuromuscular blocking agents or who have medical conditions associated with neuromuscular dysfunction.”

Data Source: Claims/Paper Medical Record, Registry

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

Number of Performance Rates:	1
Overall Performance Rate:	1
Proportion Measure Scoring:	Yes
Continuous Measure Scoring:	No
Risk Adjustment:	No

IIM024: Neuromuscular Blockade: Reversal Administered

Measure Description: Percentage patients aged 12 years and older, requiring anesthesia services where non-depolarizing neuromuscular blockade is used and neostigmine, sugammadex, and/or edrophonium are administered prior to extubation

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 a procedure with anesthesia services 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, 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 of the measure.

Denominator

All patients aged 12 years and older, requiring anesthesia services that have received, either by bolus or infusion, a non-depolarizing neuromuscular blocker (NMB) AND were extubated post-operatively or in the PACU

Denominator Definition: For the purposes of this measure, qualifying neuromuscular blocker medications include:

- Atracurium
- Cisatracurium
- Pancuronium
- Rocuronium
- Vecuronium

Mivacurium and Doxacurium are not included in this measure.

Denominator Criteria (Eligible Cases):

Patient aged 12 years and older

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, 00566, 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

AND

Received non-depolarizing neuromuscular blocker (NMB): **11A17**

AND

Patient was extubated post-operatively or in the PACU: **11A18**

Denominator Exclusions:

- ASA Physical Status 5 or 6
- Patient (age > 12 years) received defasciculating dose of: Vecuronium ≤1mg, Cisatracurium ≤2mg, Rocuronium ≤10mg: **11A21**

Numerator

Cases with documentation of neostigmine, Sugammadex, and/or edrophonium administered before earliest extubation OR a period of >3 hours between last dose of non-depolarizing medication and extubation OR documentation of sufficient neuromuscular blockade reversal after last dose of NMB and before earliest extubation

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A22

Documentation of neostigmine, Sugammadex, and/or edrophonium administered before earliest extubation

OR

Performance Met:

11A23

Period of >3 hours between last dose of non-depolarizing medication and extubation

OR

Performance Met:

11A24

Documentation of sufficient neuromuscular blockade reversal after last dose of NMB and before earliest extubation

OR

Performance Not Met:

11A25

No documentation of neostigmine, Sugammadex, and/or edrophonium administered or sufficient neuromuscular blockade reversal after last dose of NMB and before earliest extubation AND <3 hours between last dose of non-depolarizing medication and extubation

NQF Number: Not applicable

eCQM: Not applicable

Rationale

Postoperative residual neuromuscular blockade can lead to significant complications. Several studies have found associations between the use of neuromuscular blockade agents (NMBA) and residual neuromuscular blockade in the recovery room. Adverse postoperative respiratory outcomes are even more frequent when patients receive NMBA and reversal agents are not used. A mainstay of residual blockade prevention continues to be monitoring neuromuscular

depth, to guide appropriate usage of reversal agents like neostigmine and sugammadex. Due to variability in duration of muscle relaxants, even in defasciculating doses, we recommend that TOF is monitored when any nondepolarizing neuromuscular blockers are administered.

This measure was developed as an adaptation from the Multicenter Perioperative Outcomes Group (MPOG) QCDR measure NMB02: Reversal Administered. ASA worked with MPOG during the development of this measure to ensure the measures are aligned and harmonized.

Clinical Recommendation Statements:

2013 ASA Practice Guidelines for Postanesthetic Care^{lviii}

“Specific antagonists should be administered for reversal of residual neuromuscular blockade when indicated.”

Data Source: Claims/Paper Medical Record, Registry

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

Number of Performance Rates:	1
Overall Performance Rate:	1
Proportion Measure Scoring:	Yes
Continuous Measure Scoring:	No
Risk Adjustment:	No

IIM026: Infection Control Practices for Open Interventional Pain Procedures

Measure Description

Percentage of patients, regardless of age, that undergo an open interventional pain procedure for whom ALL of the following infection control best practices are followed by anesthesiologist(s) and scrub technologist(s), in addition to standard sterile technique:

1. Double gloving (two pairs of sterile gloves are worn)
2. Chlorhexidine with alcohol used for surgical site preparation
3. Weight-based pre-operative antibiotic dosing and, if indicated by procedure duration, weight-based re-dosing
4. Administration of pre-operative antibiotics within 1 hour, or 2 hours for vancomycin, prior to surgical incision

NQS Domain / Meaningful Measures Area

Patient Safety / Healthcare-associated Infections

Measure Type

Composite - Process

High Priority Status

Yes

Inverse Measure

No

Instructions

This measure is to be reported each time a patient undergoes an open interventional pain procedure. 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 an open interventional pain procedure

Denominator Criteria (Eligible Cases):

All patients, regardless of age

AND

Patient encounter during the reporting period (CPT): 22510, 22511, 22513, 22514, 62350, 62355, 62360, 62361, 62362, 62365, 63650, 63661, 63662, 63663, 63664, 63685, 63688

Denominator Exclusions

- None

Numerator

Patients for whom the ALL of the following infection control best practices are followed in addition to standard sterile technique:

1. Double gloving (two pairs of sterile gloves are worn)
2. Chlorhexidine with alcohol used for surgical site preparation
3. Weight-based pre-operative antibiotic dosing and, if indicated by procedure duration, weight-based re-

dosing

- Administration of pre-operative antibiotics within 1 hour, or 2 hours for vancomycin, prior to surgical incision (or start of procedure if no incision is required)

Numerator Note:

Weight-based antibiotic dosing and pre-operative antibiotic timing should be performed in accordance with the below Neurostimulation Appropriateness Consensus Committee (NACC) Recommendations:

Table 7. Prophylactic Antibiotic Recommendations.*				
Antibiotic	Standard intravenous dosing	Timing prior to incision	Redosing interval	Indications
Cefazolin**	1 g ≤ 80 kg	Within 30-60 min	3-4 hours (CrCl > 50 mL/min)	First-line
	2 g > 80 kg		8 hours (CrCl 20-50 mL/min)	
	3 g > 120 kg		16 hours (CrCl < 20 mL/min)	
Clindamycin	600 mg ≤ 80 kg	Within 30-60 min	6 hours (CrCl > 50 mL/min)	β-lactam allergy
	900 mg > 80 kg		6 hours (CrCl 20-50 mL/min)	
	1200 mg > 120 kg		6 hours (CrCl < 20 mL/min)	
Vancomycin	1 g ≤ 80 kg	Within 120 min	8 hours (CrCl > 50 mL/min)	β-lactam allergy Known MRSA colonization
	2 g > 80 kg		16 hours (CrCl 20-50 mL/min)	
	3 g > 120 kg		None (CrCl < 20 mL/min)	

*Modified from Bratzler et al. (89), Alexander et al. (90), and Bratzler et al. (91).
**In an effort to simplify cefazolin weight-based dosing, the American Society of Health-System Pharmacists (ASHP) recommends 2 g for individuals weighing < 120 kg and 3 g for individuals weighing ≥ 120 kg. MRSA, methicillin-resistant *S. aureus*; CrCl, creatinine clearance.

Deer TR, Provenzano DA, Hanes M, Pope JE, Thomson SJ, Russo MA, et al. The Neurostimulation Appropriateness Consensus Committee (NACC) Recommendations for Infection Prevention and Management. *Neuromodulation*. 2017;20(1):31-50.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Measure Scoring Note: In order to receive credit for this measure, ALL four numerator criteria must be reported. See the “Composite Performance Score” section for more details on how this measure is scored.

Criterion 1:

Performance Met:

10A80

Double gloving (i.e., two pairs of sterile gloves are worn) is performed

OR

Performance Not Met:

10A81

Double gloving (i.e., two pairs of sterile gloves are worn) is NOT performed

Criterion 2:

Performance Met:

10A82

Chlorhexidine with alcohol is used for surgical site preparation

OR

10A83

Documented contraindication or allergy to chlorhexidine with alcohol

OR

Performance Not Met:

10A84

Chlorhexidine with alcohol is NOT used for surgical site preparation

Criterion 3:

Performance Met:

10A85 Weight-based preoperative antibiotic dosing and, if procedure >3 hours, weight-based re-dosing is used

OR

Performance Not Met:

10A86 Weight-based preoperative antibiotic dosing and, if procedure >3 hours, weight-based re-dosing is NOT used

Criterion 4:

Performance Met:

10A87 Pre-operative antibiotics administered within 1 hour, or 2 hours for vancomycin, prior to surgical incision (or start of procedure if no incision is required)

OR

Performance Not Met:

10A88 Pre-operative antibiotics NOT administered within 1 hour prior to surgical incision (or start of procedure if no incision is required)

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 numerator criteria identified in this measure. This measure utilizes an all-or-none scoring methodology where failure to meet performance for ANY of the four numerator criteria will result in performance not met for the measure. The performance score is the percentage of denominator-eligible cases for which ALL three numerator criteria are met.

Performance Met:

10A80 Double gloving (i.e., two pairs of sterile gloves are worn) is performed

AND

10A82 Chlorhexidine with alcohol is used

OR

10A83 Documented contraindication or allergy to chlorhexidine with alcohol

AND

10A85 Weight-based preoperative antibiotic dosing and, if procedure >3 hours, weight-based re-dosing is used

AND

10A87 Pre-operative antibiotics administered within 1 hour, or 2 hours for vancomycin, prior to surgical incision (or start of procedure if no incision is required)

OR

Performance Not Met:

10A81 Double gloving (i.e., two pairs of sterile gloves are worn) is NOT performed

AND/OR

10A84 Chlorhexidine with alcohol is NOT used for surgical site preparation

AND/OR

10A86 Weight-based preoperative antibiotic dosing and, if procedure >3 hours, weight-based re-dosing is NOT used

AND/OR

10A88 Pre-operative antibiotics NOT administered within 1 hour prior to surgical incision (or start of procedure if no incision is required)

NQF Number: Not Applicable

eCQM: Not Applicable

Rationale

Infections associated with open interventional pain procedures are associated with significant morbidity and healthcare costs. For implantable pain therapies, the reported infection rates range from 1 to 10%.^{xlviii} Two large systematic reviews on spinal cord stimulation report infection rates of 3.4 to 4.6%. The infection rates reported for implantable pain therapies are often higher than those associated with other implantable therapies including total joint replacement and cardiac pacemakers. In the field of interventional pain medicine practice deficiencies have been identified. A recent international survey of 506 physicians examining infection control practices for spinal cord stimulation highlighted the need for education. The survey demonstrated a low compliance rate for infection control recommendations that have been recommended by the Centers for Disease Control, the National Institute for Health and Care Excellence (NICE) and a Surgical Care Improvement Project.^{xlix} Only four of the 15 recommended practices surveyed demonstrated a greater than or equal to 80% compliance rates. Areas of deficiency included weight-based antibiotic dosing, hair removal strategies, double gloving, surgical dressing, skin antiseptic agent selection and inappropriate postoperative continuation of antibiotics. The compliance rates for weight-based dosing of antibiotics (47%; 95% CI: 42.6% – 51.4%), utilization of double gloving (47.8%; 95% CI: 43.4% – 52.2%), and utilization of chlorhexidine gluconate (67.7%; 95% CI: 63.6% – 71.8%) were all less than 70%.

The consequences associated with infections for implantable pain therapies and open interventional pain procedures can be devastating. For implantable pain therapy infections, the implantable device often must be removed. In addition, many patients lose therapy and are not re-implanted. A recent review of 2737 surgical site infections associated with implantable pain therapies demonstrated that 77.6% were explanted.ⁱ A recent review of claims-based data on spinal cord stimulator implants demonstrated that only 27% of patients were re-implanted and that the cost of a surgical site infection was approximate \$59,000.ⁱⁱ Therefore, a surgical site infection with an implantable pain therapies is not only costly but often results in the end of the therapy. A recent analysis of the United States Anesthesia Close Claims project database examining injury and liability associated with implantable pain therapies from 1990 to 2013, demonstrated that infection was the most common damaging event. Infection represented 23% of all claims.ⁱⁱⁱ

A recent publication on quality improvement for spinal cord stimulation infection demonstrated a significant reduction in surgical site infection rates when evidence-based practices were implemented. Infection rates went from 10.4% to 1% following implementation of best practices.ⁱⁱⁱⁱ

Clinical Recommendation Statements

2016 Neurostimulation Appropriateness Consensus Committee (NACC) Recommendations for Infection Prevention and Management^{xli}

“The NACC recommends maximal sterile barrier precautions as well as double gloving for implantation of implantable pain devices.”

“The NACC recommends the use of chlorhexidine-based products combined with isopropyl alcohol for skin preparation prior to neuromodulation procedures.”

“For antimicrobial therapy to be effective, the serum and tissue levels of the agent must exceed the minimum inhibitory concentrations (MIC) prior to incision and throughout the operation. In order to exceed MIC, customized weight-based dosing is needed for each individual.”

2016 American College of Surgeons/Surgical Infection Society Surgical Site Infection Guidelines^{liv}

“The use of double gloves is recommended.”

“Alcohol-containing preparation should be used unless contraindication exists (e.g. fire hazard, surfaces involving mucosa, cornea, or ear).

No clear superior agent (chlorhexidine vs iodine) when combined with alcohol.

If alcohol cannot be included in the preparation, chlorhexidine should be used instead of iodine unless contraindications exist.”

“Prophylactic antibiotic dosing should be weight adjusted.

Prophylactic antibiotic should be administered within 1 hour before incision or within 2 hours for vancomycin or fluoroquinolones.”

2008 NICE Surgical Site Infections: Prevention and Treatment Clinical Guidelines^{lv}

“Consider wearing two pairs of sterile gloves when there is a high risk of glove perforation and the consequences of contamination may be serious.”

“Prepare the skin at the surgical site immediately before the incision using an antiseptic (aqueous or alcohol-based) preparation: povidone-iodine or chlorhexidine are most suitable.

2016 WHO Surgical Site Infection Prevention Guidelines^{lvi}

“The panel suggests that either sterile, disposable, non-woven or sterile, reusable woven drapes and surgical gowns can be used during surgical operations for the purpose of preventing SSI. (conditional recommendation, moderate to very low quality of evidence).”

Data Source: Claims/Paper Medical Record, Registry

Measure Steward: American Society of Anesthesiologists (ASA)

Number of Performance Rates: 1

Proportion Measure Scoring: Yes

Continuous Measure Scoring: No

Risk Adjustment: No

IIM027: Ambulatory Post-Discharge Patient Follow-Up

Measure Description: Percentage of patients, regardless of age, who received anesthesia services in an ambulatory setting whose post-discharge status was assessed within 72 hours of discharge.

NQS Domain / Meaningful Measures Area

Person and Care-giver Centered Experiences and Outcomes / Patient's Experience of Care

Measure Type

Process

High Priority Status

Yes

Inverse Measure

No

Instructions

This measure is to be reported each time a patient undergoes a procedure in an ambulatory setting with anesthesia services 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 and CPT codes are used to identify patients who are included in the measure denominator. Registry codes are used to report the numerator.

Denominator

Patients, regardless of age, who received anesthesia services in an ambulatory setting

Denominator Criteria (Eligible Cases):

Patients regardless of age

AND

Place of Service code: **19, 22, 24**

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, 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, 62322, 62324, 62326, 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

- Patients who were transferred to a higher level of care: **11A34**
- Patients who were unable to be contacted or did not complete assessment after at least 2 contact attempts: **11A35**

Numerator

Patients whose post-discharge status was assessed within 72 hours of discharge. The post-discharge status assessment must address at least four of the following domains:

- *Pain Management*; including an assessment of patient satisfaction with pain control
- *Nausea/Vomiting*; including an assessment of severity.
- *Activities of Daily Living*; including an assessment of the patient's ability to return to baseline ADLs
- *Satisfaction with Care*; including an assessment of the patient's overall satisfaction with their anesthetic care
- *Questions or Concerns Regarding Discharge Instructions*; including an assessment of compliance with anesthetic discharge instructions.
- *Questions assessing complications related to anesthetic care* (e.g. possible nerve catheter infections, etc.)

Numerator Note: A post-discharge assessment can be conducted by any member of the care team via a range of communication modalities, including phone call, email, patient portal interaction, patient survey, or other means of communicating with the patient. Documentation of the assessment should include any instructions or recommendations that are given to address problems or complications that are identified. If applicable, it is appropriate for a caregiver or legal proxy to complete the assessment on the patient's behalf.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

11A36

Patient post-discharge status was assessed within 72 hours of discharge

OR

Performance Not Met:

11A37

Patient post-discharge status was NOT assessed within 72 hours of discharge

NQF Number: Not applicable

eCQM: Not applicable

Rationale

With increasingly complex procedures being performed in ambulatory settings, timely and comprehensive follow-up after discharge is essential to identify and manage any post-operative complications, as well as to help patients manage their recovery at home. A post-discharge conversation with the patient is also an opportunity to assess patient-reported outcomes such as pain, nausea, vomiting, and return to functional status, which can give anesthesiologists and other qualified anesthesia providers valuable information for use in ongoing practice improvement.

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

IIM028: Team-Based Implementation of a Care-and-Communication Bundle for ICU Patients

Measure Description

Percentage of patients, regardless of age, who are admitted to an intensive care unit (ICU) for ≥48 hours and who received critical care services who have documentation by managing physician of 1) attempted or actual identification of a surrogate decision maker, 2) an advance directive, and 3) the patient's preference for cardiopulmonary resuscitation, within 48 hours of ICU admission.

NQS Domain / Meaningful Measures Area

Communication and Care Coordination / Care is Personalized and Aligned with Patient's Goals

Measure Type

Process

High Priority Status

Yes

Inverse Measure

No

Instructions

This measure is to be reported each time a patient receives critical care services and is admitted to an intensive care unit for ≥48 hours during the reporting period. It is expected that the managing physician during the first 48 hours of the patient's intensive care unit stay will report 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. Registry codes are used to report the numerator of the measure.

Denominator

All patients, regardless of age, who are admitted to an intensive care unit for ≥48 hours and who received critical care services

Denominator Criteria (Eligible Cases):

All patients, regardless of age

AND

Admitted to an intensive care unit for ≥48 hours: **10A58**

AND

Received critical care services (CPT): 99291, 99468, 99469, 99471, 99472, 99475, 99476

Denominator Exclusions

- None

Numerator

Patients who have documentation by managing physician of 1) attempted or actual identification of a surrogate decision maker, 2) an advance directive, and 3) the patient's preference for cardiopulmonary resuscitation, within the first 48 hours of ICU admission.

Numerator Note: To meet this measure, the managing physician must either document the required information or confirm that they have reviewed existing documentation of the information.

Numerator Quality-Data Coding Options for Reporting Satisfactorily

Performance Met:

10A59

Patient has documentation by managing physician of 1) attempted or actual identification of a surrogate decision maker, 2) an advance directive, and 3) the patient's preference for cardiopulmonary resuscitation within the first 48 hours of ICU admission

OR

Denominator Exception:

10A60

Documentation of patient reason(s) for not documenting all three required numerator elements within the first 48 hours of ICU admission (e.g., patient declines, patient unable to participate in discussion, other patient reason(s))

OR

Performance Not Met:

10A61

Patient does not have documentation by managing physician of 1) attempted or actual identification of a surrogate decision maker, 2) an advance directive, and 3) the patient's preference for cardiopulmonary resuscitation within the first 48 hours of ICU admission

NQF Number: Not Applicable

eCQM: Not Applicable

Rationale

Patient and family engagement remains an important aspect of healthcare, especially in an ICU where advanced illness and pressing time demands place an especially high emotional burden on patients, families and their caregivers. Effective communication between physicians, patients and families and other intensive care unit clinicians has the potential to prevent errors and complications as well as carry out the wishes of the patients.

Research shows that over time, physician anesthesiologists' attitudes regarding automatically suspending Do-Not-Resuscitate (DNR) orders during the perioperative period have shifted and imply that not only patients, but also more anesthesiologists, value and expect a discussion of advance directives prior to surgery.¹ As important members of the intensive care team, physician anesthesiologists are oftentimes responsible for or provide consultation on critically ill patients' airway management, including intubation and ventilation. Communication and documentation of patient preferences, including surrogate decision maker, advance directives and cardiopulmonary resuscitation is essential for all members of the intensive care team to appropriately deliver care and engage patients and families throughout the perioperative period.

Patient engagement strategies have been shown to be most effective when implemented together in the form of a bundle. This measure is designed to address key components of critical care that are important to patients, families and professionals. This measure is designed to align with the Care and Communication Bundle that was developed by the Society of Critical Care Medicine (SCCM) in collaboration with VHA, Inc., a national network of community-based hospitals.²

Clinical Recommendation Statement

¹ Burkle CM, Swetz KM, Armstrong MH, Keegan MT. Patient and doctor attitudes and beliefs concerning perioperative do not resuscitate orders: anesthesiologists' growing compliance with patient autonomy and self-determination guidelines. *BMC Anesthesiol.* 2013;13:2. Published 2013 Jan 15. doi:10.1186/1471-2253-13-2.

² Vuong C, Kittelson S, McCullough L, Yingwei Y, Hartjes T. Implementing primary palliative care best practices in critical care with the Care and Communication Bundle. *BMJ Open Qual.* 2019;8(3):e000513. Published 2019 Sep 6. doi:10.1136/bmjopen-2018-000513

2014 ASA Guidelines for the Practice of Critical Care by Anesthesiologists^{3,4}

“Due to the complex nature of critical illness, coordination of care is required. Therefore, one individual, either the critical care anesthesiologist or another physician, must assume global responsibilities for the patient to include all aspects of patient care, including communication with the patient, family and other providers.”

“The anesthesiologist-intensivist needs to be intimately involved in the ethical dilemmas that commonly develop in the intensive care unit, in appropriately communicating with patients and their families in making decisions regarding the appropriateness of treatment, and in understanding the need to maintain patient autonomy and dignity.”

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

³ American Society of Anesthesiologists Committee on Critical Care Medicine. Guidelines for the Practice of Critical Care by Anesthesiologists. October 2014. Available at: <http://www.asahq.org/~media/Sites/ASAHQ/Files/Public/Resources/standards-guidelines/guidelines-for-the-practice-of-critical-care-by-anesthesiologists.pdf>. Accessed December 2, 2020.

⁴ American Society of Anesthesiologists Committee on Ethics. Ethical Guidelines for the Anesthesia Care of Patients with Do-Not-Resuscitate Orders or Other Directives That Limit Treatment. October 17, 2018. Available at: <https://www.asahq.org/standards-and-guidelines/ethical-guidelines-for-the-anesthesia-care-of-patients-with-do-not-resuscitate-orders-or-other-directives-that-limit-treatment>. Accessed December 2, 2020.

APPENDIX A: Denominator-Eligible Diabetes ICD-10 Codes for IIM 20 and 21

Diagnosis for diabetes (ICD-10-CM): 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, E10.37X1, E10.37X2, E10.37X3, E10.37X9, E10.36, 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, E11.37X1, E11.37X2, E11.37X3, E11.37X9, E11.36, 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, E13.37X1, E13.37X2, E13.37X3, E13.37X9, E13.36, 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

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