

## **Outcomes of Anesthesia: Core Measures**

The following Core Measures are the consensus recommendations of the Anesthesia Quality Institute (AQI) and the Multicenter Perioperative Outcomes Group (MPOG). They were developed in a multi-step review process which included more than 50 anesthesiologists, anesthesia practice managers, and information technology vendors. This group met by email and webinar over a period of several weeks, with each participant contributing examples of outcome metrics and definitions from their own experience. Preliminary nominations were synthesized into draft recommendations, and then debated in person at the inaugural Standard Definitions in Anesthesia Conference (DefCon 1), hosted by the AQI and MPOG in Chicago on April 12. A final draft was circulated for discussion in the following weeks, leading to posting of this consensus document on the AQI website on May 11, 2013 ([www.aqihq.org](http://www.aqihq.org)).

### **Principles**

In developing these recommendations the Consensus Panel first established the following principles for anesthesia outcomes capture:

- The purpose of developing consensus measures is to facilitate the collection of uniform and comparable data that can be aggregated at the national level. Aggregated data is important to the future of anesthesiology in the regulatory, practice management, quality improvement and scientific spheres. A secondary purpose of DefCon 1 is to provide a starting point for developers of healthcare information technology who are seeking to build products with common appeal.
- The immediate goal was to define a Core Measure Set that could be recommended for inclusion in any electronic medical record system. It was understood that individual practices and vendors would add on to these core recommendations as required by the specifics of their patients and procedures.
- The proposed measures are intended to be part of the medical record, and reported on every case as a simple and factual yes/no based on the agreed definition.
- Each practice and facility should specifically train providers in the use of these forms. The AQI should audit this training and provide educational recommendations for how to do it.
- Outcomes are defined on an “all cause” basis, without attempted attribution to a specific team or service.
- Reported outcomes are all new events; pre-existing conditions are not captured in this way.
- Each form should include a response “no adverse outcome” to help distinguish cases where everything went smoothly from those where the form was not filled out. (AQI refers to this as “the positive negative.”)

- Each section of each form should also include a category “other,” followed by a short free-text box. Events and outcomes frequently reported in this way will be considered for inclusion as structured items in future measure sets.
- Certain items should include an option “cannot assess.”
- Recommended measures are divided into three forms: Intraoperative, PACU and Post-op. Some measures are repeated across the three forms. The first form includes events that were observed to occur during the anesthetic. The second form includes events observed up to the time of PACU discharge. The third form can be completed any time from 1-7 days postoperatively.
- Events discovered after completion of the form (e.g. a nerve injury only identified a week later) are not included.
- In general, the threshold for reporting should be unplanned or unanticipated events that necessitated active intervention.

## **Intraoperative Events.**

- Death (Excludes ASA 6 patients presenting for organ harvest)
- Cardiac
  - Cardiac arrest
  - New PVCs, bradycardia, atrial fibrillation, or other dysrhythmias requiring unanticipated therapy
  - Myocardial ischemia, indicated by ST segment changes or echocardiography
  - Hypotension requiring unanticipated therapy with a continuous infusion of pressor agents
  - Pulmonary edema
- Respiratory
  - Unanticipated difficult airway
  - Inability to secure an airway
  - Unplanned reintubation
  - Unplanned respiratory arrest
  - Aspiration
  - Laryngospasm
  - Bronchospasm requiring unanticipated treatment
- Medication
  - Anaphylaxis
  - Other unanticipated adverse reaction to a medication
  - Malignant hyperthermia
  - Transfusion reaction
  - Medication error
  - Use of sedation/narcotic reversal agents (e.g. flumazenil, naloxone)
  - Inability to reverse neuromuscular blockade
  - Delayed emergence
- Procedural
  - Vascular access complication: vessel injury
  - Vascular access complication: pneumothorax
  - High spinal
  - Local anesthesia systemic toxicity
  - Failed regional anesthetic
  - Unintended dural puncture
- Miscellaneous
  - Seizure
  - Unanticipated transfusion greater than 10 units of any blood products
  - Surgical fire
  - Burn injury
  - Equipment failure

- Equipment unavailability
- Fall from OR table
- Positioning injury
- Activation of Code Call/Stat Page/Rapid Response Team
  
- Administrative
  - Day of surgery case cancellation
  - Unplanned ICU admission
  - Unplanned admission of an outpatient
  - Operation on incorrect site
  - Operation on incorrect patient
  - Incorrect procedure performed
  - PQRS / SCIP measure documentation
    - Antibiotics
    - Normothermia
    - Central line bundle
    - Beta blocker continuation
    - DVT prophylaxis

## **PACU Discharge**

- Patient is awake and can contribute to assessment
- Patient physical exam
  - Mental status
  - Vital signs
  - Airway patency
- Pain score at PACU admission (11-point VAS scale)
- Highest pain score
- Pain score at time of assessment
- Nausea or vomiting requiring treatment
- Any occurrence of vomiting
- Occurrence of complications -- *“Did the patient experience an unexpected event during perioperative care?”* If yes, choose from:
  - Unplanned ICU admission
  - Intraoperative awareness
  - Epidural hematoma
  - Peripheral neurologic deficit
  - Corneal abrasion
  - Vision loss
  - Agitation requiring treatment
  - Seizure
  - Uncontrolled blood sugar (high or low)
  - Subcutaneous emphysema
  - Vascular access complication
  - Anaphylaxis
  - Other medication reaction
  - Transfusion reaction
  - Medication error
  - Use of sedation/narcotic reversal agents
  - Delayed emergence
  - Respiratory arrest
  - Reintubation
  - Dental trauma
  - Aspiration
  - Cardiac arrest
  - New PVCs, bradycardia, atrial fibrillation, or other dysrhythmias requiring treatment
  - Elevated troponin level (above hospital baseline)
  - Hypotension requiring treatment

- Pulmonary edema
- Death
- Prolonged PACU stay
  - Related to patient condition
  - Unrelated to patient condition
- Unplanned return to operating room
- Unplanned transfusion

## **1-7 Day Outcomes**

- Patient satisfaction; fields should be compatible with CAHPS Surgical survey. Recommended domains for assessment include:
  - Waiting times
  - Adequacy of consent process
  - Staff courtesy
  - Respect for privacy
  - Successful IV starts / difficulty with lines
  
- Postoperative nausea and vomiting (PONV). “Since discharge from the recovery room, I have had nausea and or vomiting...” Five point scale: Never, occasionally, some, often, constantly.
  
- Adequacy of pain management. “Since discharge from the recovery room, my pain has been well-controlled...” Five point scale: Always, mostly, somewhat, rarely, never.
  
- Unanticipated awareness during anesthesia
  
- Unplanned Emergency Department visit
  
- Unplanned readmission to the hospital
  
- New neurologic injury
  
- Occurrence of sore throat
  
- Occurrence of eye irritation
  
- Difficulties with memory
  
- Occurrence of headache
  
- Infection at the site of an anesthesia procedure
  
- Occurrence of pneumonia
  
- Occurrence of central line associated blood stream infection