

## **KAPC POLICY**

### **Prevention and Management of Unintended Awareness Under General Anesthesia**

**DATE EFFECTIVE:** January 2006

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#### **I. STATEMENT OF POLICY:**

- a. General anesthesia administered to inpatients or outpatients at any anesthetizing location where KAPC providers are administering anesthesia shall be carried out in such a manner as to minimize the occurrence of unintended intraoperative awareness. Existing policies and procedures during anesthesia care intended to safeguard the patient's well being and to provide for the best clinical conditions to perform the surgical, therapeutic or diagnostic procedure will continue to be followed.
- b. Preoperative anesthesia assessment will seek to identify patients at increased risk for unintended awareness. Such patients will receive additional preoperative discussion regarding the possibility of unintended awareness.
- c. Postanesthesia follow-up of all patients receiving general anesthesia will include an assessment to determine if patients have experienced unintended awareness. Patients who have experienced unintended awareness will receive specific care and appropriate referrals for optimal patient outcome following this event.
- d. Relevant clinical staff will be educated about unintended intraoperative awareness, including the management of patients who have experienced an awareness event.

#### **II. APPLIES TO:**

- a. Anesthesia personnel (anesthesiologists, certified registered nurse anesthetists, and student nurse anesthetists)
- b. Perioperative team members (presurgical evaluation clinic, preoperative holding area, operating room, day surgery unit, postanesthesia care unit, intensive care unit, medical/surgical units)

#### **III. PURPOSE:**

- a. To establish appropriate policy and procedures within the hospital to minimize the occurrence and consequences of unintended intraoperative awareness in patients receiving general anesthesia. It is recognized that there may be some instances where awareness is unavoidable or planned.

#### **IV. RATIONALE:**

- a. Unintended intraoperative awareness occurs during general anesthesia when a patient regains consciousness and becomes cognizant of some or all of the events occurring during surgery or a procedure. Recent studies have found that this adverse event occurs in 1 in 500 to 1,000 general anesthetics. Some patient types are at increased risk (e.g., trauma patients, cardiac surgery patients, emergency obstetrical surgery) as well as some clinical situations (profound muscle relaxation, intravenous anesthesia). A patient who experiences unintended awareness is at increased risk for serious emotional and psychological injury, including the development of post-traumatic stress disorder. Prompt identification and management of patients who experience unintended awareness is indicated to minimize these complications.

## V. IMPLEMENTATION:

- a. a. Definition  
The policy for prevention and management of unintended awareness applies when patients receive, in any setting, for any purpose, anesthesia care intended to produce loss of consciousness, i.e., general anesthesia.
- b. Preoperative identification of high-risk patients  
Certain patient types are at increased risk for the occurrence of unintended awareness. Patients meeting the following criteria will be considered at increased risk.<sup>1,2</sup>
  - i. Cardiac surgery, including off-pump
  - ii. Acute trauma with hypovolemia
  - iii. Caesarean section under general anesthesia
  - iv. ASA Physical Status 3, 4 and 5 patients
  - v. Impaired cardiovascular status
  - vi. Expected intraoperative hypotension requiring treatment
  - vii. Bronchoscopy, laryngoscopy or both
  - viii. Anticipated difficult intubation
  - ix. History of awareness
  - x. Severe end-stage lung disease
  - xi. Heavy alcohol intake
  - xii. Chronic use of benzodiazepine, opioids, or both
- c. Patients at increased risk will be provided additional discussion of the possibility and clinical reasons that result in the increased risk of unintended awareness. In addition to utilizing clinically feasible strategies that minimize the risk of awareness (see Section V.d), the anesthesia team will ask the patient about any experiences of intraoperative awareness following the general anesthetic. Any occurrence of unintended awareness will be managed as described below (See Section V.f).
- d. Reducing the risk of unintended intraoperative awareness<sup>3</sup>
  - i. Periodic maintenance of the anesthesia machine and its vaporizers will be performed according to established policy.
  - ii. Anesthesia providers will perform a pre-case checkout including inspection of anesthesia machine, monitors, vaporizers, and infusion pumps used to administer anesthetic agents and/or monitor the delivery and effect of anesthetic agents.
  - iii. The anesthesia provider will consider premedicating each patient with an amnestic agent particularly if the clinical situation suggests that light anesthesia will be required.
  - iv. Unless there is a clinical contraindication, an adequate dosage of hypnotic agent(s) will be used for induction of anesthesia, allowing sufficient time for onset prior to airway instrumentation and/or other stimulating interventions. If intubation of the trachea is found to be difficult, the anesthesia provider will consider administering additional dosages of induction agent(s).
  - v. During the maintenance of general anesthesia, if a volatile anesthetic agent is administered, the end-tidal concentration will be measured and documented on the chart at 15-minute intervals.
  - vi. Anesthesia providers should realize that certain medications (e.g., beta-blockers, calcium channel blockers, alpha-2 agonists) may mask the hemodynamic and physiologic responses to inadequate anesthesia.
  - vii. Anesthesia providers should appreciate that administration of neuromuscular blocking agents will prevent a patient from moving in response to inadequate anesthesia. Neuromuscular blocking agents will be administered according to clinical requirements, and the level of relaxation will be assessed by objective peripheral nerve stimulation monitoring. During periods of profound or total neuromuscular block, anesthesia providers will closely monitor all other parameters for evidence of inadequate anesthesia.

- e. Postoperative follow-up after general anesthesia
  - i. All patients, including children, will be assessed for the occurrence of unintended awareness following general anesthesia during post op interviews.
  - ii. The first interview will be performed in the PACU or Day Surgery Unit prior to discharge or transfer from that unit. In patients transferred from the operating room to the intensive care unit, the interview may occur in that unit upon satisfactory recovery from anesthesia and/or critical illness.
  - iii. A second interview should occur within one to seven days following the general anesthetic. This interview may be performed by an anesthesia provider or designated nursing staff, either in person or via the telephone, during routine follow-up.
  - iv. In addition, the medical and nursing staff members caring for patients should be attentive to a patient who spontaneously reports or complains about an experience of intraoperative awareness. Such reports may be quite delayed from the general anesthetic.
  - v. A positive response on any postoperative interview and any spontaneous patient complaint will be presumed to indicate a suspected awareness incident during general anesthesia. The patient should be assured that their account is being taken seriously, and the entire medical and nursing staff should be alerted to sympathize with the patient's experience.
  - vi. Any positive responses occurring on the interview or patient complaints will be reported promptly to the Department of Anesthesiology and to Hospital and KAPC Risk Management for additional follow-up.
  
- f. Management of an occurrence of intraoperative anesthesia awareness
  - i. The anesthesia provider(s) of record will be responsible for the assessment and management of a suspected intraoperative awareness incident.
  - ii. Following the notification of a suspected awareness episode, an anesthesia provider will interview the patient as soon as possible and take a detailed account of the episode to determine if the account is consistent with intraoperative awareness (confirmed awareness), or classified as possible awareness or intraoperative dreaming. The account should be documented in the patient's medical record.
  - iii. If unintended awareness has occurred, an apology and sympathy will be offered to the patient, and patient will be assured that their experience is being taken seriously. In addition, the patient's surgeon, nurse, and other key personnel should be informed of the adverse event.
  - iv. If possible, the patient should be offered an explanation of the etiology of the awareness episode – e.g., the clinical situation that developed that prevented the administration of adequate anesthesia.
  - v. In addition to these initial steps, referral to additional health team experts should be considered. Depending upon the scenario, the physicians and nurses caring for the patient as well as the hospital will seek to involve mental health experts (e.g., social workers, psychologists, and/or psychiatrists) to assess the patient and determine the best course of action to mitigate any long-term consequences.
  - vi. Any patient who suffers an experience of unintended awareness will be assured of continued access to hospital resources in the event of delayed sequelae from the awareness episode. Appropriate contact information will be provided to the patient, and in addition, the patient will be contacted for additional follow-up at 60 and 120 days following the procedure.

## References

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- 2.. Myles PS, Leslie K, Ghoneim MM, et al. Bispectral index monitoring to prevent awareness during anaesthesia: The B-Aware randomized controlled trial. *Lancet*. 2004;363:1757-1763.
- 3.Ghoneim MM. Awareness during anesthesia. *Anesthesiology*. 2000;92:597-602.
4. Ekman A, Lindholm ML, Lennmarkin C, Sandin R. Reduction in the incidence of awareness using BIS monitoring. *Acta Anaesthesiol Scand*. 2004;48:20-26.
5. Sandin, RH, Enlund G, Samuelsson P, Lennmarken C. Awareness during anaesthesia: a prospective case study" *Lancet*. 2000;355:707-11.
6. Tunajek, S. Considerations for Policy Development: Unintended Intraoperative Awareness. In *The News, AANA*. 2005, 4/05