

## Intraoperative Neurophysiologic Monitoring Knowledge and Skills Checklist

I. Audiologists performing intraoperative neurophysiologic monitoring require appropriate knowledge base and skills in the following areas:

A. Knowledge in neuroscience:

1. Fundamental knowledge in basic and applied neuroanatomy and neurophysiology;
2. Ability to independently identify appropriate neural pathways to be monitored on a case by case basis, and select appropriate neuromonitoring modalities (evoked potential: motor, somatosensory, auditory, visual; electromyography: free-run, evoked EMG);

B. Competence in technical application of neurophysiologic monitoring:

1. Fundamental and applied knowledge in the measurement of bioelectric signals;
2. Fundamental and practical knowledge in the electronic instrumentation used in clinical neurophysiology applications;
3. Accuracy in placement of surface and subdermal needle electrodes for stimulation and recording of reliable responses;
4. Knowledge of the effects of parameter changes and application of such knowledge to elicit safe, high-quality, artifact-free recordings;
5. Able to establish timely, reliable and valid baselines;
6. Able to identify sources of artifact in the operating room;
7. Proficient in the use of electrophysiologic instruments, including proper maintenance, function, and calibration;

C. Fundamental knowledge of anesthesia and anesthesia equipment as related to Intraoperative neuromonitoring:

1. Able to accurately identify and relate readings of arterial blood pressure, expiratory carbon dioxide levels, core body temperature, train of four, and variables related to intraoperative blood loss to the neurophysiologic recordings;
2. Working knowledge of contemporary anesthetic agents typically used in surgical settings and their relative effect on intraoperative bioelectric recordings;
  - a. Hypnotics
    - i. Inhalation/Halogenated
    - ii. Intravenous
  - b. Analgesics
  - c. Sedatives

- d. Muscle Relaxants
  - i. Depolarizing
  - ii. Non-Depolarizing
- e. Vasoactive Drugs

3. Able to discuss and recommend anesthetic plans that are most appropriate for optimum intraoperative neurophysiologic recordings as well discuss and recommend anesthetic adjustments as a particular situation dictates;

- a. Ascertain Anesthesiologist's plan for the patient's anesthetic care
- b. Clarify potential effects of planned anesthesia on the neurophysiologic recordings
- c. Establish a cooperative neuromonitoring plan that accounts for the stages of anesthesia

4. Applied knowledge of the effects of pharmacologic agents and systemic variables in making on-line distinctions between relevant and irrelevant neurophysiologic changes;

D. Demonstrate ability to provide on-line interpretation of the responses throughout the case, interpreting technical, pharmacologic, and systemic changes as related to the recordings, and the stage of the surgical procedure:

- 1. Knowledge of pre-existing medical conditions and medications that may have an impact on intraoperative neurophysiologic recordings;
- 2. Knowledge of medical and surgical considerations as they pertain to the procedure with good theoretical knowledge of the specific surgical procedure, anatomical structures encountered, and risk factors;
- 3. Knowledge of establishing reliable baselines for signal response amplitude and/or latency;
- 4. Ability to identify significant changes, whether improvement or reductions, and report clearly and concisely to the surgeon or anesthesiologist in a timely manner;
- 5. Promptly and expeditiously rules out factors other than surgical maneuvers for potential causes of changes should be made and reported to surgeon with close collaboration with the anesthesia team;
- 6. Knowledge of intervention strategies to restore intraoperative electrophysiologic measures;
- 7. Knowledge of documentation procedures

II. Audiologists performing professional level intraoperative neurophysiologic monitoring will demonstrate a thorough understanding of operating room procedures:

- A. Demonstrates understanding of sterile fields, and technique.

- B. Demonstrates understanding of general operating room etiquette.
- C. Demonstrates knowledge of universal precautions to prevent the risk of disease from blood-borne pathogens.
- D. Demonstrates knowledge of proper cleaning and maintenance of intraoperative neuromonitoring supplies and equipment.