

SMS Training Module

Module 1

- I. Neuro-anatomy
 - Brain
 - Lobes
 - CN 1-12
 - Optic Tract
 - Brainstem
 - Corticospinal Tract
 - Somatosensory Pathway
 - Arterial Supply

- II. Spinal Cord
 - Dorsal Column Pathway
 - Corticospinal Pathway

 - Arterial Supply:
 - Cord
 - Conus Medullaris
 - Cauda Equina

- III. Peripheral Nerves
 - Brachial Plexus – Cutaneous Distribution - Dermatomes
 - Individual Nerves
 - Nerve Roots

- IV. Vertebral Bodies
 - Canal, Nerve Root
 - Facets
 - Foramen
 - Pedicles

- V. Muscles
 - Localization
 - Innervation

- VI. Hip
 - Gluteal Nerves
 - Sciatic
 - Femoral

- VII. Pelvis
 - Pudendal Nerve
 - Sacral Nerve Plexus

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Module 1 Continued

- VIII. Neuro- Science
 - Synaptic Transmission, Neurons
 - Compound Action Potentials
 - Temporal Dispersion
 - Polarity
 - Near Field/ Far Field Potentials
 - Neural Generators of Somatosensory Evoked Potentials
 - Neural Generators of Auditory Evoked Potentials
 - Neural Generators of Visual Evoked Potentials

- IX. Neurophysiology
 - Cerebral Blood Flow
 - Mean Arterial Pressure
 - Cerebral Perfusion
 - Auto Regulation
 - Temperature Affects
 - Cerebral Electrical Activity
 - EEG Frequency

- X. Instrumentation and Electrophysiologic Recordings;
 - Electrical
 - Resistors
 - Capacitors
 - Currents
 - Ohm's Law
 - Impedance- Electrodes, Properties of Metals
 - Amplifiers- Polarity/Sensitivity
 - Filters- High Band Pass/ Low Band Pass/ Notch Filter/Bandwidth
 - Signal to Noise Ratio
 - Signal Averaging
 - Artifact Rejection
 - Signal Characteristics- Amplitude/Frequency
 - Reduction of Stimulation Artifact
 - Quality Control of Responses

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Module 2

- XI. Patient Set Up:
 - EEG Montages- 10-20 System/Queen Square System
 - Amplitude
 - Sensitivity
 - Impedance
 - Calibration
 - Electrical Safety
 - Somatosensory Evoked Potentials
 - Auditory Evoked Potentials
 - Visual Evoked Potentials
 - Triggered EMG
 - Transcranial Motor Evoked Potentials
 - Cranial Nerve Monitoring
 - Peripheral Nerve Monitoring
 - Pudendal Nerve Monitoring
 - Sacral Nerve Monitoring
 - Hip Monitoring
 - Aneurysm Monitoring- Cerebral/Aortic
 - Carotid Monitoring
 - Acoustic Neuroma Monitoring
 - Central Sulcus Location Monitoring

- XII. Anesthesia:
 - Synaptic Transmission- SSEPs/ TcMEPs/Spontaneous EMG
 - Specific Anesthetic Agents- Gas/ Narcotics/Benzodiazepines/Muscle relaxants
 - Bolus v Infusion
 - Definition of MAC
 - Effects on Blood Pressure/Body Temperature/Waveforms
 - Train of Four

- XIII. ASET/ASNM Position Statements on Technologists in the Operating Room:
 - Somatosensory
 - EMG
 - EEG
 - BAER

- XIV. Abnormal Responses/Artifact/Trouble Shooting/Intervention- Guidelines/Empirical
 - Somatosensory
 - EMG
 - EEG

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BAER

Module 2 Continued

- XV. Pathology
- XVI. Positioning of Patient/Concerns
- XVII. Patient Safety/Universal Precautions
- XVIII. Equipment/Programs
- XIX. Surgical Procedures
- XX. Telemonitoring
 - Document Storing
 - Data Processing
 - Pre-operative Conference with Interpreter
- XXI. Benefits of Monitoring
 - Impact on Outcome- The Numbers
 - False Negatives/ False Positives
 - Risk Reduction with Procedure
 - Quality Assurance- Importance of Protocols
 - Pre-op Conference- Interview/ Exam/ Anesthesia
 - Correlate with Efficacy- Protocols and Efficacy
 - Team Approach and Efficacy
 - Record Review

Module 3

Working Independently- 150 Supervised Cases