

## **Magnetoneurodiagnostic Technologist Certification (CMEG)**

The Certification Program in MEG consists of self-directed computer-based modules, reading assignments and quizzes culminating in a comprehensive exam leading to the CMEG credential.

The content of the modules and questions are composed by subject matter experts in MEG.

The final Certification Examination in MEG will be weighted in approximately the following manner:

I.	Pre-Study Preparation	20%
II.	MEG Instrumentation	20%
III.	Performing the Study	40%
IV.	Post-Study Procedures	20%

### **MEG CERTIFICATION CONTENT OUTLINE**

- I. Pre-Study Preparation**
  - A. Patient instructions/age-specific
  - B. Relevant patient history/medications
  - C. Allergies and sensitivities
  - D. Neuroanatomy basics
  - E. Neurological disorders
  - F. Medical contraindications to activation procedures
  - G. Infection control
  - H. Culture of safety (e.g., fall risks, restraints)
  - I. Electrode application
  - J. Impedance
  - K. Implanted devices
  - L. Patient preparation
  - M. Pre-test procedures
    - 1. Digitizing head shape
    - 2. Fiducials
    - 3. MEG coils
    - 4. EEG electrodes

## **II. MEG Instrumentation and Principles**

- A. Electricity and Magnetism principles
- B. Quality control:
  - 1. Sensor tuning
  - 2. Phantom checks for dipole accuracy
  - 3. Empty room recording
  - 4. Stimulus delivery system quality control (e.g. an artificial ear measurements of auditory delays, optical sensor measurements of visual delays)
- C. MEG sensor
  - 1. Tuning
  - 2. Helium filling
  - 3. Helium recycler
- D. Safety and Instrumentation precautions
  - 1. Cryogenics
  - 2. Patient monitoring
  - 3. Seizures
  - 4. Stimulation
  - 5. Magnetic devices in the MSR

## **III. Performing the Study**

- A. ACMEGS Guidelines
- B. Computer knowledge related to devices and networks
- C. Troubleshooting techniques
- D. Artifact monitoring, identification and elimination
- E. Acquiring MEG data
- F. Evoked Potential studies
  - 1. Language Evoked Fields (LEF)
  - 2. Somatosensory Evoked Fields (SEF)
  - 3. Auditory Evoked Fields (AEF)
  - 4. Visual Evoked Fields (VEF)
  - 5. Motor Evoked Fields (MEF)
    - a. Tap
    - b. EMG

- G. Neurophysiologic correlates to clinical conditions
  - 1. Epilepsy
  - 2. Tumor
- H. Significant patient behaviors and clinical events (e.g., changes in level of consciousness, body movements, episodes)

IV. **Post-study procedures**

- A. Analysis of data
  - 1. MEG data processing
  - 2. MRI download and co-registration
  - 3. Montage design
  - 4. Filters
  - 5. Benign variants
  - 6. Artifacts
  - 7. Spike averaging
- B. Documentation (CPGs)
  - 1. Medical record
  - 2. Study log
- C. Data management and storage
- D. HIPAA
- E. Safety Data Sheets/OSHA Standards