

END-2922: END DIRECTED PRACTICE III

Cuyahoga Community College

Viewing: END-2922 : END Directed Practice III

Board of Trustees:

January 2023

Academic Term:

Fall 2023

Subject Code

END - Electroneurodiagnostic

Course Number:

2922

Title:

END Directed Practice III

Catalog Description:

Clinical neurodiagnostic experience in a selected neurodiagnostic lab in health care facility under direct supervision of an END technologist or physician office. Emphasis on EEG testing in neonates, infants and pediatric population, long-term monitoring, and critical care units, and additional specialty modalities, including but not limited to NCS testing, medical record keeping and clinical history taking.

Credit Hour(s):

3

Lecture Hour(s):

1.5

Lab Hour(s):

0

Other Hour(s):

112.5

Other Hour Details:

Directed Practice: 112.5 hours at a Clinical Site per semester

Requisites

Prerequisite and Corequisite

END-2911 END Directed Practice II, and END-2451 Neonatal/Pediatric Electroencephalography; or departmental approval.

Outcomes

Course Outcome(s):

Demonstrate work setting preparedness in clinical setting.

Essential Learning Outcome Mapping:

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):

- a. Prepare outpatient lab prior to patient entry and between patients.
 - b. Demonstrate knowledge of location of supplies and linen in clinical setting.
 - c. Establish a routine of workspace setup in inpatient, critical/ICU, long-term monitoring and EMG lab setting.
 - d. Demonstrate knowledge of clean vs. soiled areas.
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Course Outcome(s):

Demonstrate effective patient interaction.

Objective(s):

- a. Demonstrate strategies for accurate verification of patient identity.
- b. Demonstrate professional introduction of self and the care team to the patient.
- c. Demonstrate the ability to ask pertinent questions related to a patient's medical history.
- d. Obtain a relevant neurological, or neurosurgical patient history.
- e. Demonstrate an assessment of a patient's level of consciousness and alertness.
- f. Establish professional rapport with patient and/or patient's family using clear speech and appropriate language.
- g. Demonstrate the ability of explaining the concept of EEG/NCS testing using terms, age and level of consciousness appropriate.
- h. Demonstrate the ability of explaining all stimulation situations which apply to the test being performed.
- i. Demonstrate appropriate and professional attention to a patient's needs.

Course Outcome(s):

Demonstrate knowledge of mechanics of EEG test acquisition.

Objective(s):

- a. Measure the head using the international 10-20 system.
- b. Prepare patient's skin for electrode placement.
- c. Verify that electrode impedances are balanced and below 5000 Ohms.
- d. Complete the patient preparation by applying electrodes in an accurate, secure and neat fashion with collodion or electrolyte paste with the entire prep and application within 45 minutes on uncomplicated patients.
- e. Recognize professional limitations and inform supervisors or physicians of such when assigned task that are not commensurate with knowledge or skills.
- f. Apply previously achieved EEG/ EP principles in advanced clinical settings.
- g. Demonstrate ability to customize recording/ situation by applying additional electrodes to localize abnormal activity, for monitoring respiration, and recognizing ECG rhythms to monitor abnormality.
- h. Demonstrate understanding of various technical criteria for specific types of recording, including ECS, neonatal EEG, pediatric EEG, and/or recording in ICU.
- i. Consistently pass electrode verification sheets within tolerance limits
- j. Recognize normal and normal variant awake and asleep patterns, abnormal awake and asleep patterns, EEG patterns for level of consciousness, and clinical seizure patterns for each range.
- k. Identify and eliminate or reduce artifacts that contaminate waveforms.

Course Outcome(s):

Exhibit provision of a safe recording environment.

Objective(s):

- a. Demonstrate use of standard precautions and other proper disinfection precautions for infection prevention.
- b. Demonstrate proper cleaning and disinfection of electrodes after each procedure.
- c. Demonstrate proper and safe removal of electrodes from patient's scalp.
- d. Demonstrate understanding of skin safety measures.
- e. Demonstrate recognition and response to life-threatening situations.
- f. Obtain and maintain certification for cardiopulmonary resuscitation.
- g. Demonstrate compliance with hospital/lab protocols for emergency and disaster situations.
- h. Demonstrate proper maintenance of instrumentation and equipment in good working order.
- i. Demonstrate the practice of proper electrical safety and equipment/patient grounding.
- j. Participate in the effort to reduce patient falls.

Course Outcome(s):

Demonstrate high level of professionalism in a clinical setting.

Objective(s):

- a. Demonstrate professionalism through punctuality.
 - b. Demonstrate the relaying of accurate information to other health care professionals.
 - c. Demonstrate compliance with HIPAA regulations with emphasis on maintenance of patient privacy.
 - d. Demonstrate effective interaction with physicians using effective communication skills.
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Methods of Evaluation:

- a. Clinical site final evaluations.
- b. Preceptor observations
- c. Written homework log sheets
- d. Weekly 10-20 verification forms
- e. Written Physician interaction assignment
- f. Online quizzes/modules

Course Content Outline:

- a. Clinical orientation activities
 - i. Departmental orientation
 1. Meet medical director
 2. Meet technical director
 3. Class room and meeting area
 - a. Departmental reports
 - b. Departmental in-services
 - c. Procedural priorities
 4. Parking facilities
 5. Equipment storage
 6. Equipment handling
 - ii. Hospital orientation
 1. Knowledge of management of information
 - a. Admissions
 - b. Medical records
 2. Admissions
 3. Medical records
 - iii. Knowledge of environmental care standards
 1. Safety education/emergency procedures
 2. Infection control policies
 - a. Hospital reporting structures
 - b. Usage of standard precautions (universal)
 3. Equipment cleaning
 - a. Disinfecting
 - b. Sterilization
 4. Soiled linen/clothing
 - a. Technologist responsibilities
 - b. Ordering of clean linens
 - c. Disposal of soiled linens
 - d. Environmental services responsibilities
 - e. Contact with bodily fluids
 - f. Infectious waste policies
 5. Use of disposable supplies
 6. Personal protective equipment
 7. Infectious waste policies
 - iv. Clinical orientation
 1. Safety
 - a. Student responsibility
 - b. Clinic's policies
 - c. Patient's safety
 - d. Fire procedures

- e. Emergency procedure plans
 - i. Active shooter
 - ii. Bomb threat
 - iii. Earthquake
 - iv. Explosion
 - v. Fire
 - vi. Medical emergency
 - vii. Power outage
 - viii. Suspicious item
 - ix. Terrorism
 - x. Severe Weather
- f. Equipment safety, performance testing, and maintenance
- g. Collodion and acetone usage and storage
- h. Material Safety Data Sheets (MSDS)
- i. Oxygen Precautions
- 2. Medical emergencies
 - a. Definition
 - b. Safety of patient
 - c. Documentation
 - d. CPR training and certification
 - e. Seizure precautions and first aid
 - f. Psychiatric emergencies
 - i. Assessment of patient
 - ii. Notification of security/medical personnel
 - iii. Suicide precautions
 - iv. Documentation
 - g. Cardiac/arrhythmia procedures
 - h. Respiratory arrest/arrhythmia procedures
- 3. Patient charts
- 4. Charting procedures
- 5. Review student notebook
- 6. Procedures for calling in late or sick
- 7. Attendance
- 8. Lesson plans
- b. Clinical proficiencies
 - i. Patient assessment
 - ii. Electrical theory
 - iii. Instrumentation
 - iv. 10-20 set up
 - v. Basic nerve conduction studies as applicable
- c. Clinical activities
 - i. Performing electroencephalograms
 - 1. Explanation of procedure
 - 2. Set up/placement of electrodes
 - 3. Long-term monitoring protocols
 - 4. ICU protocols
 - 5. Pediatric/Neonatal protocols
 - 6. Recognition of patterns/artifacts
 - ii. Performing other modalities including but not limited to
- iii. Troubleshooting
 - 1. Artifact
 - a. Physiological
 - b. Non-Physiological
 - 2. Methods and concepts
 - a. Artifact rejection
 - b. Raw input
 - c. Electrodes

- d. Equipment
- e. Cables
- iv. Patient protection, safety, and environmental issues
 - 1. Hazardous items
 - a. Collodion
 - b. Acetone
 - c. Needles and sharps
 - 2. Patient sedation
 - 3. Patient management
 - 4. Infection control
 - a. Bloodborne pathogens
 - b. Respiratory pathogens
 - 5. Patient rights and confidentiality
 - 6. Electrical safety
 - a. Grounding
 - b. Leak current
 - c. Connections
 - 7. Cardiopulmonary resuscitation
- v. Pharmacological issues
- vi. Time organization
- vii. Physician rounds
- viii. Procedural priorities
- ix. Patient transport
 - x. Equipment processing
- xi. Expand knowledge base
- xii. Development of professional, interpersonal, and communication skills

Resources

American Society of Electroneurodiagnostic Technologists. *EEG Recording Techniques and Instrumentation*. 2nd ed. ASET, 2000.

American Society of Electroneurodiagnostic Technologists. *EEG Electrodes, Application and Infection Control*. ASET, 2001.

American Society of Electroneurodiagnostic Technologists. *Neonatal EEG*. ASET, 1998.

American Society of Electroneurodiagnostic Technologists. *Pediatric EEG*. ASET, 1998.

American Society of Electroneurodiagnostic Technologists. *EEG Activation/Artifacts*. 2nd ed. ASET, 1999.

Spehlmann, R. *EEG Primer*. New York: Elsevier Biomedical Press, 1985.

Preston, David C. and Barbara E. Shapiro. *Electromyography Neuromuscular Disorders: Clinical-Electrophysiologic Correlations*. 2nd ed. Philadelphia, Elsevier, Butterworth, Heinemann, 2005.

Neal, Peggy J. and Basar Katurii. *Nerve Conduction Studies: Practical Guide Diagnostic Protocols*. Rochester American Association of Neuromuscular Electrodiagnostic Medicine, 2011.

Crout, B. and C. W. Flicek. *Nerve Conduction Studies from A to Z*. ASET, 1997.

Weiss, Lyn D., M.D., Jay M. Weiss, M.D., and Julie K. Silver, M.D. *Easy EMG: A Guide to Performing Nerve Conduction Studies and Electromyography*. 3rd ed. Elsevier, 2021.

Resources Other

- a. *American Journal of Electroneurodiagnostic Technology (AJET)* by the ASET; 4 issues annually; which reflects most recent changes and updates in the field.
- b. ASET The Neurodiagnostic Society. 2022. <https://www.aset.org/>
- c. American Clinical Neurophysiology Society. 2022. <https://www.acns.org/>
- d. The Nerve Conduction Association. 2022. <https://www.aet.info/>

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