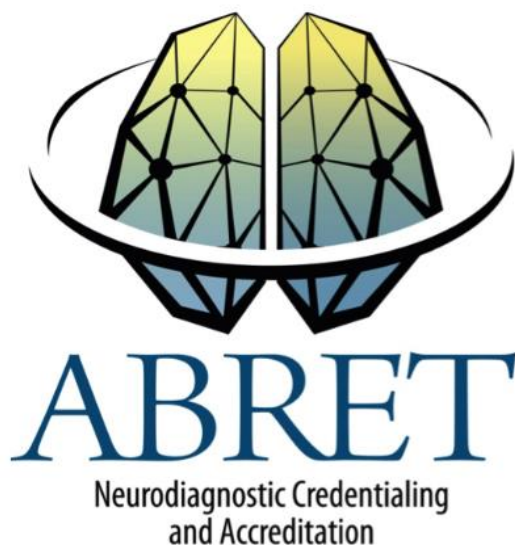


2021



Handbook for Candidates

Certification for

Neurophysiologic Intraoperative Monitoring



ANSI Accredited Program
PERSONNEL CERTIFICATION

ANSI/ISO/IEC 17024 (#1253)

CNIM

2908 Greenbriar Dr., Suite A | Springfield, IL 62704

Table of Contents

Introduction	1
Objectives of ABRET	1
Non Discrimination Statement	1
Administration	1
Fees	1
2021 CNIM Eligibility Chart	2
CAAHEP Accredited NIOM Programs (Pathway I)	3
Non-CAAHEP Accredited NIOM Programs (Pathway IV)	3
Quick Tips – Before Proceeding with the Application Process	3
Application Procedure	4
Quick Tips – Following the Application Process	4
Scheduling Examination	5
Changing Examination Appointment	5
Special Requests	5
Application Agreement	6-7
Examination Administration	8
Rules for Examination	8
Quick Tips – Before Examination Day	8
Content of Examination	9
Content Outlines	9
Sample Questions	10
References	11-12
Scoring	13
Report of Results	13
Examination Challenges	13
Confidentiality	13
Attainment of Credential	13
Name/Address Changes	13
Code of Ethics and Standard of Practice	14
Purpose of Standards	14
Violations Reporting Requirements	15

This handbook contains necessary information about the Neurophysiologic Intraoperative Monitoring (CNIM) examination. Please retain it for future reference. Candidates are responsible for reading these instructions carefully. This handbook is subject to change.

The Certification Examination in Neurophysiologic Intraoperative Monitoring (CNIM) is designed and written for the advanced level Neurodiagnostic professionals, or formally trained NIOM professionals who are currently practicing in an intraoperative environment.

Introduction

ABRET is a nonprofit credentialing board. ABRET supports the concept of voluntary certification by examination for health care professionals in neurophysiologic intraoperative monitoring. Certification focuses specifically on the individual and is an indication of current knowledge in neurophysiologic intraoperative monitoring. ABRET does not guarantee the job performance of any individual.

Objectives of ABRET

TO ESTABLISH COMPETENCY IN NEUROPHYSIOLOGIC INTRAOPERATIVE MONITORING BY:

1. Providing a standard of knowledge in neurophysiologic intraoperative monitoring required for certification.
2. Establishing and measuring the level of knowledge required for certification in neurophysiologic intraoperative monitoring by means of an objective, computer based written examination.
3. Formally recognizing those individuals who meet the eligibility requirements of ABRET and pass the Certification Examination in Neurophysiologic Intraoperative Monitoring.
4. Encouraging continued professional growth in neurophysiologic intraoperative monitoring through mandatory continuing education and recertification.

Non Discrimination Statement

ABRET, Inc. does not discriminate on the basis of age, sex, race, religion, national origin, marital status, or handicapped condition.

Administration

The Certification Program is sponsored by ABRET. The Certification for Neurophysiologic Intraoperative Monitoring is administered for ABRET by the Professional Testing Corporation (PTC):

1350 Broadway – Suite 800, New York, New York 10018 – (212) 356-0660 – www.ptcny.com

Questions concerning the Certification for Neurophysiologic Intraoperative Monitoring should be addressed to the ABRET Executive Office:

2908 Greenbriar – Suite A, Springfield, IL 62704 – (217) 726-7980 – www.abret.org

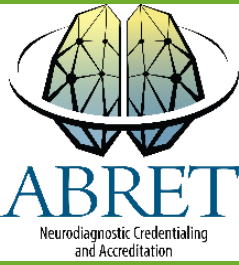
or by e-mail: Tami@abret.org

Fees

Application Fee for the Certification for Neurophysiologic Intraoperative Monitoring	\$700
Rescheduling Fee 29-5 days prior to scheduled appointment	
Paid directly to Prometric (see page 5)	\$50

THERE ARE NO REFUNDS nor TRANSFER OF FEES

2021 CNIM Eligibility Chart

Eligibility Requirements	CNIM Pathway I CAAHEP NIOM Program	CNIM Pathway II R. EEG T. or R. EP T.	CNIM Pathway III Bachelors Degree	CNIM Pathway IV Non-CAAHEP Formal NIOM Program
	CAAHEP Diploma	Current R. EEG T or R. EP T.	Bachelors Degree (Higher Degrees Acceptable)	Certificate of Completion from ABRET recognized Program *current listing on ABRET.org
	Documentation of 100 NIOM cases	Documentation of 150 NIOM cases	Documentation of 150 NIOM cases	Documentation of 150 NIOM cases
	Current CPR/BLS certification	Current CPR/BLS certification	30 IOM educational hours (1)	Current CPR/BLS certification
			Current CPR/BLS certification	

CNIM achieved upon successfully passing the CNIM Exam

(1) 30 IOM educational hours must be earned through ASET, ASNM, or ACNS and can be earned at any point during the NIOM experience within the last 5 years. No more than 15 hours may be earned from ASET journal quizzes.

Completion of Documentation Form

1. The Candidate must be the **primary** technologist in the set-up, troubleshooting and monitoring of each case listed.
2. Observation of an IOM case may not be included in the required cases, but supervised cases are acceptable, as long as the requirements listed above are met.
3. ABRET will accept documentation of up to two cases per day. Do not submit more than the requested number of cases.
4. IOMs must be within the last 5 years with 10% of IOMs completed within 12 months of application.
5. Monitoring performed in the operating room during a surgical procedure should be included. Pre-op testing and procedures do not satisfy this requirement.
6. Documentation forms will be randomly audited which can delay or negate eligibility.

The CNIM credential is awarded for five years. See the options under Recertification.

After 3 unsuccessful attempts to pass the examination within a 2 year timeframe, candidates must wait 6 months and submit an additional 15 hours of Continuing Education before again being eligible to test.

PETITION OF ELIGIBILITY – See the website for a form and instructions.

CAAHEP Accredited NIOM Programs (Pathway I)

CAAHEP Program Directors will receive the results of their students and graduates included on the individual CAAHEP Program School Report.

Bloomsburg University – Bloomsburg, PA

Laboure College - Milton, MA

University of Michigan – Ann Arbor, MI

Non-CAAHEP Accredited NIOM Programs (Pathway IV)

Institute of Health Sciences - Hunt Valley, MD

Medsurant Health Academy - Mason, OH

National Neuromonitoring Fellowship Program – San Antonio, TX

Neuronetwork IONM Training and Education - Houston, TX - CLOSED

SpecialtyCare Intraoperative Neurophysiological Monitoring, Surgical Neurophysiological Training Program
- Brentwood, TN

Quick Tips

Before Proceeding with the Application Process

- *Your name must match exactly to the name shown on current government-issued photo ID, such as a driver's license or passport. Do not use nicknames or abbreviations.
- *CNIM Documentation forms are available on the ABRET website – www.abret.org
- *Have all required eligibility documents ready to be uploaded into your ABRET Credential Management.
- *PDFs are best.
- *Retain copies of uploaded documents.
- *Have HANDBOOK handy.

Application Procedure

Applications for the ABRET examinations will be completed online through the ABRET website.

www.abret.org

- 1) Read this Handbook for Candidates and follow all directions.
- 2) Visit ABRET.org – click on **APPLY** and select **CNIM**.
- 3) Click on “Apply” and select your eligibility pathway to apply under.
- 4) Login or Create a new ABRET Credential Management account.
- 5) Complete the application by inputting your information and uploading your eligibility requirements including payment of the \$700 examination fee.
 - Visa & MasterCard accepted.
 - Checks mailed directly to: ABRET Executive Office – 2908 Greenbriar, Ste A – Springfield, IL 62704

Upon verification of your eligibility requirements and application, your registration for the exam will be sent to PTC. The “Scheduling Examination” section of this handbook will contain exam scheduling information.

CAAHEP Program Directors will receive the results of their graduates included on the individual CAAHEP Program School Report.

A denial of eligibility for certification may be appealed in writing and sent to ABRET within 30 days. See RUL-21 of ABRET Policies & Procedures posted on abret.org.

Candidates have three (3) months from the status of “Eligible to Test” date to sit for the examination.

After the 3-month period, candidates will need to reapply for the examination and pay new application fee.

THERE ARE NO REFUNDS nor TRANSFER OF FEES

After exam results are uploaded into ABRET Credential Management proceed as directed:

Pass Results: **CNIM** credential is awarded for five years. See the options under Recertification.

Fail Results: Candidates are provided 1 exam attempt per application submission within the established three-month time frame. You will essentially repeat **ALL** steps of the online application process.

Candidates who do not pass the CNIM exam after 3 unsuccessful tries within a 2-year timeframe will not be allowed to retest for 6 months and will be required to submit 15 IOM educational credits.

* Please do not contact the ABRET office about your results until you receive your **OFFICIAL** test results. You will not be able to reapply until the OFFICIAL test results are in.

Quick Tips

Following the Application Process

*Candidates should retain copies of uploaded documents submitted for eligibility requirements

*Application is PENDING

- If you paid by CHECK your “Application Form” will not be completed until payment is received.
- You may have been randomly selected for audit. You or your supervisor will be contacted by our auditor.

Scheduling Examination

Candidates cannot schedule an examination until they have received a Scheduling Authorization from the Professional Appointment Testing Corporation (PTC) via email.

Scheduling Authorizations will be emailed to candidates from notices@ptcny.com approximately 2-5 business days after the status of “Eligible to Test” is achieved. Please ensure you enter your correct email address on the application and add the ‘ptcny.com’ domain to your email safe list. If you do not receive a Scheduling Authorization within two weeks of achieving “Eligible to Test” status, contact PTC at (212) 356-0660 or online at www.ptcny.com/contact for a duplicate.

The Scheduling Authorization will indicate how to schedule your examination appointment with Prometric as well as the dates during which testing is available. Appointment times are first-come, first serve, so schedule examination appointment as soon as you receive your Scheduling Authorization in order to maximize testing at your preferred location and on your preferred date.

After you make your test appointment, Prometric will send you a confirmation email with the date, time, and location of your exam. Please check this confirmation carefully for the correct date, time, and location. Contact Prometric at (800) 741-0934 if you do not receive this email confirmation or if there is a mistake with your appointment.

Note: International candidates may also schedule, reschedule, or cancel an appointment online at prometric.com.

Current government-issued photo ID (driver’s license or passport) must be presented in order to gain admission to the testing center. **Temporary, paper driver's licenses are not accepted.** It is recommended to take a printed copy of Scheduling Authorization as well as Prometric appointment confirmation.

It is the candidate’s responsibility to contact Prometric to schedule the examination appointment.

Arrival at the testing site at the appointed time is the responsibility of the candidate. Plan for weather, traffic, parking, and any security requirements specific to the testing location. Late arrival may prevent you from testing.

*It is highly recommended the candidate becomes familiar with the testing site prior to appointment

Changing Examination Appointment

To reschedule current examination appointment to a different date within your three (3) month testing period, you MUST contact Prometric either online at www.prometric.com/abret or by phone at (800) 741-0934.

Rescheduling Fees:

30 days prior to scheduled appointment there is NO (\$0) Rescheduling Fee.

29-5 day prior to scheduled appointment there is a **\$50.00** US Rescheduling Fee. Paid directly to Prometric.

*NO Rescheduling Permitted Less than 5 days prior to scheduled appointment.

Candidates have three (3) months from the status of “**Eligible to Test**” date to sit for the examination.

After the 3-month period, candidates will need to reapply for the examination and pay new application fee. **THERE ARE NO REFUNDS nor TRANSFER OF FEES**

Special Requests

Special Accommodations

ABRET and PTC support the intent of and comply with the Americans with Disabilities Act (ADA). PTC will take steps reasonably necessary to make certification accessible to persons with disabilities covered under the ADA. According to the ADA, an individual with a disability is a person who has a physical or mental impairment that substantially limits a major life activity (such as seeing, hearing, learning, reading, concentrating, walking) or a major bodily function (such as neurological, endocrine, or digestive system). The information you provide and any documentation regarding your disability and special test accommodations will be held in strict confidence.

All approved testing accommodations must maintain the psychometric nature and security of the examination.

Accommodations that fundamentally alter the nature or security of the exam will not be granted.

Special testing arrangements may be made upon receipt of the Application, examination fee, and a completed and signed

Request for Special Needs Accommodations Form, available from

www.ptcny.com/PDF/PTC_SpecialAccommodationRequestForm.pdf or by calling PTC at (212) 356-0660. This Form must be uploaded with the online application no later than 8 weeks prior to the start of the chosen testing period.

Only those requests made and received on the official Request for Special Needs Accommodations Form will be reviewed. Letters from doctors and other healthcare professionals must be accompanied by the official Form and will not be accepted without the Form. All requests must be made at the time of application. Accommodations cannot be added to an existing exam appointment.

Application Agreement

1. **Application.** I certify that all the information contained in my application is true and complete to the best of my knowledge. I hereby authorize ABRET and its officers, directors, employees, and agents (collectively, “ABRET”) to review my application and to determine my eligibility for certification.
2. **Compliance with ABRET Rules.**
 - A. I have read and agree to abide by ABRET’s policies and procedures, including but not limited to those listed below. I will read and keep up-to-date with these rules.
 - i. Handbook for Candidates (including the Code of Ethics and Disciplinary Policy);
 - ii. Use of Credential and Trademark Policy; and
 - iii. ABRET Examination Policies.
 - B. I agree that ABRET may take action regarding my application, examination, or certification in accordance with its Disciplinary Policy, and that the penalties for violation of a ABRET rule include (but are not limited to) denial, revocation, or limitation of my certification.
 - C. As specified within the Disciplinary Policy, I agree to notify ABRET of any change in name, address, telephone number, or email address, and of any development bearing on certification such as (but not limited to) suspension, revocation, or expiration of a state license to practice, being sued by a patient, or being investigated or reprimanded by a state regulatory board.
3. **Cooperation.** I agree to cooperate promptly and fully in any review of my application, examination(s), or certification, and I agree to submit any additional information requested.
4. **Examination Confidentiality.** I am seeking admission to take the examination(s) for the purpose of pursuing certification, and for no other purpose. Because of the confidential nature of the examination(s), I agree to not make or keep copies, excerpts, or notes of examination materials, and to not use or divulge information learned from the examination(s). The examination(s) is/are the exclusive property of ABRET and I will not use examination information in any way without the express prior written consent of ABRET.
5. **Examination Administration.**
 - A. I agree to abide by ABRET’s reasonable rules regarding examination administration. ABRET may refuse my admission to an examination if I do not have the proper identification (valid photo ID and eligibility notice), or if administration has begun. The proctors may take steps as they believe necessary to maintain a secure and proper examination administration, including (but not limited to) relocating me before or during the examination.
 - B. If I am refused admission or fail to appear at the examination site, or if my examination performance is voided based upon my behavior, I agree that I will not receive a refund of the application or examination fees and there will be no credit for any future examination.
 - C. I understand that review of the adequacy of examination materials will be limited to computing accurate scoring; I hereby waive all further claims of examination review.
 - D. I acknowledge that ABRET is concerned with reporting only valid scores. I agree that ABRET may cancel an examination score if there is adequate reason to question its validity because of misconduct or other circumstances.
 - E. A passing score is required for credentialing in all instances.
6. **Continuing Compliance.** I understand and agree that it is my responsibility to maintain and demonstrate continuous compliance with all ABRET policies and procedures.
7. **Certification Marks.**
 - A. The Neurophysiologic Intraoperative Monitoring credential and the stylized “CNIM” logo are the sole and exclusive property of ABRET and are subject to all applicable trademark and other rights of ABRET

Application Agreement Continued

as owner under United States intellectual property law and international conventions. I agree to abide by ABRET's instructions regarding use of its intellectual property, and to not use this intellectual property in any way without the express prior written consent of ABRET.

B. I agree to correct at my own expense any inaccurate or unauthorized use by me of ABRET's credential and logo. I agree that if I refuse to make corrections, then ABRET is entitled to obtain all relief permitted by law, including but not limited to injunctive relief to enforce its rights with respect to the protection of its name, credential, logo, and other intellectual property.

8. Information Release. I agree that ABRET may release information regarding my application and certification record to state and federal authorities, licensing boards, employers, and others. This information includes (but is not limited to) ABRET's findings regarding review of my application, fraudulent statements made by me, information indicating noncompliance with laws or regulations or with policies of other organizations, and the pendency or outcome of disciplinary proceedings.

9. Duration of Credential. This Application Agreement will become effective as of the date of acknowledgement upon submitting my application and will remain in effect for the duration of my application review. If I am granted certification, the terms of this Application Agreement will automatically continue in effect for the duration of my credential. I acknowledge and agree that initial credential is awarded only for a five (5) year period, and that completion of recertification requirements, recertification applications, and reviews will be required to maintain my credential.

10. Waiver of Claims & Indemnification.

A. I hereby waive all claims against ABRET arising out of my application and my participation in the certification program, including (but not limited to) claims arising out of (i) any release of information to state and federal authorities, licensing boards, employers, and others, and (ii) any investigation and review of my application and certification by ABRET. If ABRET is required by law to disclose confidential information, the individual(s) whose information is released will be notified to the extent permitted by law.

B. I agree to indemnify ABRET for any third-party claims arising out of any action taken pursuant to the policies and procedures of ABRET with regard to my application, the examination, or my certification. In addition, I agree to indemnify ABRET for any third-party claims arising out of my professional practice and related activities.

C. The provisions of this Waiver of Claims & Indemnification section do not extend to claims based on the gross negligence or willful misconduct of ABRET.

D. My obligations and rights and those of ABRET under this Waiver of Claims & Indemnification section will survive beyond the termination or expiration of my certification and remain in full force and effect.

11. Governing Law & Venue. This Agreement is governed exclusively by the laws of the State of Illinois, without reference to its choice of law doctrine. The parties agree that the sole jurisdiction and venue for any litigation arising from this Agreement is the appropriate federal court for the Central District of Illinois or state court located in Sangamon County, Illinois. If a dispute arises, the parties shall make a good faith attempt to resolve the dispute through dialogue and negotiation prior to pursuing court action.

Upon submitting the application for "CNIM" you will be asked to acknowledge that you have read and understand this Application Agreement and agree to its terms in consideration for the opportunity to seek certification from ABRET.

Information Release: If granted certification, you will be authorizing ABRET to release your name and the fact that you have been granted certification to newspapers and other publications, and to release your name, employment information, address, and e-mail address in ABRET's online directory and mailing list. You may opt out of this process by notifying the ABRET office in writing.

Examination Administration

The Registration Examination for Electroencephalographic Technologists is administered on a daily basis, Monday through Saturday, excluding holidays, at computer-based testing facilities managed by Prometric.

In the event of inclement weather, check the Prometric website for site closures: <https://www.prometric.com/en-us/pages/siteclosure.aspx>.

Prometric's website provides information on what you can expect on your test day, including a walkthrough of check in and security procedures: www.prometric.com.

Rules for Examination

Please read the information below carefully. You are responsible for adhering to the examination rules while at the testing center.

1. You must present your current driver's license, passport, or US Military ID at the testing center. Candidates without valid ID will NOT be permitted to test. Temporary or paper copies of your ID will not be accepted.
2. No Electronic devices that can be used to record, transmit, receive, or play back audio, photographic, text, or video content, including but not limited to, cell phones, laptop computers, tablets, Bluetooth devices; wearable technology (such as smart watches), MP3 players (such as iPods), pagers, cameras, and voice recorders are permitted to be used and cannot be taken in the examination room. Prometric provides lockers for your personal items.
3. No papers, books, or reference materials may be taken into or removed from the testing room.
4. No questions concerning content of the examination may be asked during the examination session. The candidate should read carefully the directions that are provided on screen at the beginning of the examination session.
5. Candidates are prohibited from leaving the testing room while their examination is in session, with the sole exception of going to the restroom.
6. Bulky clothing, such as sweatshirts (hoodies), jackets, coats, and hats (except hats worn for religious reasons), and most types of jewelry may not be worn while taking the examination. Proctors will ask you to remove such items and place them in your locker. Please see [Prometric's statement on Test Center Security](#) for more information.
7. All watches and "Fitbit" type devices cannot be worn during the examination.
8. No food/beverages are permitted inside the testing room. Leave these items in your assigned locker.

Contact PTC at (212) 356-0660 or www.ptcny.com/contact with any questions about the Examination Rules.

VIOLATION OF ANY OF THE RULES LISTED ABOVE MAY LEAD TO FORFEITURE OF FEES, DISMISSAL FROM THE TESTING ROOM, AND CANCELLATION OF YOUR TEST SCORES.

Quick Tips Before Examination Day

*Hours and days of availability vary at different centers. You will not be able to schedule your examination appointment until you have received a Scheduling Authorization from notices@ptcny.com.

*It is highly recommended the candidate becomes familiar with the testing site prior to appointment.

*This Handbook provides the Content Outline for the Examination. Use it to help guide your study in preparing for the examination.

Content of the Examination

1. The Certification Examination in Neurophysiologic Intraoperative Monitoring is a computer based examination composed of multiple-choice, objective questions with a total testing time of four (4) hours.
2. The content for the examination is described in the Content Outline.
3. The questions for the examination are obtained from individuals with expertise in neurophysiologic intraoperative monitoring and are reviewed for construction, accuracy, and appropriateness by a separate group of subject matter experts.
4. ABRET, with the advice and assistance of the Professional Testing Corporation, prepares and reviews the examination.
5. The Certification Examination in Neurophysiologic Intraoperative Monitoring will be weighted in approximately the following manner:
 - I. Preparation and Application of Fundamental Concepts.....25%
 - II. Intraoperative Phase.....65%
 - III. Post-Operative Phase.....10%

Content Outline

- I. Preparation and Application of Fundamental Concepts
 - A. Neuroanatomy (e.g., central and peripheral, etc)
 - B. Neurological Disorders & Neuro examination
 - C. Elements of a History Related to IOM
 - D. Documentation and Communication with Patient/Family
 - E. Medical/EP/EEG/EMG Terminology
 - F. Special Considerations/Contraindications (e.g., pre-existing conditions, allergies, sensitivities, etc.)
 - G. Pre-operative Risk Assessment/Modality Selection/Muscle & Nerve Selection
 - H. Diagnostic Procedures (e.g., MRI, CT, Angiogram, PET, WADA, etc.)
 - I. Invasive and Non-invasive Electrode Application /connection Techniques (e.g., paste, collodion, subdermal needle, grids and strips, etc.)
 - J. Digital Instrumentation, Effects of Settings, Basic Electronics (sampling, A/D conversion, averaging, filters, display, impedance, etc.)
 - K. Electrical/Patient Safety; National Patient Safety Goals
 - H. Surgical Procedures & Spinal Instrumentation
 - I. SSEPs (e.g., recording and stimulating techniques; sensory-motor mapping)
 - J. BAEPs/ECochG (e.g., recording and stimulating techniques)
 - K. EMG (e.g., recording and stimulating techniques)
 - L. TES-MEPs (e.g., recording and stimulating techniques)
 - M. EEG (e.g., recording techniques)
 - N. ECoG (e.g., recording and stimulating techniques; language mapping)
 - O. Train of Four (e.g., recording and stimulating techniques)
 - P. Obligate Waveform Analysis Localization and Identification (EPs, TES-MEPs, EMG, TOF, etc.)
 - Q. Generator Sites, Polarity; Near and Far-field recordings
 - R. Troubleshooting, Artifact Identification/Elimination
 - S. Non-standard Montages and Electrodes
 - T. Alarm Criteria and Reporting Changes
 - U. ACNS Guidelines
 - V. Surgical Environment (sterile field, staff roles, procedures/standards)
- II. Intraoperative Phase
 - A. Communication Techniques for Establishing Rapport in the OR
 - B. Significant Patient Factors (e.g., scalp/limb edema, missing limbs, trauma, etc.)
 - C. Pre-incision Baseline Recordings
 - D. Anesthetic Effects
 - E. Physiological Effects (blood pressure, MAP, temperature, limb length, etc.)
 - F. Documentation and Communication
 - G. IOM Correlates of Clinical/Surgical Entities; Surgical Events and Risks (clamping, rotation, distraction, etc.)
 - III. Post-Operative Phase
 - A. Infection Control Patients, Equipment, Electrodes (disinfection, sterilization, safe removal and disposal, etc.)
 - B. Technical Report
 - C. Data Management and Storage
 - D. IOM Post-operative Outcomes (e.g., False-positive, False-negative, etc.)
 - E. Safety Data Sheets (SDS)/OSHA Standards
 - F. HIPAA Standards
 - G. Ethics

Sample Questions

1. Cortical potentials will be most affected by which of the following agents?
 - A. Narcotics
 - B. Barbiturates
 - C. Inhalational anesthetics
 - D. Neuromuscular blockers

2. Which of the following is a far-field potential?
 - A. N20
 - B. P14
 - C. Wave I
 - D. Erb's point

3. Which of the following is an effect of using alternating click polarity?
 - A. Reduces stimulus intensity
 - B. Minimizes stimulus artifact
 - C. Increases amplitude of wave I
 - D. Improves signal to noise ratio

4. ANKYLOSIS
 - A. Foot drop
 - B. Wrist drop
 - C. Fused joint
 - D. Arterial occlusion

5. Grounding the stimulated limb during a SSEP procedure decreases
 - A. stimulus artifact
 - B. stimulus intensity
 - C. stimulating electrode impedances
 - D. spread of stimulating current.

Answers to sample questions: 1. C, 2. B, 3. B, 4. C, 5. A

References

The following references, or most recent editions of the following, may be of useful in preparing for the examination. The list does not attempt to include all acceptable materials, nor is it suggested that the Certification Examination in Neurophysiologic Intraoperative Monitoring questions are necessarily based on these references.

American Academy of Neurology, American Clinical Neurophysiology Society (joint guidelines). Evidence-Based Guideline Update: Intraoperative Spinal Monitoring with Somatosensory and Transcranial Motor Evoked Potentials (2012). (www.acns.org)

American Clinical Neurophysiology Society Consensus Statement on Transcranial Electrical Stimulation Motor Evoked Potential (2016). (www.acns.org)

American Clinical Neurophysiology Society Guidelines in Evoked Potentials (2006), and in Intraoperative Monitoring (2009). (www.acns.org)

ASNM Position Statement on “Business Practices in Neuromonitoring” (Published 15 March 2018): Focuses on kickbacks and self referrals. <https://cdn.ymaws.com/www.asnm.org/resource/resmgr/docs/businesspractices2018.pdf>

AORN. “Perioperative Standards and Recommended Practices” (updated annually). (www.aornbookstore.org) (ISBN #MAN014F)

ASET – The Neurodiagnostic Society Position Statements and National Competency Skill Standards (updated annually). (www.aset.org)

ASET Intraoperative Monitoring: Basics and Performance Issues; Intraoperative Monitoring: Sensory, Nerve and Muscle; Intraoperative Monitoring: EEG (www.aset.org). Barrow DL. Surgery of the Cranial Nerves of the Posterior Fossa. Thieme, 1993. (ISBN 1588901343)

Chiappa K. Evoked Potentials in Clinical Medicine. 3rd edition. Raven Press, New York, 1997. (ISBN 0397516592)

Ebersole JS, Husain AM, Nordli DR Jr. (eds.). Current Practice of Clinical Electroencephalography, 4th Edition. Lippincott Williams & Wilkins: Philadelphia, 2014. (ISBN 145113195X)

Erwin CW, Erwin AC. “Up and Down the Spinal Cord: Intraoperative Monitoring of Sensory and Motor Spinal Cord Pathways.” J. Clin Neurophysiol, 10(4), 425-436, 1993.

Galloway CM, Nuwer MR, Lopez JR, Zanel KM. Intraoperative Neurophysiologic Monitoring. Cambridge University Press, 2010. (ISBN 0521518032)

Husain AM (ed). A Practical Approach to Neurophysiologic Intraoperative Monitoring. 2nd Edition. Demos: New York, 2015. (ISBN 1620700158)

Isley MR, Balzer JR, et al. “Intraoperative Motor Evoked Potentials.” American Journal of Electroneurodiagnostic Technology, 41:4, 2001.

Jahangiri FR. Surgical Neurophysiology: A Reference Guide to Intraoperative Neurophysiological Monitoring. 2nd Edition, CreateSpace, North Carolina, 2012. (ISBN 147516498X).

Joint Commission on Accreditation for Healthcare Organizations. “National Patient Safety Goals”(updated annually) www.jointcommission.org

Jones SJ. Handbook of Spinal Cord Monitoring: Proceedings of the Fifth International Symposium on Spinal Cord Monitoring, London, June 2-5, 1992. Springer, 1994. (ISBN 079238833X)

Kartush, JM, Bouchard KR. Neuromonitoring in Otolaryngology and Head and Neck Surgery. Raven Press: New York, 1992. (ISBN 0881678465)

Leis, AA. Atlas of NCS Electromyography. Oxford University Press, 2013. (ISBN 0199754632)

Misulis, KE. Spehlmann’s Evoked Potential Primer. 3rd Edition. Butterworth-Heinemann: Boston, 2001. (ISBN #075067338)

Moller, AR. Intraoperative Neurophysiologic Monitoring. 3rd Edition. Humana Press., 2011. (ISBN 1441974350)

References Continued

- Nuwer, MR (ed), Intraoperative Monitoring of Neural Function: Handbook of Clinical Neurophysiology. Elsevier, 2008. (ISBN 044451824X)
- Phillips N. Berry & Kohn's Operating Room Technique. 13th Edition. Mosby, 2017. (ISBN #0323394266)
- Rothrock, JC, McEwen, D. Alexander's Care of the Patient in Surgery. 16th Edition. March 9, 2018.
- Rodichok LD, Russell GB (eds). Primer of Intraoperative Neurophysiologic Monitoring. Butterworth-Heinemann, 1995. (ISBN 0750695536)
- Simon MV. Intraoperative Neurophysiologic: A Comprehensive Guide to Monitoring and Mapping. 2nd Edition. September 28, 2018.
- Scott NK. "Infection prevention: 2013 Review and update for Neurodiagnostic technologists." American Journal Neurodiagnostic of Technology. 53(4): 271-288, 2013.
- Tatum WO. Handbook of EEG Interpretation. 2nd Edition. Demos: New York, 2014. (ISBN 1620700166)
- Wilson-Pauwels L. Cranial Nerves in Health & Disease. 2nd Edition. BC Decker, 2002. (ISBN 1550091646)
- Yamada T, Meng E. Practical Guide for Clinical Neurophysiologic Testing: EP, LTM, IOM, PSG and NCS. Lippincott Williams & Wilkins: Philadelphia, 2011. (ISBN 1609137140)
- Zouridakis G, Papanicolaou, A. A Concise Guide to Intraoperative Monitoring. Lewis Publisher, 2000. (ISBN 0849308860)

Scoring

The Board set the passing standard as the number of test questions it determines to be necessary for candidates to answer correctly in order to be considered at least minimally competent. This method focuses on the particular test that is being administered. Different forms of an examination are matched for difficulty and content coverage. This comprehensive approach makes use of information about the performance of similar groups in the past.

ABRET is concerned with reporting only valid scores. On rare occasions, misconduct or circumstances beyond the individual's control may render a score invalid. If doubts are raised about a score because of these or other circumstances, ABRET reserves the right to cancel any examination score if, in the sole opinion of ABRET, there is adequate reason to question its validity.

Report of Results

At the end of the examination, candidates will receive an email with a link to retrieve an **UNOFFICIAL** test result prior to leaving the testing center. If you do not receive an email with the link please check your spam and then call 800-741-0934.

Approximately 4 - 6 weeks following examination date, candidates will receive an email when the **OFFICIAL** test result has been uploaded into their ABRET Credential Management account. Candidates will be notified by PTC via email on when score reports are available online. Scores on the major areas of the examination and on the total examination will be reported and available online for only 30 days. Save a copy of your score report.

Candidates may request a Handscore Report of their exam by completing a form directly to PTC with a \$25 fee. Here is the link: http://ptcny.com/PDF/PTC_Handscore_Request_Form.pdf

* Please do not contact the ABRET office about your results until you receive your **OFFICIAL** test results. You will not be able to reapply until the OFFICIAL test results are in.

Examination Challenges

Candidates may comment in the appropriate section at the end of the examination about any test question or questions, test procedure, and/or the test itself. Alternatively, a candidate may submit a complaint in writing to the ABRET Executive Director no later than fourteen (14) calendar days after taking the examination. All challenges and complaints will receive ABRET's full attention. Comments regarding examination validity will be review by the ABRET examination committee. Examination materials shall not be available for review by candidates.

Confidentiality

1. ABRET will release the individual test scores ONLY to the individual candidate. CAAHEP Program Directors will receive the results of their graduates included on the individual CAAHEP Program School Report.
2. From time to time it may be necessary for the ABRET Executive Office and BOD to disclose candidate information and/or scores. No material or information disclosed will be released to any unauthorized person.
3. Any questions concerning test results should be referred to ABRET or the Professional Testing Corporation.
4. ABRET provides the national NDT society with the names, addresses, and emails of passing candidates. Candidates may opt-out by contacting ABRET.

Attainment of Credential

Eligible candidates who pass the Certification Examination in Neurophysiologic Intraoperative Monitoring will be certified in neurophysiologic intraoperative monitoring for a period of five years, will be permitted to use the CNIM designation after their names, and will receive a time-limited Certificate from ABRET. They will be eligible for recertification after 5 years. If not recertified, they will no longer be permitted to use the CNIM designation.

Name/Address Changes

The candidate is responsible for promptly notifying the ABRET Executive Office of address or name changes to be made.

Code of Ethics and Standards of Practice

ABRET is a nonprofit credentialing board for Electroencephalographic (“EEG”) Technologists, Evoked Potential (“EP”) Technologists, Neurophysiologic Intraoperative Monitoring (“CNIM”) Technologists, Long Term Monitoring (“CLTM”) Technologists, Autonomic Professionals (“CAP”) and Magnetoencephalography (“CMEG”), and seeks to encourage, establish, and maintain the highest standards, traditions and principles of these technologies. ABRET Registered and Certified Technologists should recognize their responsibilities, not only to their patients, but also to society, to other healthcare professionals, and to themselves.

The following principles have been adopted by the Board of Directors in order to encourage personnel to aspire to the highest possible professional practice. An ABRET Registered technologist or Certified individual shall:

1. Do everything in his or her power to insure that the current Guidelines of the American Clinical Neurophysiology Society are complied with in the department in which he or she works.
2. Preserve human dignity, respect patient's rights, and support the well being of the patient under his or her care. The Registered or Certified technologist shall avoid discrimination against individuals on the basis of race, creed, religion, sex, age, and national origin.
3. Appreciate the importance of thoroughness in the performance of duty, compassion with patients, and the significance of the task she or she performs.
4. Preserve the confidentiality of medical and personal information of a patient.
5. Strive to remain abreast of current technology and to study and apply scientific advances in his or her specialty. Carry out his or her professional work in a competent and objective manner.
6. Abide by laws related to the profession and to general public health and safety and avoid dishonest, unethical, or illegal practices.
7. Refuse primary responsibility for interpretation of testing or monitoring of Electroencephalograms, Evoked Potentials, or Neurophysiologic Intraoperative Monitoring for purposes of clinical diagnosis and treatment. Individuals who are licensed or otherwise authorized by practice standards to provide interpretation are excluded.
8. Be truthful, forthcoming, and cooperative in his or her dealings with ABRET.
9. Be in continuous compliance with ABRET’s rules (as amended from time to time by ABRET).
10. Respect ABRET’s intellectual property rights.
11. Upon suspension or withdrawal of certification, the certificant shall discontinue the use of all claims to certification that contain any reference to ABRET, and to return any certificates issued by ABRET.

Purpose of Standards

ABRET has developed the *Code of Ethics* and the Grounds for Disciplinary Action to articulate standards of conduct required for eligibility for certification and continued certification of EEG, EP, CNIM, CLTM, CAP, and CMEG technologists. Maintenance of board certification will require adherence to these and other ABRET rules. Individuals who fail to meet these requirements may have their certification suspended or revoked. ABRET does not guarantee the job performance of any individual.

Violations Reporting Requirements

An individual convicted of a felony related to electroencephalographic, evoked potential, long term monitoring or neurophysiologic intraoperative monitoring, autonomic testing, or magnetoencephalographic monitoring practice and/or public health and safety (including but not limited to felonies involving rape, sexual abuse of a patient or child, actual or threatened use of a weapon, violence, and the prohibited sale, distribution or possession of a controlled substance) must notify ABRET of such conviction. Each situation will be reviewed on a case-by-case basis following submission of application.

1. Grounds for Disciplinary Action. ABRET may deny, suspend, revoke, or take other action regarding an application or certification if an individual is not in compliance with this Disciplinary Policy. Grounds for disciplinary action include (but are not limited to):

- A. Ineligibility for certification, regardless of when the ineligibility is discovered;
- B. An irregular event in connection with an ABRET examination including (but not limited to) copying answers, copying examination materials, and causing a disruption in the testing area;
- C. Providing fraudulent or misleading information;
- D. Failure to pay fees when due;
- E. Unauthorized possession or misuse of ABRET credentials, examinations, and other intellectual property;
- F. Misrepresentation of certification status;
- G. Failure to provide requested information in a timely manner;
- H. Failure to inform ABRET of changes or adverse actions;
- I. Impairment of professional performance because of habitual use of alcohol, drugs, or other substances, or any physical or mental condition;
- J. Gross or repeated negligence or malpractice in professional work;
- K. Noncompliance with laws related to the profession and to general public health and safety;
- L. Accepting primary responsibility for interpretation of testing or monitoring for purposes of clinical diagnosis and treatment (individuals who are licensed or otherwise authorized by practice standards to provide interpretation are excluded);
- M. Failure to maintain a current professional credential as required by the jurisdiction in which the individual practices (this may include a license, certificate, or registration);
- N. The conviction of, plea of guilty to, or plea of nolo contendere to a felony or misdemeanor related to public health and safety or the profession;
- O. Disciplinary action by a licensing board or professional organization other than ABRET; and
- P. Other failure to maintain continuous compliance with ABRET standards, policies, and procedures.

2. Sanctions. If an individual is not exonerated or acquitted of all allegations, ABRET may impose one or more of the following sanctions for a violation of this Disciplinary Policy:

- A. Denial or suspension of eligibility;
- B. Denial of certification;
- C. Revocation of certification;
- D. Non-renewal of certification;
- E. Suspension of certification for a specific period of time;
- F. Reprimand;
- G. Probation; or
- H. Other corrective action.

Candidates or certificants may appeal the decision of the Discipline Committee to the ABRET Board of Directors by submitting a written appeals statement within 30 days. It is the candidate's responsibility to initiate this appeal in accordance with ABRET's policies.

Each candidate must affirm that the information provided in the Application is true and correct to the best of his or her knowledge. Each candidate further agrees to hold ABRET and its sponsoring organizations blameless from any claim for damages as a result of any action it may take in connection with this Application, the registration examination, or the results thereof.