



Certification Examination

Information
For
Candidates

2012

Key Dates and Fees

2012 ABEM CERTIFICATION EXAMINATION Hyatt Regency O'Hare Chicago, Illinois

KEY DATES FOR 2011 - 2012

Early Application Deadline	November 30, 2011
Application Deadline	December 31, 2011
Examination Fee Refund Request Deadline	December 31, 2011
Completion of Independent Experience Deadline	February 1, 2012
Supporting Documentation Deadline	February 15, 2012
Eligibility Notification	February 28, 2012
ABEM Certification Examination (Chicago, IL)	May 4 - 5, 2012
Notification of Examination Results	June 9, 2012

ABEM CERTIFICATION APPLICATION, EXAMINATION, AND FEES

Early Application Fee (nonrefundable)	\$100
Application Fee After November 30, 2011 (nonrefundable)	\$200
Examination Fee (refundable until December 31 with written refund request)	\$850

No applications will be processed without receipt of the application fee, examination fee, and all required supporting documents.

Notice: Deadlines are firm and not subject to exception. The content of this publication is subject to change from year to year. It is the applicant's responsibility to seek information concerning the current requirements for certification. The most current information found on the ABEM website (www.abemexam.org) supersedes the information in all published booklets concerning Board requirements, policies, and procedures.

The ABEM does not discriminate among applicants on the basis of age, gender, race, religion, national origin, disability, sexual orientation, or marital status.

Americans With Disabilities Act

The ABEM supports the intent of the Americans With Disabilities Act (ADA). Candidates desiring accommodations for documented disabilities must complete a Disability Accommodation Request Form, which is available from the ABEM Executive Office or online at www.abemexam.org.

Eligibility Requirements

Candidates must meet eligibility requirements for the year in which the examination is taken, regardless of prior approval. Eligibility does not carry over automatically from year to year.

Specialty Certification

A candidate must be a Diplomate of the American Board of Psychiatry and Neurology in neurology, American Board of Physical Medicine and Rehabilitation, American Osteopathic Board of Neurology and Psychiatry in neurology, American Osteopathic Board of Physical Medicine and Rehabilitation, or Canadian equivalent.

Training in Electrodiagnostic Medicine

A period of preceptorship in electrodiagnostic medicine that is coordinated with presentation of didactic material must be satisfactorily completed under direct supervision of an experienced electrodiagnostic medicine consultant, preferably an ABEM Board Diplomate. This preceptorship may be taken during and/or after an approved residency training program. The period of preceptorship must be at least 6 months full time, or equivalent thereto, with the first 3 months rigidly structured with regard to supervision. Any postresidency course of study in electrodiagnostic medicine must be conducted where there is an ACGME, AOA, or RCPSC recognized neurology or psychiatry residency training program, or at a participating institution to a sponsoring institution that has been approved by the ACGME in order to qualify as a portion of the 6 month preceptorship. During these 6 months, at least 200 complete electrodiagnostic evaluations must be performed on separate occasions; these studies must be documented and interpreted.

Full-time equivalent: One month of full-time equivalent is defined as 160 hours divided among:

- Performing or observing clinical neuromuscular evaluations/assessments or electrodiagnostic studies
- Reading articles and books pertaining to the basic and clinical sciences of electrodiagnostic medicine.
- Participating in classes, research seminars, case conferences and journal clubs associated with the basic and clinical sciences of electrodiagnostic medicine.

Training must have included adequate educational experience in:

- Anatomy
- Pathology of muscle and nerve
- Neuromuscular physiology
- Electrodiagnostic medicine, including instrumentation, quantification, and statistical analysis
- Clinical aspects of neuromuscular diseases as they pertain to clinical electrodiagnosis

The candidates must have been exposed to electrodiagnostic studies, diagnosis, evaluation, and treatment of neuromuscular disorders in adults and children.

Independent Experience

Competency in electrodiagnostic medicine can only be achieved by performing and interpreting additional electrodiagnostic examinations. Candidates, therefore, must also document at least 1 year of experience following training during which they must perform 200 additional complete electrodiagnostic evaluations on separate occasions. This period of independent experience can only begin after satisfactory completion of the approved residency training program and the 6 month preceptorship. The year of independent experience may be part of a postresidency program (e.g., fellowship) which includes the practice of electrodiagnostic medicine. The time spent in such a postresidency program beyond the minimum 6 months preceptorship shall be counted toward the 1 year of independent experience. Applications may be submitted prior to the final projected completion date of the independent experience period. However, all training and experience requirements must be satisfactorily completed on or before February 1 of the examination year.

Certificate of Recognition Candidates

Individuals who have completed a medical specialty graduate training program that has not been approved by the ACGME, AOA, or RCPSC are not eligible for certification as an ABEM Diplomate. However, candidates who meet the following criteria, and who successfully complete the examination will receive the ABEM Certificate of Recognition. A candidate for the Certificate of Recognition must be a Diplomate or equivalent of a Board of Neurology or Physical Medicine and Rehabilitation outside of the United States or Canada; must have received training equivalent in scope, duration, and extent of supervision to that specified under the heading "Training in Electrodiagnostic Medicine" at an institution with an approved neurology or physiatry training program; and must have experience as specified under the heading "Independent Experience".

Application Requirements

To be accepted, the application form, application fee, and examination fee must be received by the application deadline date (November 30, early application deadline, or December 31, application deadline). No applications will be accepted after December 31.

In addition to the completed application, include:

- A copy of the applicant's unexpired state medical license.
- A current curriculum vitae.
- Documentation of primary board certification.¹

Following receipt of the application, reference forms are sent to the candidate's supervising training director(s).

It will be at least 10 weeks before a candidate receives information regarding his or her application. Applications received near the deadline may take longer because of the volume received at that time.

Board Eligibility

The ABEM, in accord with the policy of the ABMS, does not recognize or use the term "board eligible" and does not issue statements concerning "board eligibility." The Board informs an applicant of admissibility to examination only when the applicant has an active, approved application on file in the ABEM Executive Office.

¹Copy of American Board of Medical Specialties [ABMS] board certificate, American Osteopathic Association board certificate, or Canadian equivalent.

Examination Overview

Examination Format

The examination is presently given annually in Chicago in the spring. The examination is given over a 2-day period. The first day consists of the written examination (Part I). The second day is the oral examination (Part II). Prior to the written examination a detailed analysis of individual questions has been performed and a minimum passing score established. After completion of Part I and Part II of the examination, the ABEM Executive Office will notify candidates whether they passed or failed Parts I and II.

No other information about the examination, examination results, or performance on subsections of the examination will be made available to the candidates.

Examination Content

Part I – Written Examination. Both portions of the written examination are multiple choice. The first portion of the written examination tests knowledge in the areas of:

- Anatomy
- Physiology and pathophysiology
- Instrumentation and technical considerations
- Nerve conduction techniques including blink reflex, late responses and repetitive stimulation
- Needle Electromyography (EMG)
- Clinical disorders and electrodiagnostic problem solving
- SFEMG
- Autonomic testing
- Ethics

Currently, the technique or interpretation of auditory, visual, and somatosensory evoked potentials is not tested on the examination.

The second component of Part I tests the candidates' ability to identify electrical potentials recorded with standard needle electrodes as displayed on lecture hall sized video screens. It may also contain video segments which test the candidate's ability to identify nerves, major muscles, kinesiological relationships, and physical examination findings potentially encountered during an electrodiagnostic medicine evaluation. Information regarding gain, amplitude, and filter settings will be provided. There may be more than one question for a video waveform segment.

Candidates are asked to identify and describe the characteristics of:

- Motor unit action potentials: amplitude, duration, number of phases, stability, recruitment, and firing patterns.
- Spontaneous activity: fibrillation potentials, positive sharp waves, fasciculation potentials, myotonic discharges, biphasic endplate activity, monophasic endplate activity, myokymic discharges, complex repetitive discharges, cramp discharges, and neuromyotonic discharges.

The results of both components of Part I are combined to produce a single score for the written examination. The scores on individual subsections of the written examination will not be separately considered in determining the pass/fail status of the candidate. The candidate must also pass the Part II (oral examination) to pass the overall examination.

Examples of the types of questions that appear on the examination and potential study resources are located in the Appendix of this booklet.

Part II - Oral. Part II is an oral examination testing practical and technical skills in performing an electrodiagnostic medicine consultation. Two examiners, a neurologist and a psychiatrist, will conduct the examination; a supervisor may also be intermittently present. The examiners or supervisors, who are not personally acquainted with the applicant, will test the candidate's ability to approach and logically address clinical vignettes.

Following each brief vignette, the candidate will be given an opportunity to provide a differential diagnosis and discuss what tests they would perform. The results of the requested nerve conduction and EMG studies will be provided one at a time. Because there are acceptable variations in electrodiagnostic techniques (e.g., orthodromic versus antidromic sensory studies), data is available for studies conducted with a variety of different recording and stimulating techniques. Candidates are expected to be able to discuss normal values of techniques that they use in their own laboratories. Candidates are also likely to be asked, in detail, how they would perform and interpret studies of repetitive stimulation. It is highly recommended that candidates obtain firsthand experience with this technique.

Although success on the oral examination will depend on skills that go beyond knowledge of normal values and technique, lack of such knowledge may preclude a successful performance on this portion of the examination.

For each clinical vignette the candidate should be able to:

- Develop a reasonable differential diagnosis.
- Design an appropriate electrodiagnostic evaluation for the particular clinical problems presented which includes performing appropriate tests and avoiding excessive tests.
- Interpret individual test results, including blink reflex, late responses and repetitive stimulation, and modify subsequent testing appropriately.
- Synthesize test results with an accurate and clinically useful conclusion in a precise, succinct, and meaningful final diagnosis for a referring physician. It should be noted that making a correct diagnosis for a particular clinical problem is, by itself, not sufficient for a passing grade for that component of the oral examination.

Examination Scoring and Results

Diplomate Certificate

Upon approval of the candidate's application for examination and a passing score on the examination, the Board will grant a certificate stating the candidate has satisfied the requirements of the Board and is recognized as a Diplomate in the subspecialty of electrodiagnostic medicine. The recipient of a certificate will be known as a Diplomate of the ABEM and, unless requested otherwise, will be listed in an online directory of ABEM Diplomates.

Note: A certificate granted by this Board does not confer any right, privilege, or license to practice electrodiagnostic medicine. Specialty certification in a subspecialty field is primarily of significance for physicians preparing for careers in teaching, research, or a practice emphasizing that field. The Board does not limit or interfere with the professional activity of any duly licensed physician not certified by this Board and emphasizes that there is no necessity for a Diplomate in a recognized specialty to hold certification in a subspecialty of that field in order to include subspecialty aspects within the range of privileges. Privileges granted physicians in the practice of electrodiagnostic medicine in any hospital or clinic are the prerogative of that hospital or clinic, not of the ABEM.

Maintenance of Certification

In October 1988, the ABEM initiated a policy of time-limited certification. A program of maintaining certification was established to provide a mechanism for ABEM Diplomates to demonstrate their continuing education in electrodiagnostic medicine, as they keep up-to-date with changes in this medical specialty. Diplomates will be expected to demonstrate current medical knowledge and clinical problem-solving skills in periodic maintenance examinations.

The ultimate purpose of maintaining certification is to reassure the public and the medical profession that after initial certification, ABEM Diplomates continue to assimilate new knowledge and techniques and continue to develop their clinical skills. The Maintenance of Certification Program sets high standards for quality medical care and demonstrates professional accountability to the public by the ABEM and its Diplomates.

To extend their certified status beyond the 10-year certified period, all successful certification examination candidates will need to enroll in the Maintenance of Certification Program. The program is designed as a 10-year period of documenting continuing education in electrodiagnostic medicine, culminating in a half-day, proctored maintenance examination.

Failing the Examination

Candidates must pass both Parts I and II of the examination; candidates will be notified whether they passed or failed the examination in a timely fashion. If a candidate fails the examination and wishes to retake it, all parts of the examination must be taken again. The ABEM encourages all candidates who are unsuccessful on the examination to take the examination in the following year (refer to the *Key Dates and Fees* section of this booklet for examination and application fee information).

Establishing Eligibility Criteria after Failing the Examination

In accordance with the ABEM policy, candidates who fail the certification examination three times are ineligible to apply for the examination. To reestablish eligibility such candidates must obtain and document 3 months full-time equivalent of further electrodiagnostic training, approved in advance by the Board.

To assist the candidate in establishing such a training program, the ABEM has determined that the following criteria govern the 3-month electrodiagnostic training program:

1. The electrodiagnostic training must take place in a center where there is an ACGME or RCPSC recognized residency training program or under the tutelage of an ABEM Diplomate.
2. The electrodiagnostic training must include a minimum of 100 electrodiagnostic evaluations. These evaluations must be performed, documented, and interpreted by the candidate and include neuromuscular disorders in adults and children.
3. The electrodiagnostic training must include adequate educational experience in the following:
 - Anatomy
 - Pathology of muscle and nerve
 - Neuromuscular physiology
 - Electrodiagnostic medicine, including instrumentation, quantification, and statistical analysis
 - Clinical aspects of neuromuscular diseases as they pertain to clinical electrodiagnosis
4. The electrodiagnostic training must be completed prior to submitting an application for the examination.

To ensure that the proposed program will follow ABEM guidelines, candidates must submit an outline of the planned training program to the ABEM Executive Office at least 90 days prior to beginning the program for approval.

The above guidelines will be incorporated into a training verification letter sent to the physician who directly supervised the electrodiagnostic training of the candidate. The immediate supervising physician must sign this reference. Based on the completed verification and other required materials submitted with the application, the ABEM Credentials Committee will determine the candidate's eligibility.

Release of Examination Results

By applying for the examination, candidates agree that the Board may, at its discretion, release examination results and scores to researchers selected by the Board to study the testing and evaluation programs under appropriate conditions of confidentiality. Any such studies will only contain information about candidates and Diplomates in the aggregate and the names of individuals will not be revealed in any publications. The Board may release the results of candidate performance on any or all of the Board's examinations to the Director(s) of the Program(s) where a candidate acquired training. Aside from the above reasons, individual examination scores will be considered to be confidential and will not be released to others except pursuant to legal process.

Revocation of Certificates

The Board shall have authority to revoke any certificate issued by it or to place a certificate holder on probation for a fixed or indefinite time if:

- The certificate was issued contrary to or in violation of the Bylaws or any rule or regulation of the Board.
- The person to whom the certificate was issued made any material misstatement or omission of fact to the Board in his or her application or otherwise.
- A license to practice medicine of the person to whom the certificate was issued is forfeited, revoked, or suspended.
- The person to whom the certificate was issued is convicted of a felony or an offense involving moral turpitude.

The Board may also revoke any certificate if the Diplomate's primary board certificate has lapsed, been suspended, or revoked. Any complaint in relation to such circumstances shall be reviewed according to procedures established by the Board.

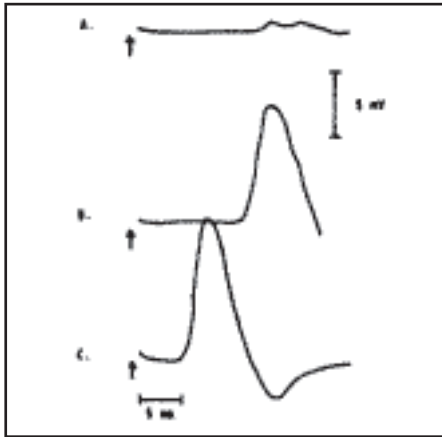
Appendix

Examples of Knowledge Based Questions:

1. When stimulating a peripheral nerve increasing the stimulus intensity from maximal to twice the maximal level will:
 - A. Decrease the latency due to cathodal migration.
 - B. Increase the response amplitude due to cathodal potentiation.
 - C. Have no effect on the latency or amplitude.
 - D. Decrease the response amplitude due to anodal blocking.
 - E. Increase the speed of volume conduction.
2. In a depolarized segment of axon during the passage of an action potential:
 - A. The sodium conductance is increased.
 - B. The potassium conductance is decreased.
 - C. The membrane potential is -50 mV.
 - D. Sodium ions are flowing out.
 - E. The calcium conductance is decreased.
3. A newborn baby (3 kg in weight) being studied for hypotonia had the following conduction study results : peroneal, 30 m/s; median, 28 m/s. Which of the following is the most correct interpretation?
 - A. These results are normal for a newborn.
 - B. The velocities suggest prematurity.
 - C. The baby has a demyelinating neuropathy.
 - D. Measurement errors make studies in infants useless.
 - E. A neurogenic lesion is present in the arm.

Examples of Questions Involving Pictorial Interpretation:

The recording electrodes are placed over the extensor digitorum brevis and the 5th metatarsal head and the peroneal nerve stimulated: (a) above the knee, (b) below the fibular head, and (c) at the ankle. Stimulation is at the time of the arrow shown on the photograph below:



4. The diagnosis is:
- A. Peripheral polyneuropathy.
 - B. Accessory peroneal nerve.
 - C. Crossed leg palsy.
 - D. Artifact.
 - E. Normal.
5. Which best describes the condition of the nerve?
- A. Neurapraxia.
 - B. Axonal neuropathy.
 - C. Neurotmesis.
 - D. Generalized demyelination.
 - E. Normal.

Examples of Questions Involving Video Waveform Recognition or Surface Anatomy:

The following questions cannot be answered without viewing the clips displayed during the waveform portion of the examination, but are included as representative examples.

Waveform One (vasutus lateralis muscle, 30-year-old man, 50 μ V/division sensitivity, 10 ms/div sweep speed).

1. The firing pattern of these potentials is:
 - A. Regular and less than 20 per second.
 - B. Irregular and less than 20 per second.
 - C. Regular and more than 20 per second.
 - D. Irregular and more than 20 per second.
 - E. Too variable to determine.

2. These waveforms are:
 - A. Fasciculation potentials.
 - B. Myotonic discharges.
 - C. Positive sharp waves.
 - D. Motor unit action potentials.
 - E. Normal insertional activity.

The following question is accompanied by a video segment in which the patient is asked to change the angle of his elbow.

1. The primary muscle responsible for producing this movement is the:
 - A. Biceps brachii.
 - B. Triceps brachii.
 - C. Anconeus.
 - D. Pronator teres.
 - E. Latissimus dorsi.

Study Resources

Information needed for the examination is available in standard texts and journals dealing with clinical neurophysiology. It may be helpful in locating study materials to review the Suggested Reference List assembled by the Journal CME Committee of the AANEM. Please note, however, that the ABEM does not necessarily consult the material on this list in the development of examination questions.

AANEM publications are also an excellent study resource. AANEM members have prepared numerous monographs, case reports, and handouts for courses, annual meeting didactic/plenary sessions, and workshops. In addition, candidates may find the AANEM's Guidelines for Ethical Behavior Relating to Clinical Practice helpful. The AANEM has a library of educational videotapes that may be purchased. All AANEM publications, videotapes, and CD-ROMs may be ordered through the AANEM Executive Office, 2621 Superior Drive NW, Rochester, MN, 55901. Please note, however, that the ABEM does not necessarily consult the material on this list in the development of examination questions.



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