## Subspecialty Certification Examination in Epilepsy Medicine

### 2014 Content Blueprint

(November 26, 2012)

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**Note:** A more detailed content outline is shown below.
I. Classification

A. Classification of the seizures

1. Generalized
   a. Tonic clonic (in any combination)
   b. Absence
      i. Typical
      ii. Atypical
      iii. Absence with special features
         a) Myoclonic absence
         b) Eyelid myoclonia
   c. Myoclonic
      i. Myloclonic
      ii. Myoclonic atonic
      iii. Myoclonic tonic
   d. Clonic
   e. Tonic
   f. Atonic

2. Focal
   a. Without impairment of consciousness/ responsiveness
      i. With observable motor or autonomic components
         (roughly corresponds to the concept of “simple partial seizure”)
      ii. Involving subjective sensory or psychic phenomena only (corresponds to the concept of “complex partial seizure”)
   b. With impairment of consciousness/ responsiveness (roughly corresponds to the concept of “complex partial seizure”)
   c. Evolving to a bilateral, convulsive seizure (involving tonic, clonic or tonic and clonic components: replace the term “secondarily generalized seizure”)


3. May be focal, generalized, or unclear
   a. Epileptic spasms

B. Electro-clinical syndromes and other epilepsies
   1. By age of onset
      a. Neonatal period
         i. Benign familial neonatal seizures (BFNS)
         ii. Early myoclonic encephalopathy (EME)
         iii. Ohtahara syndrome

      b. Infancy
         i. Migrating partial seizures of infancy
         ii. West syndrome
         iii. Myoclonic epilepsy in infancy (MEI)
         iv. Benign infantile seizures
         v. Benign familial infantile seizures
         vi. Dravet syndrome
         vii. Myoclonic encephalopathy in nonprogressive disorders

      c. Childhood
         i. Febrile seizures (FS+) (can start in infancy)
         ii. Early onset benign childhood occipital epilepsy (Panayiotopoulos type)
         iii. Epilepsy with myoclonic atonic (previously astatic seizures)
         iv. Benign epilepsy with centrotemporal spikes (BECTS)
         v. Autosomal-dominant nocturnal frontal lobe epilepsy (ADNFLE)
         vi. Late-onset childhood occipital epilepsy (Gastaut type)
         vii. Epilepsy with myoclonic absences
         viii. Lennox-Gastaut syndrome
         ix. Epileptic encephalopathy with continuous spike-and-wave during sleep (CSWS), including Landau-Kleffner syndrome (LKS)
         x. Childhood absence epilepsy (CAE)

   d. Adolescence–Adult
      i. Juvenile absence epilepsy (JAE)
**Epilepsy**

- **ii.** Juvenile myoclonic epilepsy (JME)
- **iii.** Epilepsy with generalized tonic-clonic seizures alone
- **iv.** Progressive myoclonus epilepsies (PME)
- **v.** Autosomal dominant partial epilepsy with auditory features (ADPEAF)
- **vi.** Other familial temporal lobe epilepsies

**C. Less specific age relationship**
- 1. Familial focal epilepsy with variable foci (childhood to adult)
- 2. Reflex epilepsies

**D. Distinctive constellations**
- 1. Mesial temporal lobe epilepsy with hippocampal sclerosis (MTLE with HS)
- 2. Rasmussen syndrome
- 3. Gelastic seizures with hypothalamic hamartoma

**E. Epilepsies attributed to and organized by structural-metabolic causes**
- 1. Structural (including tumors, vascular malformations)
- 2. Infection
- 3. Trauma
- 4. Perinatal insults
- 5. Stroke
- 6. Malformations of cortical development
  - a. Neurocutaneous disorders
- 7. Mitochondrial and metabolic disorders

**F. Epilepsies of unknown cause**

**G. Conditions with epileptic seizures traditionally not diagnosed as a form of epilepsy**
- 1. Benign neonatal seizures (BNS)
- 2. Febrile seizures (FS)

**H. Nonepileptic paroxysmal disorders:**
- 1. Breath holding spells
- 2. Cardiac etiologies: e.g. prolonged QT intervals
- 3. Convulsive
- 4. Reflux and Sandifer syndrome
- 5. Syncopal events
- 6. Gratification phenomena and masturbation
- 7. Shuddering/shivering
8. Acute confusional migraine  
9. Benign infantile myoclonus  
10. Nonepileptic seizures  

I. Epidemiology  

II. Routine EEG  
A. Normal  
1. Activation and procedures  
2. Benign variants  
3. Artifacts and technical issues  
B. Interictal epileptiform patterns  
C. Ictal patterns (localization, status, hypsarrhythmia, ictal neonatal seizures)  
D. Encephalopathic patterns  

III. Evaluation  
A. History, examination, and semiology  
B. Chemical and metabolic screening  
C. Specialized EEG  
1. Other supplementary and ambulatory  
2. Video EEG  
3. Invasive EEG recordings  
   a. Depth electrodes  
   b. Subdural grid electrodes  
   c. Corticography  
      i. Functional mapping  
D. Imaging  
1. Choice of structural imaging (CT, MRI)  
   a. Specific protocols  
2. Functional imaging  
   a. SPECT  
   b. PET  
   c. MEG  
   d. MRS  
   e. fMRI  
   f. Diffusion tensor imaging  
E. Neuropsychological testing  
F. Spinal fluid analysis (lumbar puncture)
G. Genetic analysis

IV. Management

A. Principles of management
1. History of new-onset seizure(s)
2. Acute seizure management
3. Monotherapy vs. polytherapy
4. Antiepileptic drug selection
5. Dosing and drug monitoring
6. Comorbidities (e.g., psychiatric issues, cognitive issues)
7. Special situations
   a. Neonate
   b. Developmental delay
   c. Cognitively impaired
   d. Women with epilepsy
   e. Elderly
   f. Systemic illness
      i. Hypoxia-ischemia
8. Discontinuation of medication
9. Mortality
   a. SUDEP

B. Antiepileptic therapies
1. Specific drugs (regular and extended-release formulations)
   a. Acetazolamide
   b. ACTH
   c. Carbamazepine
   d. Clonazepam
   e. Clorazepate
   f. Diazepam (oral and rectal gel)
   g. Divalproex sodium
   h. Ethosuximide
   i. Felbamate
   j. Gabapentin
   k. Lacosamide
   l. Lamotrigine
   m. Levetiracetam
   n. Lorazepam
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2. Mechanisms of action of above drugs

3. Drug interactions (pharmacokinetic/pharmacodynamic)

4. Drug toxicities and teratogenicity

5. Monitoring principles

6. Other therapies
   a. Diet therapies
      i. Indications
      ii. Patient selection
      iii. Monitoring
      iv. Duration
   b. Hormonal therapies
      i. ACTH
      ii. Other steroidal therapies
   c. Immunoglobulin therapy
   d. Vagus nerve stimulation
   e. Other forms of stimulation
   f. Alternative and complementary therapies

C. Surgical therapies
   1. Indications for referral
      a. Definition of intractable epilepsies
      b. Duration of epilepsy and failure of response to medication
   2. Evaluation for possible surgery
      a. WADA and special neuropsychological evaluation
3. Types of surgical procedure
   a. Focal resections
      i. Temporal lobe
      ii. Frontal lobe
      iii. Parietooccipital
   b. Hemispherectomies
      i. Neocortical
      ii. Standard anterior temporal lobectomy
      iii. Selective mesial resections
   c. Multiple subpial transections
   d. Corpus callosotomies
   e. Repeat surgical procedures
   f. Other

4. Complications of surgery
   a. Outcome

D. Status epilepticus
   1. Classification (types)
      a. Generalized convulsive
      b. Focal, including epilepsy partialis continua (EPC)
      c. Nonconvulsive
      d. Refractory
   2. Management
      a. Acute management
      b. Drug therapy
         i. First-line
         ii. Second-line
         iii. Third-line
      c. Anesthetic therapies
      d. Continuous EEG monitoring
   3. Systemic complications
   4. Outcome

E. Psychosocial management
   1. Patient and family education
      a. Drug information
      b. Compliance
      c. Safety issues
i. Sleep deprivation  
ii. Sports participation  
iii. Drug and alcohol risks  
iv. Driving regulations  
v. Piloting regulations  

2. School and work situations  
   a. IEPs  
   b. ADA  
   c. Disability  

3. Quality of life  
   a. Dating  
   b. Marriage  
   c. Stigma  

4. Sleep and epilepsy  

5. Prognosis and counseling  

V. Systems-based practice issues  
   A. Public policy issues (education, driving, research funding)  
   B. Working with educational systems  
   C. Employment issues  
   D. Clinical trials of new therapies  
   E. Forensic epilepsy  
   F. Ethics  

VI. Mechanisms of the epilepsies  
   A. Pathophysiology of the epilepsies  
   B. Animal models  
   C. Physiological basis of epileptic EEG patterns  
   D. Pathology of the epilepsies  
   E. Genetic basis of the epilepsies