

**\*Week 1. Introduction (Dr. Stephen Thompson)**

Monday 7/6/20	Tuesday 7/7/20	Wednes. 7/8/20	Thurs. 7/9/20	Friday 7/10/20
<p>8:30 – 9 Welcome reception and Introduction</p> <p>Dr. McCullough and Dr.Lhatoo</p> <p>EEG Course Materials</p>	<p>8:00 – 9</p> <p>How To Generate Reports</p> <p>Dr. Lhatoo*</p>		<p>8:00 – 9:00</p> <p>EEG Recording and Engineering Principles</p> <p>Dr. Thompson</p>	
<p>9:00 – 10:30</p> <p>Course work overview Dr. Thompson</p> <p>Software preparation Johnson Hampson</p>	<p>9:00 – 10:30</p> <p>Cortical Generators and Origin of EEG</p> <p>Dr. Thompson</p>	<p>9:00 – 10:30</p> <p>Approach to EEG Localization</p> <p>Dr. Thompson</p>	<p>9:00 – 12:00</p> <p>Epilepsy Case Management Conference and Grand Rounds</p>	<p>9:00 – 10:30</p> <p>EEG Signal Processing</p> <p>Dr. Thompson</p>
<p>11:00 – 12</p> <p>The 10-20 System Montages and how to read Unknowns</p> <p>Dr. Thompson</p>	<p>11:00 – 12</p> <p>EEG Discussion Unknowns and Routine EEG</p> <p>Dr. Thompson</p>	<p>11:00 – 12</p> <p>EEG Discussion Unknowns and Routine EEG</p> <p>Dr. Thompson</p>		<p>11:00 – 12</p> <p>EEG Discussion Unknowns and Routine EEG</p> <p>Dr. Thompson</p>
				<p>12:00 – 1:00</p> <p>Neurology grand Rounds</p>
<p>1:00 – 2:00</p> <p>Live EEG Demonstration by the technician</p>	<p>1:00 –2:00</p> <p>EEG Reading</p> <p>Dr. Thompson</p>	<p>1:00 – 2:00</p> <p>EEG Reading</p> <p>Dr. Thompson</p>	<p>1:00 – 2:00</p> <p>EEG Reading</p> <p>Dr. Thompson</p>	<p>1:00 – 2:00</p> <p>EEG Reading</p> <p>Dr. Thompson</p>

# Clinical Neurophysiology

## Lecture Topics, Readings & Presentations

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**Dr. Stephen Thompson**

**Recommended Reading:**  
S. Noachtar

Atlas and Classification of Electroencephalography, Hans O. Lüders,

**Levin & Lüders, Comprehensive Clinical Neurophysiology**

Chapter 27    Electrode Montages and Localization of Potentials in  
Clinical Electroencephalography

**Ebersole, Clinical Electroencephalography, 4th edition**

Chapter 3    Engineering Principles

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**\*Week 2. Normal EEG (Dr. Omotola Hope)**

Monday 7/13/20	Tues. 7/14/20	Wednes. 7/15/20	Thurs. 7/16/20	Friday 7/17/20
			8:00 – 9:00 <b>EEG Artifact</b> Dr. Hope	
9:00 – 10:30 <b>Normal EEG Part 1</b> Dr. Hope	9:00 – 10:30 <b>Normal EEG Part 2</b> Dr. Hope	9:00 – 10:30 <b>Sleep and EEG Benign Variants</b> Dr. Hope	9:00 – 12:00 <b>Epilepsy Case Management Conference</b>	9:00 – 10:30 <b>Activation methods</b> Dr. Hope
11:00 – 12 <b>EEG Discussion Unknowns and Routine EEG</b> Dr. Hope	11:00 – 12 <b>EEG Discussion Unknowns and Routine EEG</b> Dr. Hope	11:00 – 12 <b>EEG Discussion Unknowns and Routine EEG</b> Dr. Hope	11:00 – 12 <b>EEG Discussion Unknowns and Routine EEG</b> Dr. Hope	11:00 – 12 <b>EEG Discussion Unknowns and Routine EEG</b> Dr. Hope
				12:00 – 1:00 <b>Neurology grand Rounds</b>
1:00 – 2:00 <b>EEG Reading</b> Dr. Hope	1:00 – 2:00 <b>EEG Reading</b> Dr. Hope	1:00 – 2:00 <b>EEG Reading</b> Dr. Hope	1:00 – 2:00 <b>EEG Reading</b> Dr. Hope	1:00 – 2:00 <b>EEG Reading</b> Dr. Hope

# Clinical Neurophysiology

## Lecture Topics, Readings & Presentations

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### Week 2

#### Dr. Omotola Hope

#### Recommended Reading:

##### **Levin & Lüders, Comprehensive Clinical Neurophysiology**

- Chapter 26 Basic Cellular and Synaptic Mechanisms Underlying the Electroencephalogram
- Chapter 29 Normal EEG & Benign Variants

##### **Daube, Clinical Neurophysiology**

- Chapter 8 Electroencephalography: General Principles and Adult Electroencephalograms
  - Chapter 39 Physiologic Assessment of Sleep
  - Chapter 40 Assessing: Sleep Disorders
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**\*Week 3. Semiology (Dr. Lacuey)**

Monday 7/20/20	Tuesday 7/21/20	Wednes. 7/22/20	Thurs. 7/23/20	Friday 7/24/20
	<b>8:00 – 9:00</b> <b>Neuropathology</b> <b>1: Hippocampal Sclerosis and FCD</b> <b>Dr. Bhattacharjee</b>		<b>8:00 – 9:00</b> <b>Dipole</b> <b>Dr. Lhatoo</b>	
<b>9:00 – 11:00</b> <b>Classification Paroxysmal Events</b> <b>Dr. Lacuey</b>	<b>9:00 – 11:00</b> <b>Epileptic Auras</b> <b>Dialectic Seizures</b> <b>Automotor Seizures</b> <b>Simple Motor Seizures</b> <b>Dr. Lacuey</b>	<b>9:00 – 11:00</b> <b>Complex Motor Seizures</b> <b>Special Seizures</b> <b>Somatotopic Modifiers</b> <b>Dr. Lacuey</b>	<b>9:00 – 11:00</b> <b>Epilepsy Case management Conference</b>	<b>9:00 – 11:00</b> <b>Lateralizing Signs</b> <b>Dr. Lacuey</b>
<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Lacuey</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Lacuey</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Lacuey</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Lacuey</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Lacuey</b>
				<b>12:00 – 1:00</b> <b>Neurology grand Rounds</b>
<b>1:00 – 2:00</b> <b>EEG Reading</b> <b>Dr. Lacuey</b>	<b>1:00 –2:00</b> <b>EEG Reading</b> <b>Dr. Lacuey</b>	<b>1:00 –2:00</b> <b>EEG Reading</b> <b>Dr. Lacuey</b>	<b>1:00 –2:00</b> <b>EEG Reading</b> <b>Dr. Lacuey</b>	<b>1:00 –2:00</b> <b>EEG Reading</b> <b>Dr. Lacuey</b>

# Clinical Neurophysiology

## Lecture Topics, Readings & Presentations

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### Week 3

#### Dr. Nuria Lacuey

#### Recommended Reading:

**H. Lüders et al. *Epilepsia* 1998;39:1006 – 1013.**  
Semiological Seizure Classification.

**Loddenkemper et al. *Epileptic Disorders* 2005; 7:308 – 316.**  
A proposal for a five-dimensional patient-oriented epilepsy classification.

**F. Rosenow, H. Lüders. *Brain* 2001 Sep; 124(9):1683 – 1700.**  
Presurgical Evaluation of Epilepsy.

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**\*Week 4. Abnormal EEG (Dr. Samden Lhatoo)**

Mon. 7/27/20	Tues. 7/28/20	Wednes. 7/29/20	Thurs. 7/30/20	Friday 7/31/20
	<b>8:00 – 9:00</b> <b>Neuropathology</b> <b>2: Tumoral</b> <b>Epilepsy and</b> <b>Inflammation</b>  <b>Dr.</b> <b>Bhattacharjee</b>		<b>8:00 – 9:00</b>  <b>EEG in</b> <b>Encephalopathy</b>  <b>Dr. Lhatoo</b>	
<b>9:00 – 11:00</b>  <b>Focal</b> <b>Epileptiform</b> <b>Abnormalities</b>  <b>Dr. Lhatoo</b>	<b>9:00 – 11:00</b>  <b>Generalized</b> <b>Epileptiform</b> <b>Abnormalities</b>  <b>Dr. Lhatoo</b>	<b>9:00 – 11:00</b>  <b>Ictal and Periodic</b> <b>EEG</b>  <b>Dr. Lhatoo</b>	<b>9:00 – 11:00</b>  <b>Epilepsy Case</b> <b>management</b> <b>Conference</b>	<b>9:00 – 11:00</b>  <b>Mortality in</b> <b>Epilepsy</b>  <b>Dr. Lhatoo</b>
<b>11:00 – 12</b>  <b>EEG</b> <b>Discussion</b> <b>Unknowns</b> <b>and Routine</b> <b>EEG</b>  <b>Dr. Lhatoo</b>	<b>11:00 – 12</b>  <b>EEG Discussion</b> <b>Unknowns and</b> <b>Routine EEG</b>  <b>Dr. Lhatoo</b>	<b>11:00 – 12</b>  <b>EEG Discussion</b> <b>Unknowns and</b> <b>Routine EEG</b>  <b>Dr. Lhatoo</b>	<b>11:00 – 12</b>  <b>EEG Discussion</b> <b>Unknowns and</b> <b>Routine EEG</b>  <b>Dr. Lhatoo</b>	<b>11:00 – 12</b>  <b>EEG</b> <b>Discussion</b> <b>Unknowns and</b> <b>Routine EEG</b>  <b>Dr. Lhatoo</b>
				<b>12:00 – 1:00</b>  <b>Neurology</b> <b>grand Rounds</b>
<b>1:00 – 2:00</b>  <b>Case studies</b> <b>(Acute</b> <b>Neurology</b> <b>floor EEG)</b>  <b>Dr. Smart</b>	<b>1:00 – 2:00</b>  <b>EEG Reading</b>  <b>Dr. Lhatoo</b>	<b>1:00 – 2:00</b>  <b>EEG Reading</b>  <b>Dr. Lhatoo</b>	<b>1:00 – 2:30</b>  <b>ICU EEG</b>  <b>Dr. Gavvala</b>	<b>1:00 – 2:00</b>  <b>EEG Reading</b>  <b>Dr. Lhatoo</b>

# Clinical Neurophysiology

## Lecture Topics, Readings & Presentations

### Week 4

Dr. Samden Lhatoo

#### Recommended Reading:

**Levin & Lüders, Comprehensive Clinical Neurophysiology**

Chapter 31 Generalized Disturbances of Brain Function:

Chapter 32 Focal Nonepileptic Disturbances of Brain Function

**Oddo et al. Crit Care Med 2009;37(6):2051-2056.**

Continuous electroencephalography in the medical intensive care unit

**Orta et al. Arch Neurol 2009; 66(8):**

Prognostic Implications of Periodic Epileptiform Discharges

**Devinsky et al. Lancet Neurology 2016; 15(10):1075-88.** Sudden

unexpected death in epilepsy: epidemiology, mechanisms, and prevention.

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**\*Week 5 Pediatric Epilepsy (Dr. Gretchen Von Allmen)**

Monday 8/3/20	Tuesday 8/4/20	Wednes. 8/5/20	Thursday 8/6/20	Friday 8/7/20
8:00 – 9:00  <b>Pediatric Epilepsy Syndromes</b>  Dr. Watkins	8:00 – 9:00  <b>Pediatric Epilepsy Surgery</b>  Dr. Shah	8:00 – 9.00  <b>Abnormal Neonatal EEG</b>  Dr. Lankford		8:00 – 9.00  <b>Source Imaging the Epileptic Discharge with MEG</b>  Dr Mosher
9:00 – 10.30  <b>Pediatric EEG</b>  Dr. Von Allmen	9:00 – 10.30  <b>Normal Neonatal EEG</b>  Dr. Von Allmen	9:00 – 10:30  <b>MEG in Epilepsy</b>  Dr. Funke	9:00 – 11:00  <b>MIDTERM EXAM</b>	9:00 – 11:00  <b>Epilepsy and Genetics</b>  Dr. Alica Goldman
11:00 – 12  <b>EEG Discussion Unknowns and Routine EEG</b>  Dr. Watkins	11:00 – 12  <b>EEG Discussion Unknowns and Routine EEG</b>  Dr. Von Allmen	11:00 – 12  <b>EEG Discussion Unknowns and Routine EEG</b>  Dr. Lankford		11:00 – 12  <b>EEG Discussion Unknowns and Routine EEG</b>  Dr. Von Allmen
				12:00 – 1:00  <b>Neurology grand Rounds</b>
1:00 – 2:00  <b>EEG Reading</b>  Dr. Von Allmen	1:00 –2:00  <b>EEG Reading</b>  Dr. Watkins	1:00 – 2:00  <b>EEG Reading</b>  Dr. Lankford	2:00 – 3:00  <b>Pediatric Epilepsy Surgery Case Conference</b>  Dr. Von Allmen	1:00 – 2:00  <b>EEG Reading</b>  Dr. Von Allmen

# Clinical Neurophysiology

## Lecture Topics, Readings & Presentations

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### Week 5

**Dr. Gretchen Von Allmen**

**Recommended Reading:**

**Levin & Lüders, Comprehensive Clinical Neurophysiology**

Chapter 28    Development of the Normal Electroencephalogram

Chapter 33    Pediatric Epilepsy Syndromes

Chapter 35    Neonatal Seizures

**Holmes et al. NEJM 344(15):1132-1138, 2001.**

The Teratogenicity of anti-convulsant drugs.

**Beghi et al. Epilepsia 50(suppl.5): 4-10, 2009**

The concept of the epilepsy syndrome: How useful is it in clinical practice?

**Moshel et al. Epilepsia 2010**

Do tubers contain function? Resection of epileptogenic foci in perirolandic cortex in children with Tuberous sclerosis complex

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**\*Week 6. Treatment (Dr. Thomas)**

Mon. 8/10/20	Tuesday 8/11/20	Wednes. 8/12/20	Thurs. 8/13/20	Friday 8/14/20
<b>9:00 – 10.30</b> <b>Pharmacological Basis of AED Treatment</b> <b>Dr. Ferrendelli</b>	<b>9:00 – 10.30</b> <b>Principles of Pharmacotherapy with AEDs</b> <b>Dr. Ferrendelli</b>	<b>9:00 – 10:30</b> <b>Surgical Neuroanatomy in Epilepsy</b> <b>Dr. Tandon</b>	<b>9:00 – 12:00</b> <b>Epilepsy Case Management Conference and Grand Rounds</b>	<b>9:00 – 10.30</b> <b>Treatment of Status Epilepticus</b> <b>Dr. Thomas</b>
<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Thomas</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Thomas</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Thomas</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Thomas</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Thomas</b>
				<b>12:00 – 1:00</b> <b>Neurology grand Rounds</b>
<b>1:00 – 2:00</b> <b>EEG Reading</b> <b>Dr. Thomas</b>	<b>1:00 –2:00</b> <b>EEG Reading</b> <b>Dr. Thomas</b>	<b>1:00 –2:00</b> <b>EEG Reading</b> <b>Dr. Thomas</b>	<b>1:00 – 2:00</b> <b>EEG Reading</b> <b>Dr. Thomas</b>	<b>1:00 – 2:00</b> <b>EEG Reading</b> <b>Dr. Thomas</b>

# Clinical Neurophysiology

## Lecture Topics, Readings & Presentations

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### Week 6

Dr. Melissa Thomas

**Recommended Reading:**

**French J, et al. Neurology 2004;62:1252–73.**

Efficacy and tolerability of the new antiepileptic drugs I & II.

**Glauser T, et al. Epilepsia 2006;47:1094-120.**

ILAE treatment guidelines: evidence-based analysis of antiepileptic drug efficacy and effectiveness as initial monotherapy for epileptic seizures and syndromes.

**Patsalos PN, et al. Epilepsia 2008;49:1239–76**

AEDs—best practice guidelines for therapeutic drug monitoring: a position paper by the subcommission on therapeutic drug monitoring, ILAE commission on therapeutic strategies.

**Harden CL, et al. Neurology 2009;73:133–49.**

Management issues for women with epilepsy - focus on pregnancy (an evidence based review): teratogenesis and perinatal outcomes & vitamin K, folic acid, blood levels, and breastfeeding.

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**\*Week 7. Epilepsy Surgery (Drs. Lhatoo/Gowda/Sumida)**

Mon. 8/17/20	Tues. 8/18/20	Wednes. 8/19/20	Thurs. 8/20/20	Friday 8/21/20
	<b>8:00 – 9:00</b> <b>Neuropsychological Evaluation – General Principles and its Role in Epilepsy Surgery</b> <b>Dr. Breier</b>			
<b>9:00 – 10.30</b> <b>Presurgical Work and Surgical Treatment in Intractable Epilepsy</b> <b>Dr. Lhatoo</b>	<b>9:00 – 10.30</b> <b>Stimulation for Brain Mapping</b> <b>Dr. Gowda</b>	<b>9:00 – 10.30</b> <b>Neuroradiology in Epilepsy Surgery</b> <b>Dr. Friedman</b>	<b>9:00 – 11:00</b> <b>Epilepsy Case management Conference</b>	<b>9:00 – 10:30</b> <b>Recent Advances in Epilepsy Surgery</b> <b>Dr. Tandon</b>
<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Lhatoo</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Gowda</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Gowda</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Sumida</b>	<b>11:00 – 12</b> <b>EEG Discussion Unknowns and Routine EEG</b> <b>Dr. Sumida</b>
				<b>12:00 – 1:00</b> <b>Neurology grand Rounds</b>
<b>1:00 – 2:00</b> <b>EEG Reading</b> <b>Dr. Lhatoo</b>	<b>1:00 –2:00</b> <b>EEG Reading</b> <b>Dr. Gowda</b>	<b>1:00 –2:00</b> <b>EEG Reading</b> <b>Dr. Gowda</b>	<b>1:00 –2:00</b> <b>EEG Reading</b> <b>Dr. Sumida</b>	<b>1:00 –2:00</b> <b>EEG Reading</b> <b>Dr. Sumida</b>

# **Clinical Neurophysiology**

## **Lecture Topics, Readings & Presentations**

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### **Week 7**

**Drs. Sam Lhatoo, Shaila Gowda, and Ai Sumida**

**Lecture Topic:**

**Genetics**  
**Pre-surgical Evaluation**  
**Neuroimaging**  
**Neuropsychological evaluation**  
**Neuropathology**  
**Surgical therapies**

**Recommended Readings:**

**Levin & Lüders, Comprehensive Clinical Neurophysiology**  
Chapter 34      Focal Epilepsy and Surgical Evaluation

**Daube, Clinical Neurophysiology**  
Chapter 13      Electroencephalographic Recordings for Epilepsy Surgery

**Sisodiya. Lancet Neurol, 3:29-38, 2004**  
Malformations of cortical development.

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**\*Week 8. Sleep and IOM (Dr. Tallavajhula/ Gowda)**

Monday 8/24/20	Tues. 8/25/20	Wednes. 8/26/20	Thurs. 8/27/20	Friday 8/28/20
	8:00 – 9  <b>Sleep Disorders Overview</b>  Dr. Tallavajhula		8:00 – 9:00  <b>Intra Operative Monitoring II</b>  Dr. Gowda	
9:00 – 10.30  <b>Introduction to Sleep Medicine, Polysomnography and the MSLT</b>  Dr. Tallavajhula	9:00 – 10.30  <b>Nocturnal epilepsies and parasomnias</b>  Dr. Tallavajhula	9:00 – 10:30  <b>Recent Advances in Epilepsy Surgery</b>  Dr. Tandon	9:00 – 11:00  <b>Epilepsy Case Management Conference</b>	9:00 – 12:00  <b>FINAL EXAM</b>
11:00 – 12  <b>EEG Discussion Unknowns and Routine EEG</b>  Dr. Tallavajhula	11:00 – 12  <b>EEG Discussion Unknowns and Routine EEG</b>  Dr. Tallavajhula	11:00 – 12  <b>EEG Discussion Unknowns and Routine EEG</b>  Dr. Gowda	11:00 – 12  <b>EEG Discussion Unknowns and Routine EEG</b>  Dr. Gowda	
				12:15 – 1:30  <b>Course Graduation Celebration and Luncheon</b>
1:00 – 2:00  <b>EEG Reading</b>  Dr. Tallavajhula	1:00 – 2:00  <b>EEG Reading</b>  Dr. Tallavajhula	1:00 – 2:00  <b>Intra Operative Monitoring I</b>  Dr. Gowda	1:00 – 2:00  <b>EEG Reading</b>  Dr. Gowda	

# Clinical Neurophysiology

## Week 8

Drs. Sudha Tallavajhula and Shaila Gowda

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**Recommended Reading:**

**Levin & Lüders, Comprehensive Clinical Neurophysiology**

- Chapter 8 Waveform Analysis and Near- and Far-Field Concepts
- Chapter 36 Visual Evoked Potentials
- Chapter 37 Auditory Evoked Potentials
- Chapter 38 Somatosensory Evoked Potentials
- Chapter 39 Intraoperative Monitoring

**Holdefer RN, et al. Clin Neurophys 2014**

Somatosensory and motor evoked potentials as biomarkers for post-operative neurological status.

**International Classification of Sleep Disorders-Third Edition**

**Highlights.** Michael J Sateia MD; Chest, 2014-11-01, Volume 146, Issue 5, Pages 1387-1394

**CONTINUUM: Lifelong Learning in Neurology. 19(1, Sleep Disorders):104-131, February 2013**

Complex Nocturnal Behaviors: Nocturnal Seizures and Parasomnias. Foldvary-Schaefer, Nancy DO, MS, FAASM; Alsheikhtaha, Zahreddin MBBS, RPSGT

**Clinical Neurophysiology (Fourth Edition)**

**MD Devon Rubin and MD Jasper Daube**

Chapter 45 Assessment of Sleep and Sleep Disorders Michael H. Silber, MD, ChB; Cameron D. Harris

**Resident Presentations:**

**TBD**

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