

Overview of Goals and Objectives of Rotation: Sleep Medicine

Sleep Rotation Facilitator: Dan O'Hearn, MD, ext. 5-6625.

Preceptors:

VA Staff - Eilis Boudreau, MD, PhD and William Holden, MD

VA Sleep Program Coordinator- Theresa Shearer, ext. 5-3563.

OHSU Staff - Gopal Allada, MD, Jon Emens, MD, Kyle Johnson, MD, H. Link, MD

OHSU Sleep Program Coordinator- Lisa DeJongh , ext. 4-5251

Overview:

Sleep medicine is a component of the one month ambulatory clinic rotation as well as the Physiology rotation for fellows in the OHSU Pulmonary and Critical Care Program. These rotations are designed for fellows to gain experience and exposure to highly focused areas within the subspecialty of Pulmonary Medicine. The VA Sleep Clinic is open on Monday afternoon and Friday mornings. During the Physiology rotation, fellows will spend 1-2 hours a week interpreting sleep studies with Dr. O'Hearn (office 4C-101e) or Dr. Boudreau (office 6C-138.) Fellows should also arrange to spend part of an evening with the sleep technicians observing sleep study preparation and performance. Participation in the OHSU sleep clinic is also expected during the ambulatory clinic rotation.

Fellows are expected to attend the 330 pm sleep conference 13th floor HRC and may be asked to present a topic.

During this rotation fellows are expected to develop 1) communication skills that will facilitate clinical interaction with patients and their families and thus ensure the creation of a complete and accurate data base 2) competency in the physical examination of patients with sleep-disorders 3) competency in the provision of consultative services and 4) ability to work as a member of, and when appropriate leader of, a multidisciplinary team. In addition, trainees will demonstrate competency in analysis and interpretation of comprehensive polysomnography and skills based on the science of evidence-based medicine.

The following outline describes in detail the knowledge base necessary for fellows to master in order to ensure competency in the field and to provide appropriate level of care to this patient population.

Medical Knowledge: *Residents are expected to demonstrate knowledge of established and evolving biomedical, clinical and social sciences, and the application of their knowledge to patient care and the education of others.*

Basic Neurologic Mechanisms:

Understand:

- The anatomy and function of the cortex and cortical areas involved with sensory and motor activity as well as those cortical areas involved in sleep and wakefulness
- The anatomy and function of the following structures and how they relate to sleep:
- -Thalamus, hypothalamus, suprachiasmatic nuclei, brainstem, brainstem nuclei, reticular activating system, locus coeruleus, and the ascending and descending motor inhibitory pathways

Chronobiologic Mechanisms:

Describe:

- The characteristics of the human sleep-wake cycle across the life span
- The various biologic rhythms and their determinants
- The various circadian rhythm disorders and their treatments (delayed and advanced sleep phase, shift works, non-24 hour cycle, free running rhythms, and jet lag)

Cardiovascular Physiology during Sleep:

Understand:

- The changes in the cardiovascular system that occur during normal sleep and in the presence of sleep-disordered breathing
- The influences of positive airway pressure on the cardiovascular system
- The effect of sleep state on normal heart and circulatory functions

Pulmonary Physiology during Sleep:

Describe the pathophysiology of and treatments for various sleep-disordered breathing in:

- Obstructive sleep apnea (OSA), central sleep apnea (CSA), central alveolar hypoventilation syndrome, obesity-hypoventilation syndrome (OHS), chronic obstructive pulmonary disease (COPD), and nocturnal asthma

Endocrine Sleep Physiology:

Identify:

- Circadian variations of endocrine hormones, including, but not limited to, growth hormone, cortisol, thyroid stimulating hormone, luteinizing hormone, follicle stimulating hormone, insulin, melatonin and testosterone
- The influences of various hormones on the sleep-wake cycle

Normal Sleep, Human Development and Aging:

Describe:

- And interpret electroencephalogram (EEG), electrooculogram (EOG), and electromyogram (EMG) characteristics of sleep-wake states in the infant, child, adolescent, healthy adult, and the elderly
- The characteristics of the sleep-wake cycle
- The various theoretical functions of REM and NREM sleep
- Sleep-associated behavior characteristics
- The determinants of sleepiness
- The principles of sleep hygiene

Ambulatory Monitoring of Sleep:

Identify:

- The indications and contraindications for portable monitoring
- The indications and contraindications for home continuous positive airway pressure (CPAP) titrations and auto-CPAP titrations

Pharmacology of Sleep:

Discuss the pharmacology of various medications as they relate to the sleep wake cycle including:

- Hypnotics
- Benzodiazepines
- Barbiturates/Sodium oxybate
- Anti-depressants
- Stimulants

Patient Care: *Residents are expected to provide patient care that is compassionate, appropriate and effective for the promotion of health, prevention of illness, treatment of disease and at the end of life.*

Obtaining a Sleep History:

Demonstrate the ability to:

- Conduct, record and interpret a comprehensive clinical medical and sleep history

Circadian Rhythm Disorders:

Identify, diagnose, and develop a management plan for chronologic abnormalities associated with disorders of the timing of the sleep-wake pattern, including, but not limited to:

- Congenital short and long sleepers
- Time zone changes/Jet lag
- Shift worker sleep disorder

- Delayed and advanced sleep phase
- Non-24 hour sleep-wake syndrome
- Irregular sleep-wake pattern

Disorders of Excessive Somnolence

Identify, diagnose, and develop a management plan for sleepiness associated with:

- Behavior and psychophysiologic disorders- e.g. inadequate sleep hygiene
- Psychiatric disorders- e.g. mood disorders and alcoholism
- Environmental factors- e.g. environmental sleep disorder
- Drug dependency- e.g. hypnotic-dependent sleep disorder
- Sleep-induced respiratory impairment- e.g. OSA
- Movement disorders- e.g. periodic limb movements of sleep
- Disorders of the timing of the sleep-wake pattern- e.g. advanced sleep phase syndrome
- Other disorders of the central nervous system (CNS)- e.g. idiopathic CNS hypersomnia

Insomnia

Identify, diagnose, and develop a management plan for sleepiness associated with:

- Behavior and psychophysiologic disorders- e.g. limit-setting sleep disorder
- Psychiatric disorders- e.g. anxiety disorders
- Environmental factors- e.g. food allergy insomnia
- Drug dependency- e.g. stimulant-dependent sleep disorder
- Movement disorders- e.g. restless legs syndrome
- Disorders of the timing of the sleep-wake pattern- e.g. delayed sleep phase syndrome
- Other disorders of the central nervous system (CNS)- e.g. Parkinsonism
- Parasomnias- e.g. nightmares
- No objective sleep disturbance- e.g. sleep state misperception

Parasomnias:

Identify, diagnose, and develop a management plan for parasomnias associated with:

- Movement disorders- e.g. sleep terrors
- Psychiatric disorders- e.g. panic disorder
- CNS abnormalities- e.g. sleep-related epilepsy

Healthy Sleep Practices in the Child and Adult:

Identify:

- And diagnose and develop a management plan for inappropriate sleep habits
- And describe the characteristics of the normal sleep-wake cycle and the effects of inappropriate sleep habits
- Demonstrate the ability to:
- Appropriately recommend medications that affect the sleep-wake cycle
- Identify drug interactions and side effects of various medications

Polysomnography Equipment /Polysomnography Troubleshooting:

Demonstrate the ability to:

- Monitor and record natural sleep in children and adults
- Multiple sleep latency testing (MSLT) in children and adults
- Initiate nasal CPAP treatment in children and adults
- Eliminate artifact from recordings when they are identified
- Identify and rectify equipment failure during polysomnography recording
- Supervise, guide, and direct technical staff in performance of polysomnography

Polysomnography Interpretation:

Demonstrate the ability to:

- Score, analyze and interpret nocturnal polysomnography, MSLT, and CPAP/BiPAP recordings
- Analyze EEG and EKG and identify abnormalities
- Identify artifacts during polysomnography

Practice-Based Learning: *Residents are expected to be able to use scientific evidence and methods to investigate, evaluate, and improve patient care practices.*

- Develop strategies to identify at risk hospitalized patients
- Investigate and implement methods to improve compliance with treatment

Interpersonal and Communication Skills: *Fellows are expected to demonstrate interpersonal and communication skills that enable them to establish and maintain professional relationships with patients, families, and other members of health care teams.*

- Provide effective and professional consultation to other physicians and health care professionals and sustain therapeutic and ethically sound professional relationships with patients, their families, and colleagues.
- Use effective listening, nonverbal, questioning, and narrative skills to communicate with patients and families
- Interact with consultants in a respectful, appropriate manner
- Maintain comprehensive, timely, and legible medical records

Professionalism: *Fellows are expected to demonstrate behaviors that reflect a commitment to continuous professional development, ethical practice, an understanding and sensitivity to diversity and a responsible attitude toward their patients, their profession, and society.*

- Demonstrate respect, compassion, integrity, and altruism in relationships with patients, families, and colleagues
- Demonstrate sensitivity and responsiveness to the gender, age, culture, religion, sexual preference, socioeconomic status, beliefs, behaviors and disabilities of patients and professional colleagues
- Adhere to principles of confidentiality, scientific/academic integrity, and informed consent
- Recognize and identify deficiencies in peer performance

Systems-Based Practice: *Fellows are expected to demonstrate both an understanding of the contexts and systems in which health care is provided, and the ability to apply this knowledge to improve and optimize health care.*

- Understand, access and utilize the resources, providers and systems necessary to provide optimal care
- Understand the limitations and opportunities inherent in various practice types and delivery systems, and develop strategies to optimize care for the individual patient
- Apply evidence-based, cost-conscious strategies to prevention, diagnosis, and disease management
- Collaborate with other members of the health care team to assist patients in dealing effectively with complex systems and to improve systematic processes of care

Instructional Methods:

Introductory Lecture Series, Study Lessons In Education and Evaluation of Polysomnography-CD, Weekly Sleep Conference, Faculty instruction in polysomnography, Observation of polysomnography.

Methods of Assessment:

- Expectations; Evolution of skills in sleep clinic
- Competency-based staff evaluations
- Conference attendance and participation

References:

Practice Parameters of the American Academy of Sleep Medicine (available on rotation CD)

Practice Parameters for Clinical Use of the Multiple Sleep Latency Test and the Maintenance of Wakefulness Test, Littner MR, Kushida C, Wise M, et al, SLEEP 2005;28(1):113-121

Practice Parameters for the Dopaminergic Treatment of Restless Legs Syndrome and Periodic Limb Movement Disorder, Littner MR, Kushida C, McDowell Anderson W, et al, SLEEP 2004;27(3):557-9.

Practice Parameters for the Evaluation of Chronic Insomnia, Chesson A, Hartse K, McDowell Anderson W, et al, SLEEP 2000;23(2): 1-5

Practice Parameters for the Indications for Polysomnography and Related Procedures: An Update for 2005, Kushida C, Littner MR, Morgenthaler T, et al, SLEEP 2005;28(4):499-521

Practice Parameters for the Nonpharmacologic Treatment of Chronic Insomnia, Chesson AL, McDowell Anderson WL, Littner M, et al, SLEEP 1999;22(8):1128-1133

Practice Parameters for the Role of Actigraphy in the Study of Sleep and Circadian Rhythms: An Update for 2002, Littner MR, Kushida C, McDowell Anderson W, et al, SLEEP 2003;26(3):337-41

Practice Parameters for the Use of Auto-Titrating Continuous Positive Airway Pressure Devices for Titrating Pressures and Treating Adult Patients with Obstructive Sleep Apnea Syndrome, Littner M, Hirshkowitz M, Davila D, et al, SLEEP 2002;25(2):143-147

Practice Parameters for the Use of Laser-Assisted Uvulopalatoplasty: An Update for 2000 Littner MR, Kushida C, Hartse K,, SLEEP 2001;24(5):603-619

Practice Parameters for the Treatment of Narcolepsy: An Update for 2000, Littner M, Johnson SF, Vaughn McCall W,, et al, SLEEP 2001;24(4):451-466

Practice Parameters for the Treatment of Restless Legs Syndrome and Periodic Limb Movement Disorder, Chesson AL, Wise M, Davila D, et al, SLEEP 1999;22(7):961-968

Practice Parameters for the Treatment of Snoring and Obstructive Sleep Apnea with Oral Appliances: An Update for 2005, Kushida CA,, Morgenthaler TI, Littne MR, SLEEP 2006;29(2): 240-243

Practice Parameters for the Use of Continuous and Bilevel Positive Airway Pressure Devices to Treat Adult Patients With Sleep-Related Breathing Disorders. Kushida CA, Littner MR, Hirshkowitz M, SLEEP 2006;29(3):375-380.

Practice Parameters for the Use of Light Therapy in the Treatment of Sleep Disorders, Chesson AL, Littner M, Davila D, et al, SLEEP 1999;22(5):641-660

Practice Parameters for the Use of Portable Monitoring Devices in the Investigation of Suspected Obstructive Sleep Apnea in Adult, Chesson AL, Berry RB, Pack A, SLEEP 2003;26(7):907-13

Practice Parameters for Using Polysomnography to Evaluate Insomnia: An Update, Littner M, Hirshkowitz M, Kramer M, et al, SLEEP 2003;26(6):754-760

Articles of Interest:

An Algorithm for the Management of Restless Legs Syndrome, Silber MH, Ehrenberg B L., Allen RP, et al, Mayo Clin Proc. 2004;79(7):916-922

The Use of Auto-Titrating Continuous Positive Airway Pressure for Treatment of Adult Obstructive Sleep Apnea, Berry RB, Parish JM, Hartse KM, SLEEP 2002;25(2):148-173

An Update on the Dopaminergic Treatment of Restless Legs Syndrome and Periodic Limb Movement Disorder, Hening WA, Allen RP, Earley RJ, et al, SLEEP 2004; 27(3):560-83

***Additional articles will be distributed in a rotational binder at the beginning of the service**

Weekly Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00	Exercise Studies	Medicine GR 8b60 UHS	Polysomnogram Reading	OHSU Sleep Clinic	PVAMC Sleep Clinic
8:30					
9:00		Exercise Studies			
9:30					
10:00					
10:30				Neuromuscular Disease Clinic	Polysomnogram Reading
11:00					
11:30					
12:00					PCCM Grand Rounds
12:30					
1:00	Neuro-Pulm VA Sleep	OHSU PULM		VA Pulm Clinic	
1:30			Radiology Conference 10 Floor UHS		
2:00					
2:30					
3:00					
3:30	OHSU Sleep Conference				
4:00					
4:30					
5:00-6:00			Division Research Conference		