### NEI’s Master Psychopharmacology Program
#### Study Guide: Sleep / Wake Disorders

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| **Symptom Presentation and Assessment**       | - Describe the processes of sleep regulation, including circadian rhythm, homeostatic drive, and the ultradian cycle  
- Describe symptoms associated with different states of arousal  
- Differentiate between the presenting characteristics of each sleep/wake disorder  
- Identify diagnostic techniques for each sleep/wake disorder  
- Identify common causes of insomnia  
- Identify common psychiatric comorbidities of sleep/wake disorders  
- Identify medications that may contribute to the presentation of sleep/wake problems | **Additional Resources****  
**Waking the Brain: An Update on the Neurobiology, Diagnosis, and Treatment of Hypersomnia (PDF)** |
| **Neurobiology of Symptoms**                  | - Explain the roles of key neurotransmitters in regulating different states of arousal  
- Associate arousal states with hypothesized brain regions and circuits  
- Explain current hypotheses for the causes of each sleep/wake disorder | **Additional Resources****  
**Waking the Brain: An Update on the Neurobiology, Diagnosis, and Treatment of Hypersomnia (PDF)**  
**Neurobiology of Sleep (animation)**  
**Neuropathology and Treatment of Hypersomnia (animation)** |

*You may choose any 24 non-expired Learning Activities to complete the requirements of the Master Psychopharmacology Program. For the full list of Master Psychopharmacology Program requirements, please visit nei.global/mpp.*

**These resources do not count toward the requirements of the Master Psychopharmacology Program and are merely listed here as useful resources for additional study.*
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| **Mechanisms of Sleep/Wake Agents** | - Identify and explain mechanisms of action for promoting sleep  
- Differentiate between benzodiazepine hypnotics and “Z” drugs in terms of mechanism of action  
- Explain the mechanisms of action of trazodone, doxepin, mirtazapine, and quetiapine in insomnia  
- Identify and explain mechanisms of action for promoting wakefulness  
- Explain the consequences of antagonism at melatonin 1 and 2 receptors | *Additional Resources**  
Sleep/wake medication prescribing information/package insert  
**Orexin Antagonists as Novel Hypnotics (animation)**  
**Mechanism of Action of Tasimelteon in Non-24 Sleep-Wake Syndrome: Treatment for a Circadian Rhythm Disorder in Blind Patients (article)** |
| **Clinical Characteristics of Sleep/Wake Agents** | - Identify currently available medications for promoting sleep  
- Identify currently available medications for promoting wakefulness  
- Explain the impact of half-life on the tolerability and efficacy of sedative hypnotics  
- Identify the half-lives of each sedative hypnotic  
- Describe the long-term effects of benzodiazepine hypnotics versus “Z” drugs  
- Identify the effective dose range and general titration requirements for each sleep/wake agent  
- Identify notable side effects for each sleep/wake agent  
- Identify any contraindications or major drug interactions for each sleep/wake agent | *Additional Resources**  
**NEI Prescribe**  
Sleep/wake medication prescribing information/package inserts. |
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| **Treatment Strategies** | - Identify appropriate monotherapies for each sleep/wake disorder  
  - Identify appropriate adjunct treatments for specific residual symptoms of sleep/wake disorders  
  - Describe recommended treatment maintenance strategies for each sleep/wake disorder  
  - Identify non-pharmacological strategies for the treatment of sleep/wake disorders  
  - Identify medications that can increase slow wave sleep  
  - Identify novel mechanisms and strategies being investigated for potential application to sleep/wake disorder treatment                                                                                                                                                                                                                       | **Additional Resources**  
  - Sleep/wake medication prescribing information/package inserts.  
  - I’m Wide Awake: A Clinical Update on Insomnia (CME video)  
  - This Month in Psychopharmacology, Sleep Articles  
  - Sleep and Circadian Rhythm Disorders (CME video)  
  - Waking the Brain: An Update on the Neurobiology, Diagnosis, and Treatment of Hypersomnia (PDF)                                                                                                                                ……………|                                                                                                                                                                                                                                                                                                                                                                              |
| **Special Considerations** | - Describe the risk/benefit ratios for using sleep/wake agents in different age groups  
  - Differentiate the common presentation of sleep/wake disorders in children versus adults versus elderly  
  - Identify sleep/wake agents for which dosing recommendations differ based on age or gender  
  - Explain recommendations for sleep/wake disorder treatment in women who are pregnant or breastfeeding  
  - Identify sleep/wake agents for which dosing recommendations are different for individuals with medical complications                                                                                                                                                                                                                           | **Additional Resources**  
  - NEI Prescribe  
  - Sleep/wake medication prescribing information/package inserts.                                                                                                                                                                                                                                                                                                                                  |

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