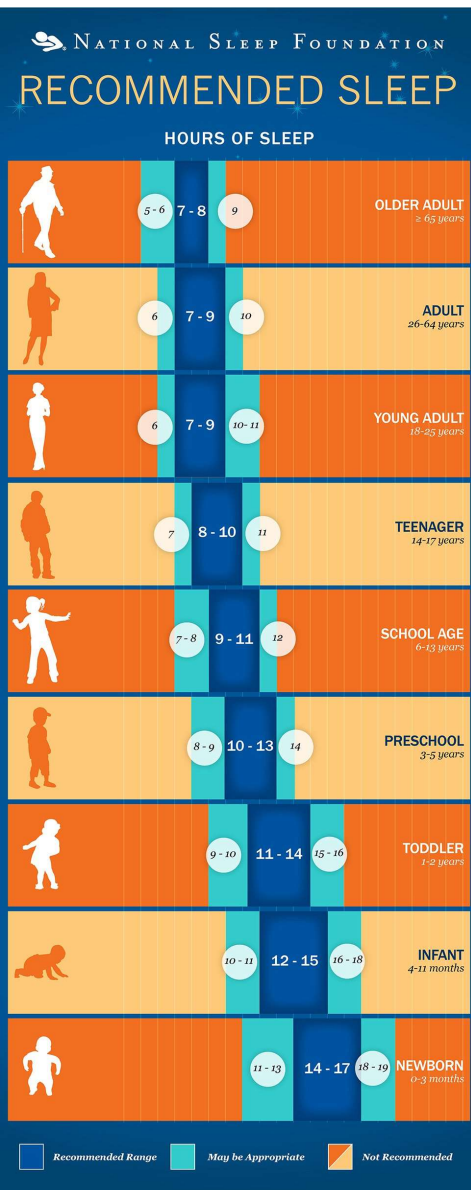


Breaking Misconceptions on Sleep: Mood, Behavior and Medications

Mercedes Dodge, MPAS, PA-C, CAQ-Psychiatry

Disclosures

- None



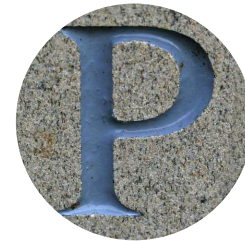
- **At the conclusion of this session, participants should be able to:**
 - Describe sleep architecture including insomnia patterns associated with mood disorders and age development stages
 - Educate patients on healthy sleep habits, encompassing proper sleep hygiene practices, stress management, screen time regulation, nutrition, exercise, and creating a conducive sleep environment
 - Recognize FDA-approved medications for insomnia management, their efficacy, and potential off-label use



Sleep



Mortality
& co-morbidities



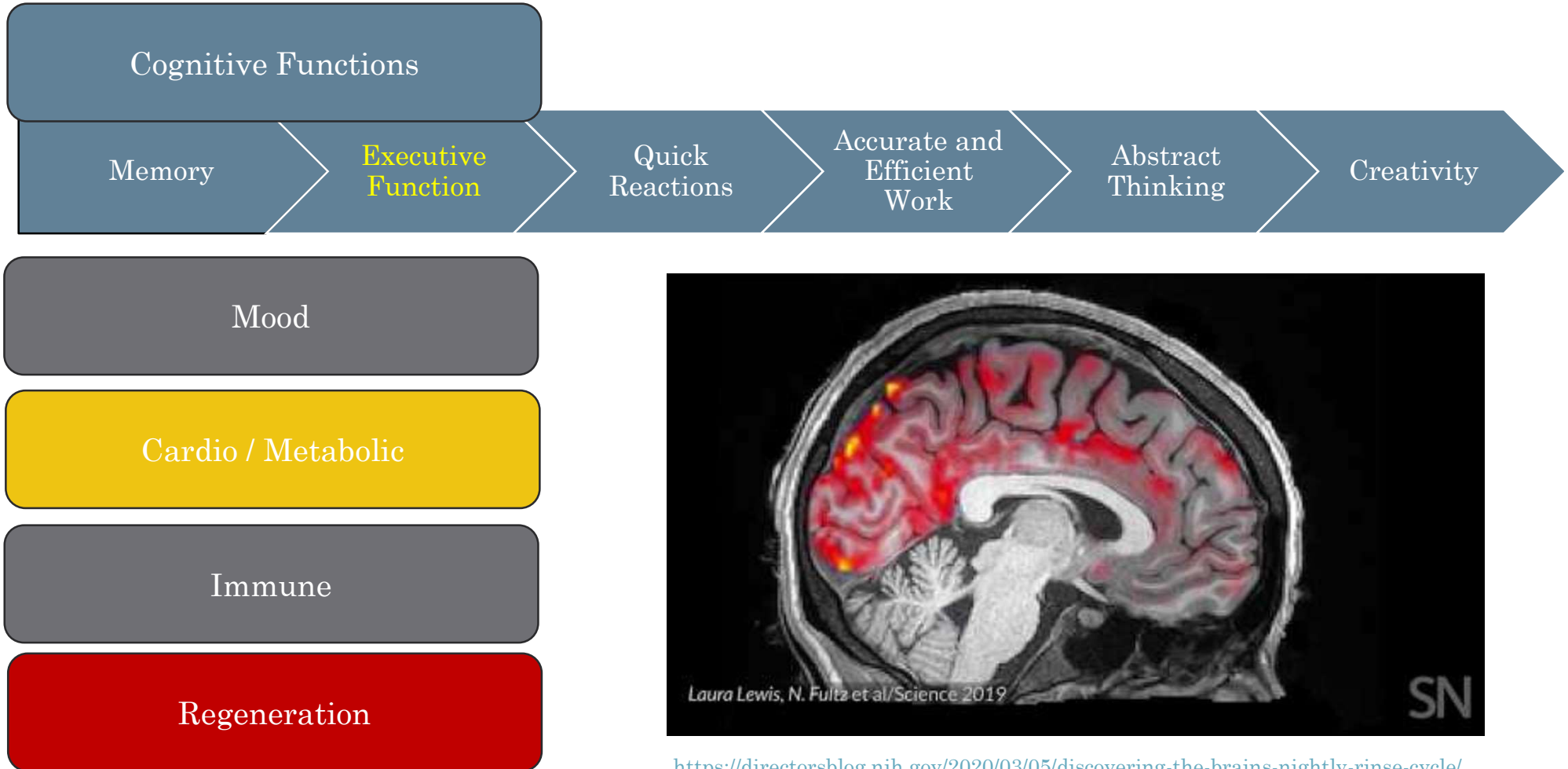
Perception
& expectations



Habits
& Behavior



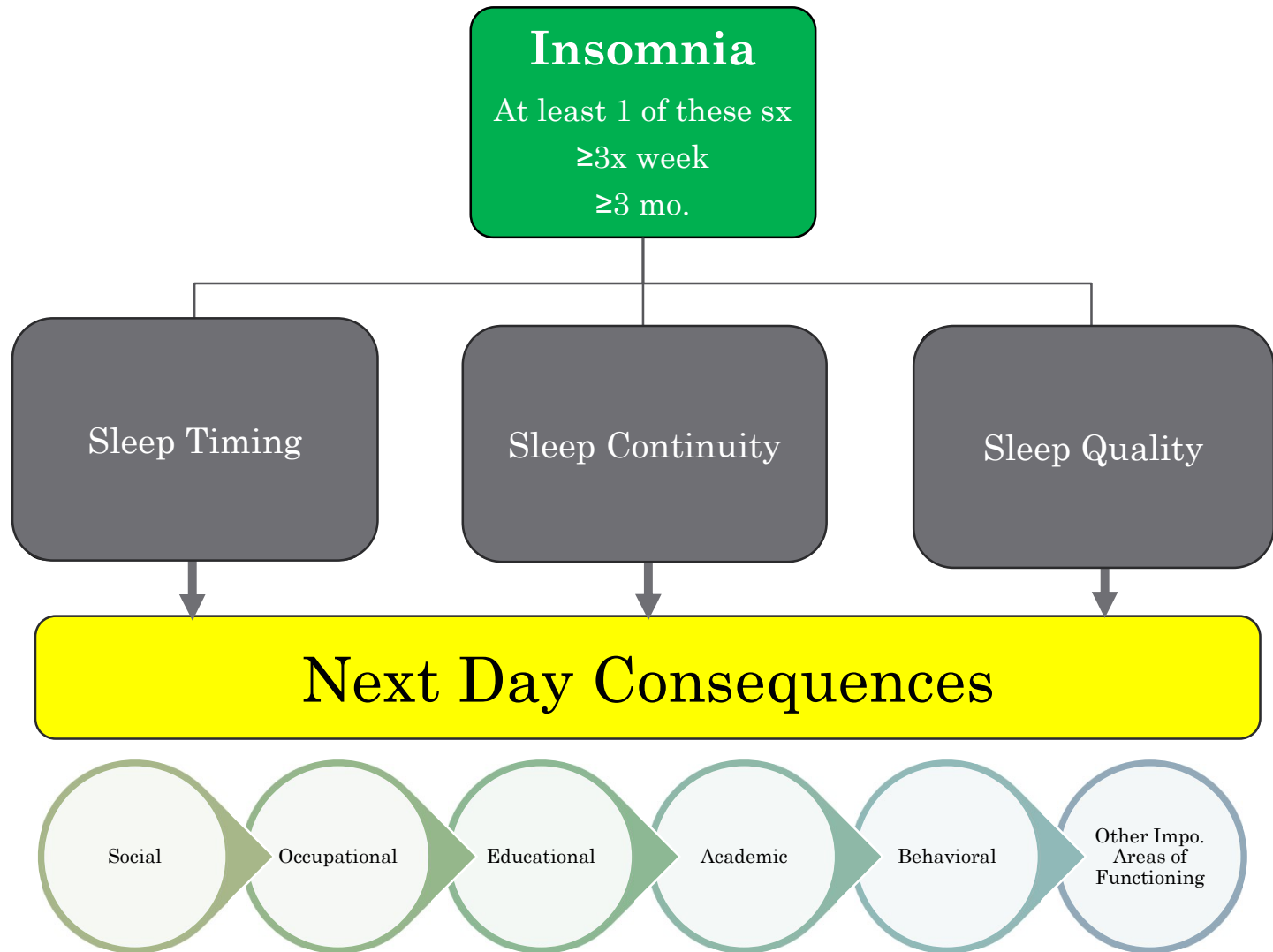
Why is sleep important?

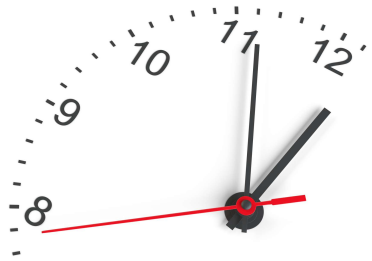


<https://directorsblog.nih.gov/2020/03/05/discovering-the-brains-nightly-rinse-cycle/>

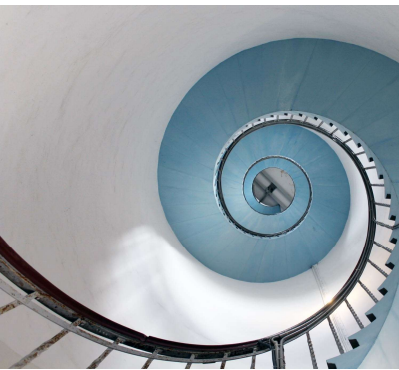
Sleep....which disorder?

1	Insomnia	Acute 1 out of 3
		Chronic 1 out of 10 Difficulty falling or staying asleep > 3x week for > 3 months
2	Sleep-related breathing disorder 1 out of 15	OSA, COPD
3	Central disorders of hypersomnolence	Conditions causing severe daytime sleepiness: Narcolepsy, Idiopathic hypersomnia
4	Circadian rhythm sleep-wake disorders	Sleep disturbances resulting from problems with biological clock: Delayed sleep phase, Shift work problem
5	Parasomnias (NREM, REM related)	Unusual behaviors or experiences during sleep: Sleep terrors, Sleep-walking, Nightmares
6	Sleep-related movement disorders 1 out of 20	RLS, Periodic leg movements, Teeth grinding, body rocking
7	Other Sleep Disorders...	





Sleep Timing
Sleep onset / latency

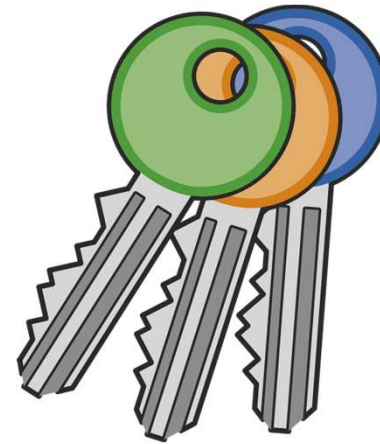


Sleep Continuity
Sleep maintenance
Early awakening



Sleep Quantity
Daytime Sleepiness

Keys to HISTORY



Medical & Psychiatric Hx:

Habits:

- Exercise
- Alcohol
- Smoking
- Diet
- Hobbies (Joy/Purpose)

Keys for other sleep d/o:

- Are you or your partner aware of snoring, gasping for air or NOT breathing? (**STOP-BANG**) Talking, acting out dreams?
- Do you walk, eat, kick, punch, or scream during sleep?
- Do you have urge to move your legs / uncomfortable feelings in your legs during rest or at night?

OTHER TOOLS

- Insomnia Severity Index
- Epworth Sleepiness Scale
- BEARS assessment



Sleep diary

	<i>Hours in bed</i>	<i>Hours asleep</i>
<i>Monday</i>	6	5
<i>Tuesday</i>	7	6.5
<i>Wednesday</i>	7	4
<i>Thursday</i>	6.5	5
<i>Friday</i>	8	6
<i>Saturday</i>	9	7

Myth or Fact

Sleep Deprivation is the same as Insomnia

Sleep Efficiency



Total Sleep Time



Total Time in Bed

$\times 100$

$\geq 85\%$

Subjective Tools



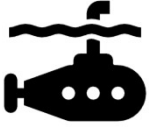
<https://consensussleepdiary.com/>



[CBT-i Coach | VA Mobile](#)

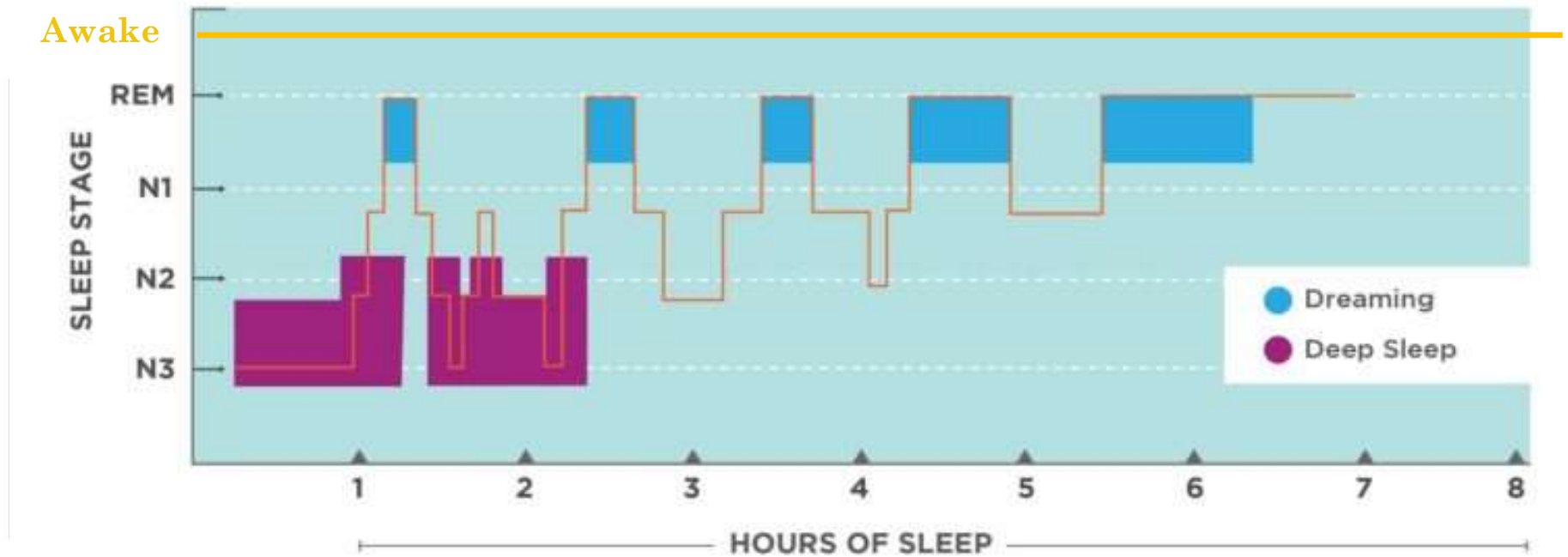
1) Did you nap or doze yesterday? <input type="radio"/> Yes <input type="radio"/> No	4) How long did it take you to fall asleep? <input type="text" value="Type here"/>	7) Did you wake up earlier than you desired? <input type="radio"/> Yes <input type="radio"/> No
2) What time did you get into bed yesterday? <input type="text" value="8:00 PM"/>	5) How many times did you wake up, not counting your final awakening? <input type="text" value="Type here"/>	8) What time did you get out of bed today? <input type="text" value="8:00 AM"/>
3) What time did you try to go to sleep? <input type="text" value="8:00 PM"/>	6) What time was your final awakening? <input type="text" value="8:00 AM"/>	9) How would you rate the quality of your sleep? <input type="radio"/> 😞 <input type="radio"/> 😐 <input type="radio"/> 😊 <input type="radio"/> 😄 <input type="radio"/> 😁

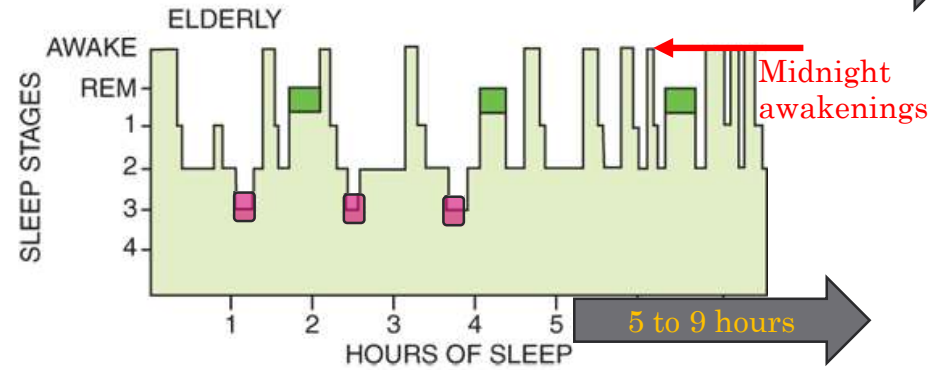
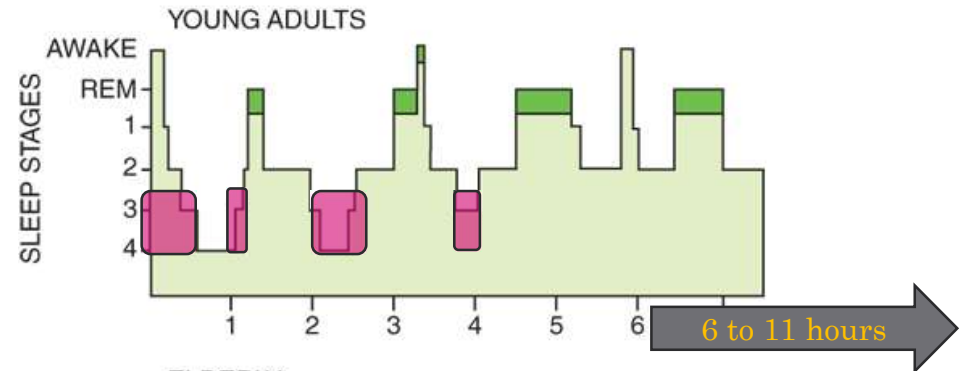
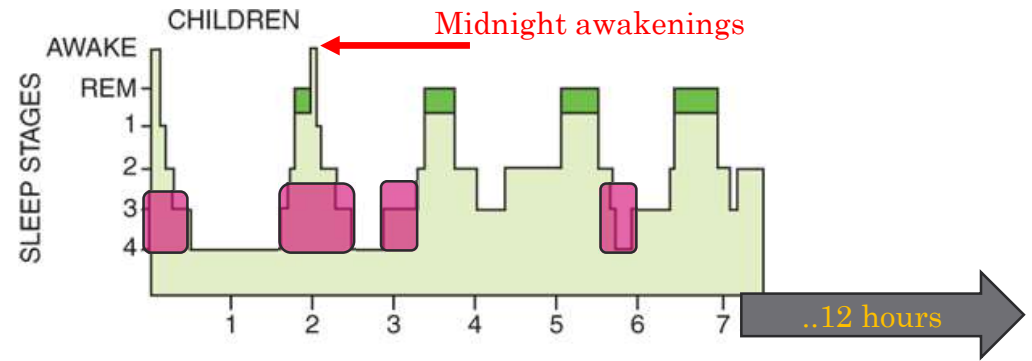
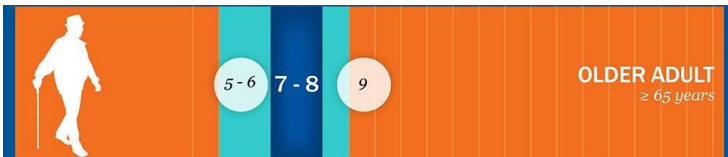
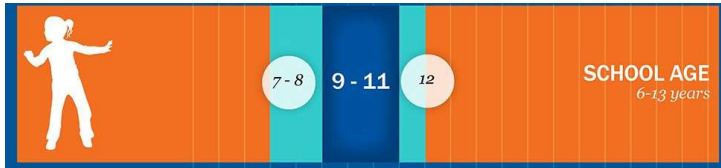
Today's Date	5/18/24
1. What time did you get into bed?	10:30 pm
2. What time did you try to go to sleep?	11:00 pm
3. How long did it take you to fall asleep?	35 min
4. How many times did you wake up, not counting your final awakening?	3 times
5. In total, how long did these awakenings last?	45 min
6. What time was your final awakening?	6:30 am
7. What time did you get out of bed for the day?	7:00 am
8. How would you rate the quality of your sleep?	Very Poor Poor Fair Good Very Good
9. Comments (if applicable)	I had to give a talk the next day



SLEEP STAGES

Awake



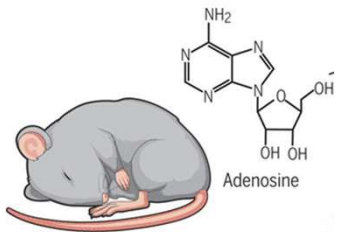


How we sleep?



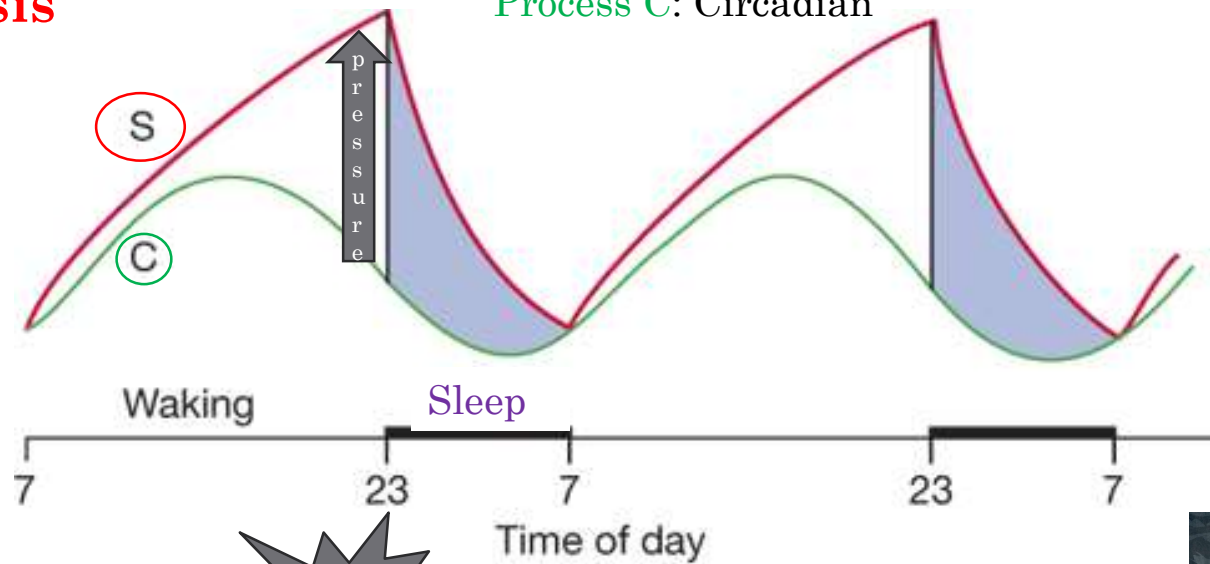
Sleep homeostasis

Process S: Sleep Drive = Radiator



Circadian Rhythm "Body Clock"

Suprachiasmatic Nucleus
Process C: Circadian



10-11pm



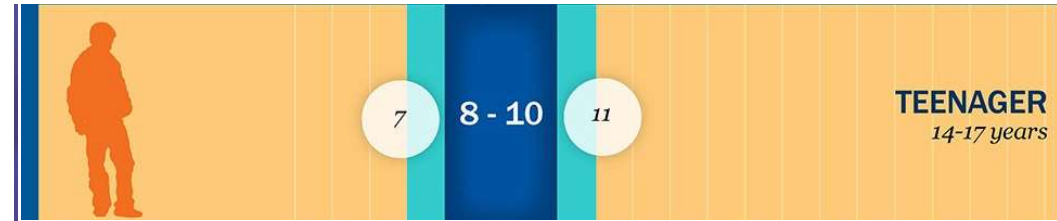


School Starts too Early



Teenage girls impacted by sleepiness > boys

80% adolescents get less than optimal sleep (9 hrs.)



Myth or Fact

Teenagers are Lazy



Carskadon, M. A., Mindell, J. A., & Drake, C. (2015). National Sleep Foundation. 2006 Sleep in America Poll: summary of findings. Washington, DC: National Sleep Foundation, 2006. sleep in America Poll—teens and sleep. *Sleep Heal. Arlington, VA*.
Crowley, S. J., Wolfson, A. R., Tarokh, L., & Carskadon, M. A. (2018). An update on adolescent sleep: New evidence informing the perfect storm model. *Journal of adolescence*, 67, 55-65.



Comorbidities

Psychiatric

- Anxiety
- Mood disorder
- Substance Use D/o

Medical

- Pain
- Cardiac – HTN, CHF
- Metabolic – DM, Obesity
- Other Sleep D/o
- Pulmonary
- Rheumatological
- Neurological
- Gastrointestinal
- Renal
- Medications



Risk Factors

Psychiatric

- Anxiety
- Mood [Depression & Mania/Hypomania]
- Substance Use: ETOH, Nicotine, Coffee

Medical

- Pain
- Cardiac Dz
- Metabolic/Endocrine- Obesity, Thyroid, Menopause, Testosterone
- Other Sleep D/o-Sleep-related breathing disorder , Sleep-related movement disorders

Age/Gender (F, Elderly)

Social (Separation/Divorce/Widowhood)

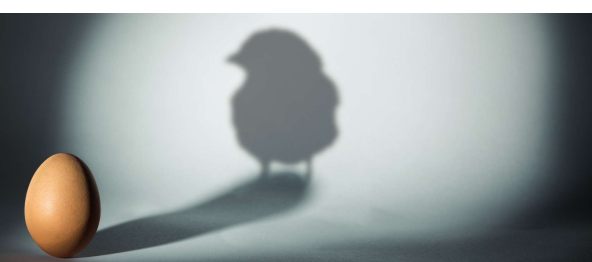
Lifestyle (night shift, substance use behaviors)

Sleep Environment



Differential Dx

- Other Psychiatric D/o
- Substance Use D/o
- Menopause
- Sleep Deprivation (short sleep duration opportunity or chronic sleep insufficiency)
- RLS, OSA, COPD, Circadian rhythm sleep-wake disorders



Buscemi, N., Vandermeer, B., Friesen, C., Bialy, L., Tubman, M., Ospina, M., ... & Witmans, M. (2005). Manifestations and management of chronic insomnia in adults: Summary. *AHRQ evidence report summaries*.; Doghramji, P. P. (2001). Detection of insomnia in primary care. *Journal of Clinical Psychiatry*, 62, 18-26.

Doghramji, P. P. (2004). Recognizing sleep disorders in a primary care setting. *J Clin Psychiatry*, 65(Suppl 16), 23-6.; Roth, T., Jaeger, S., Jin, R., Kalsekar, A., Stang, P. E., & Kessler, R. C. (2006). Sleep problems, comorbid mental disorders, and role functioning in the national comorbidity survey replication. *Biological psychiatry*, 60(12), 1364-1371. ;Pearson, N. J., Johnson, L. L., & Nahin, R. L. (2006). Insomnia, trouble sleeping, and complementary and alternative medicine: analysis of the 2002 national health interview survey data. *Archives of internal medicine*, 166(16), 1775-1782.; Suka M, Yoshida K, Sugimori H. Persistent insomnia is a predictor of hypertension in Japanese male workers. *J Occup Health*.2003;45(6):244-250.; Neubauer, D. N. (2005). Insomnia. Primary Care: Clinics in Office Practice, 32, 375-388.; Ohayon, M. M. (2002). Epidemiology of insomnia: what we know and what we still need to learn. *Sleep medicine reviews*, 6(2), 97-111.; Bastien, C. H., Vallières, A., & Morin, C. M. (2004). Precipitating factors of insomnia. *Behavioral sleep medicine*, 2(1), 50-62.; Young, T., Rabago, D., Zgierska, A., Austin, D., & Finn, L. (2003). Objective and subjective sleep quality in premenopausal, perimenopausal, and postmenopausal women in the Wisconsin Sleep Cohort Study. *Sleep*, 26(6), 667-672.

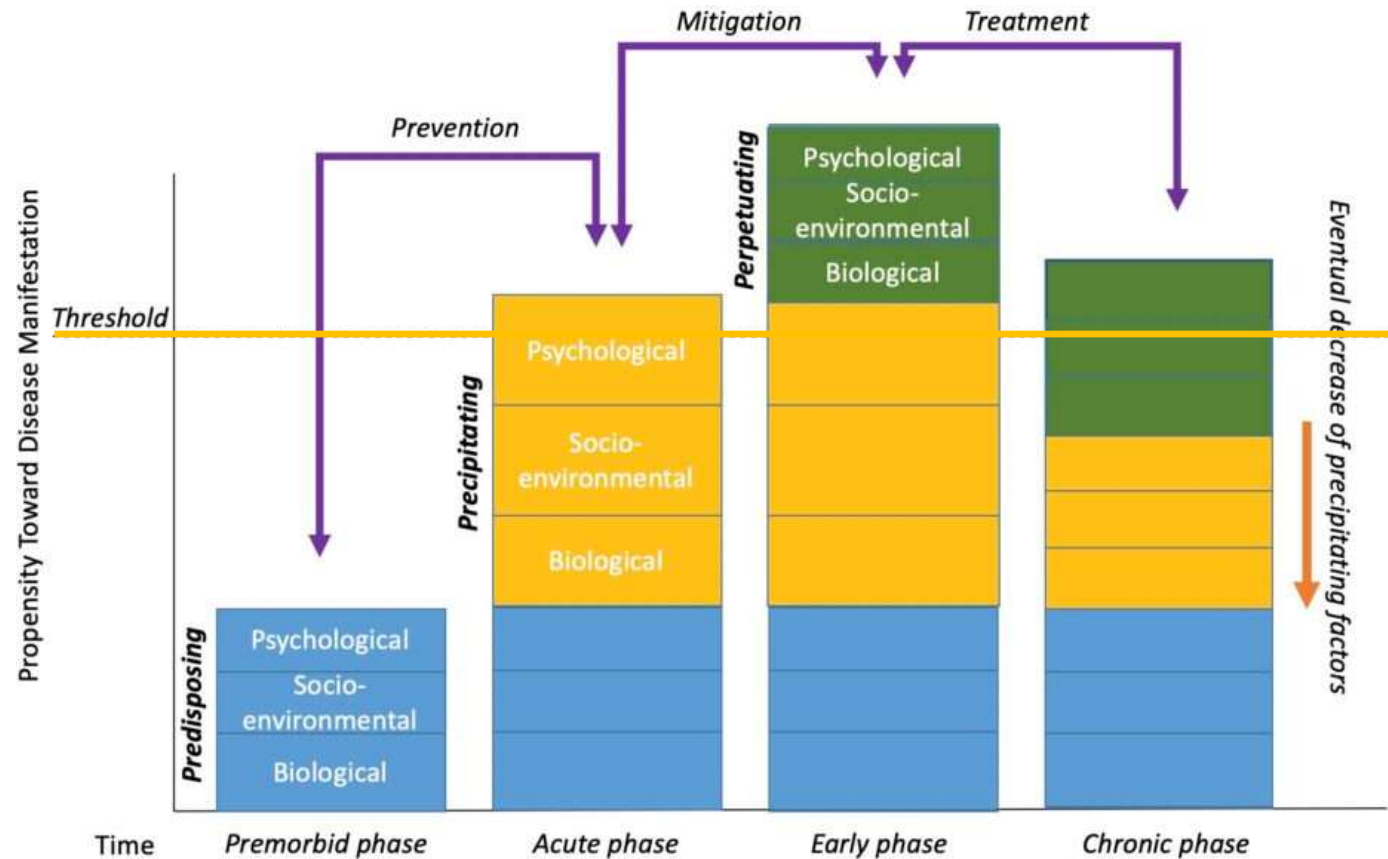
Perpetuating: inadequate sleep habits (excessive time in bed), sleep hygiene issues (screen in bed), napping

Precipitating: stressful life events, medical illness, depression/anxiety

Predisposing: biological traits (gender/age), psychological traits (anxiety-prone personality),

- Anxiety
- ↓ Openness to Experience
- ↓ Conscientiousness
- Insomnia sleep preoccupation (severe)

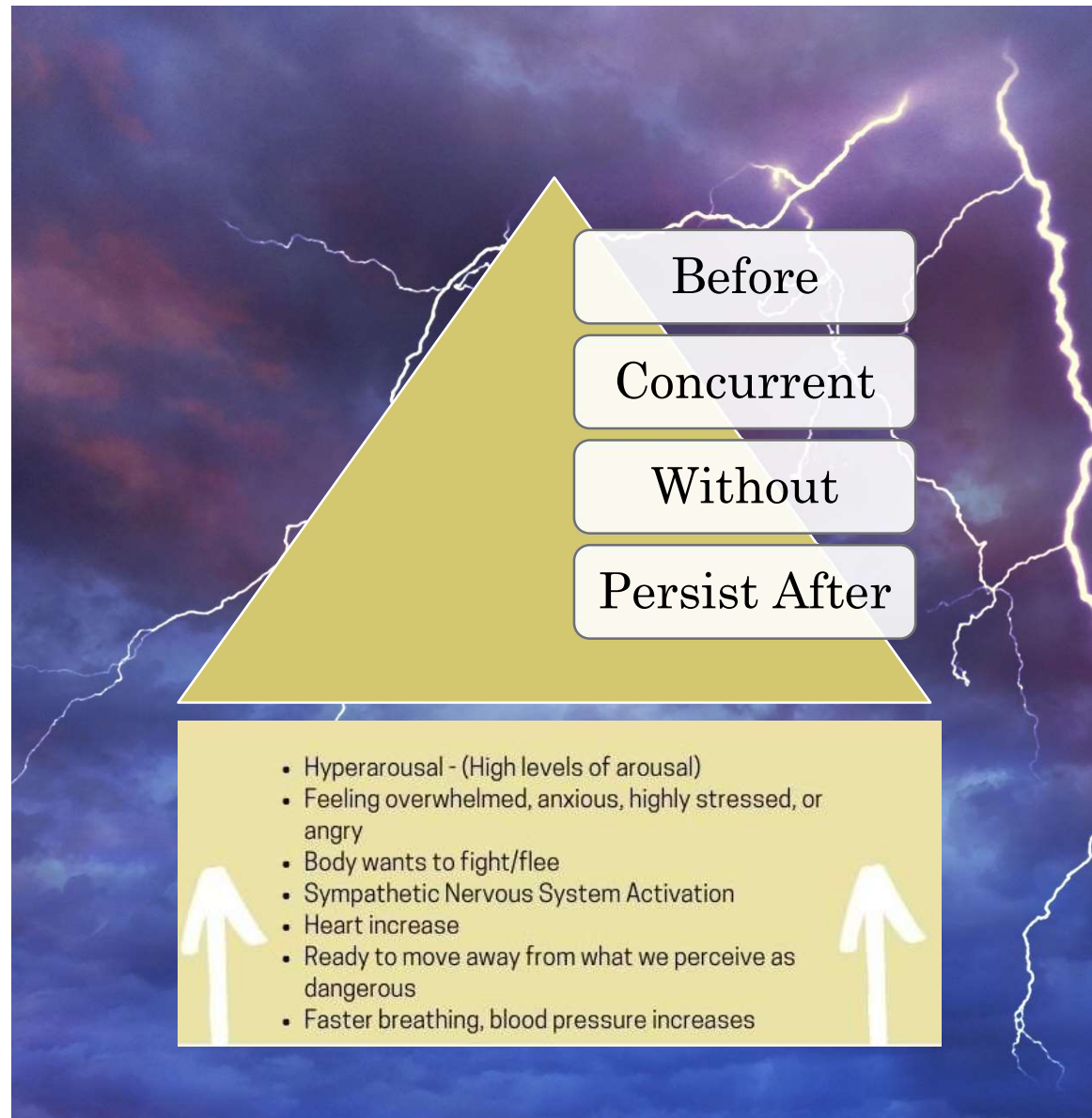
Ellis, J. G., Perlis, M. L., Espie, C. A., Grandner, M. A., Bastien, C. H., Barclay, N. L., ... & Gardani, M. (2021). The natural history of insomnia: predisposing, precipitating, coping, and perpetuating factors over the early developmental course of insomnia. *Sleep*, 44(9), zsab095.



The 3P-Disease Model. The x-axis represents time, and the y-axis represents the propensity toward disease manifestation. Reuse/adapted from *The Psychiatric Clinics of North America*, volume 10, A.J. Spielman, L.S. Caruso, and P.B. Glovinsky, A behavioral perspective on insomnia treatment, 541–555,

Myth or Fact

Insomnia is consequence of an underlying psychiatric condition.



Insomnia

Before

Concurrent

Without

Persist After

Depression

Persistent SX alongside

Bipolar

A prodromal SX

Risk Factor for
recurrent
Mood episodes
(DPN & BP)

Anxiety

MAJORITY have

Develop before, at the same time, or after the onset

Trauma

Nearly Always (b/c hypervigilance, nightmares)

Common Persistently after PTSD txt

McClintock SM, Husain MM, Wisniewski SR, et al. Residual symptoms in depressed outpatients who respond by 50% but do not remit to antidepressant medication [published correction appears in J Clin Psychopharmacol. 2013 Dec;33(6):765]. *J Clin Psychopharmacol.* 2011;31(2):180-186. ; Breslau N, Roth T, Rosenthal L, Andreski P. Sleep disturbance and psychiatric disorders: a longitudinal epidemiological study of young adults. *Biol Psychiatry.* 1996;39(6):411-418.; Ohayon MM, Roth T. Place of chronic insomnia in the course of depressive and anxiety disorders. *J Psychiatr Res.* 2003;37(1):9-15.; Belleville G, Guay S, Marchand A. Persistence of sleep disturbances following cognitive-behavior therapy for posttraumatic stress disorder. *J Psychosom Res.* 2011;70(4):318-327.; Sylvia LG, Dupuy JM, Ostacher MJ, et al. Sleep disturbance in euthymic bipolar patients. *J Psychopharmacol.* 2012;26(8):1108-1112.

Sleep Hygiene

Don't watch the Clock



Only Use Bed for Sleep & Sex



Don't take WORRIES to bed



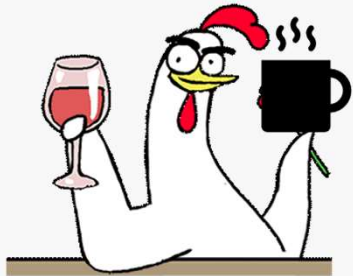
Avoid SCREEN in bed



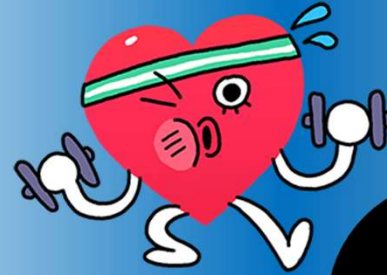
If you don't fall asleep, get OUT of bed



Don't take naps



Perpetuating: inadequate sleep habits (excessive time in bed), sleep hygiene issues (screen in bed), napping



Get bright light during day

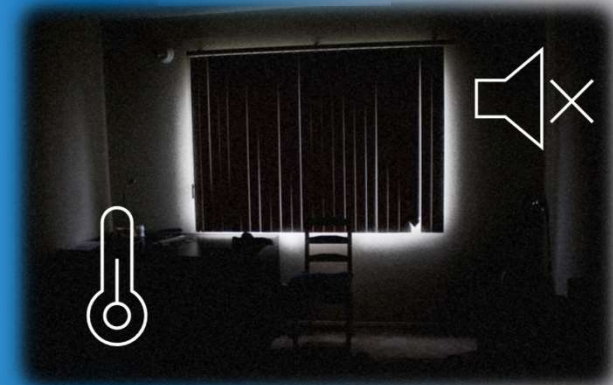


Create sleep rituals 1 hr

Go to bed ONLY when sleepy

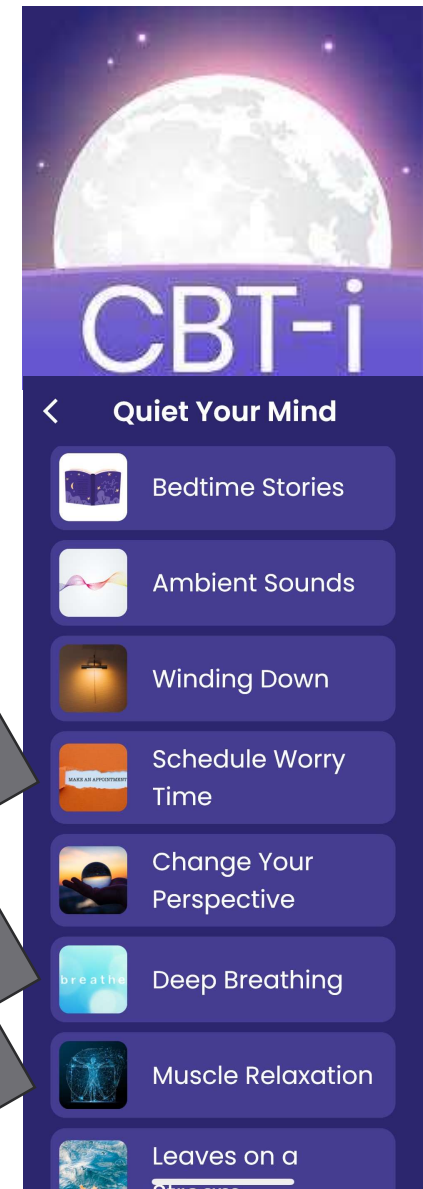
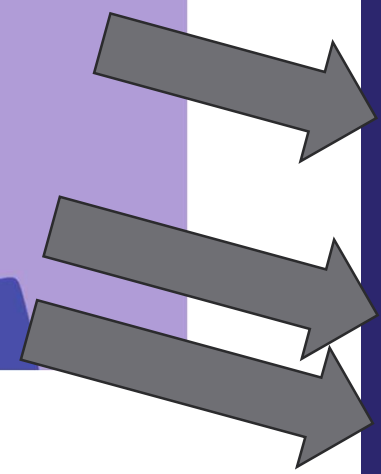


Get up & go to bed SAME time qd



Anxiety + Sleep

Psychophysiological Insomnia



Technology + Sleep

Avoid Screen time in Bed



Technology in the bedroom equals poor sleep and poor grades

- ↑ Daytime vigilance
- ↓ Grades (or work performance)
- ↑ Psychological Distress
- ↑ Daytime Fatigue



Now What?



AASM Nonpharmacological Guidelines

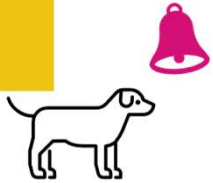
1. We recommend that clinicians use multicomponent cognitive behavioral therapy for insomnia for the treatment of chronic insomnia disorder in adults. (STRONG)
2. We suggest that clinicians use multicomponent brief therapies for insomnia for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
3. We suggest that clinicians use stimulus control as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
4. We suggest that clinicians use sleep restriction therapy as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
5. We suggest that clinicians use relaxation therapy as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)
6. We suggest that clinicians *not* use sleep hygiene as a single-component therapy for the treatment of chronic insomnia disorder in adults. (CONDITIONAL)

Recommendations	
Strong	Cognitive Behavioral Therapy
Conditional	Relaxation Training
Conditional	Brief Therapies
Conditional	Stimulus Control Therapy
Conditional	Sleep Restriction Therapy
Conditional	Intensive Sleep Retraining

Edinger, J. D., Arnedt, J. T., Bertisch, S. M., Carney, C. E., Harrington, J. J., Lichstein, K. L., ... & Martin, J. L. (2021). Behavioral and psychological treatments for chronic insomnia disorder in adults: an American Academy of Sleep Medicine clinical practice guideline. *Journal of Clinical Sleep Medicine*, 17(2), 255-262.

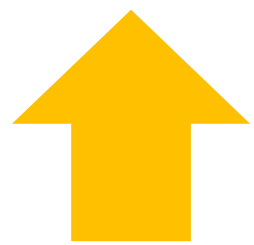
CBT-I

1st line Txt

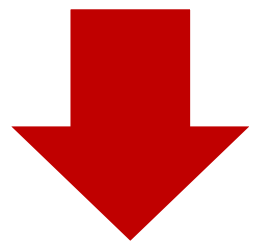


- Modify during pregnancy, after pregnancy, breastfeeding mothers
- Adjust for chronic pain or those with limited movement

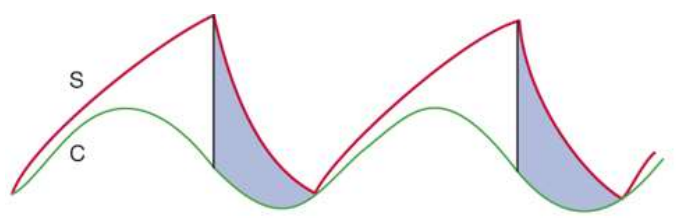
- Caution in OSA as already w/ significant daytime sleepiness
- Close Monitor in Bipolar as possible triggering mania/hypomania



Psychophysiological Hyperarousal



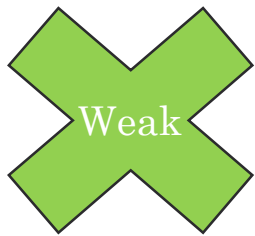
Insufficient Seep Drive



Stimulus Control	Sleep Restriction	Relaxation	Cognitive	Wrap-Up
<p>using bedroom only to sleep</p>	<p>restricting sleep times</p>	<p>taking short and long relaxations during the day</p>	<p>restructuring undesired thinking patterns</p>	<p>going over each component to prevent the relapse of insomnia</p>
<p>leaving bedroom-when cannot fall asleep</p> <p>Conditioning</p>	<p>SE</p> <p>increasing in-bed sleep times</p> <p>Sleep homeostasis Sleep Drive</p>	<p>Psychophysiological Hyperarousal</p>		

Erten Uyumaz B, Feijs L, Hu J. A Review of Digital Cognitive Behavioral Therapy for Insomnia (CBT-I Apps): Are They Designed for Engagement? *International Journal of Environmental Research and Public Health*. 2021; 18(6):2929.; Raglan, G. B., Swanson, L. M., & Arnedt, J. T. (2019). Cognitive behavioral therapy for insomnia in patients with medical and psychiatric comorbidities. *Sleep medicine clinics*, 14(2), 167-175

AASM Pharmacological Guidelines



Recommendations	
Weak	Suvorexant
Weak	Eszopiclone
Weak	Zaleplon
Weak	Zolpidem
Weak	Triazolam
Weak	Temazepam
Weak	Ramelteon
Weak	Doxepin
Weak	Trazodone
Weak	Tiagabine
Weak	Diphenhydramine
Weak	Melatonin
Weak	Tryptophan
Weak	Valerian

Sateia, M. J., Buysse, D. J., Krystal, A. D., Neubauer, D. N., & Heald, J. L. (2017). Clinical practice guideline for the pharmacologic treatment of chronic insomnia in adults: an American Academy of Sleep Medicine clinical practice guideline. *Journal of clinical sleep medicine*, 13(2), 307-349.



FDA- Approved Medications

Melatonin Receptor Agonist

Histamine Receptor Antagonist




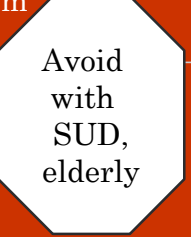

Dual Orexin Receptor Antagonists

Schedule IV

Benzodiazepine Receptor Agonists

(1) Benzo
(2) Z drug

Schedule IV

Sleep Onset 	- Both -	Sleep Maintenance 
Ramelteon 8 mg qhs	Daridorexant (Quviviq) 25-50 mg qhs Suvorexant (Belsomra) 10 mg qhs Lemborexant (DayVigo) 5 mg qhs	Doxepin 3 mg or 6 mg qhs 
⁽¹⁾ Triazolam (Halcion) 0.125-0.25 mg qpm 	⁽¹⁾ Temazepam 7.5 mg qhs 	
⁽²⁾ Zaleplon (Sonata) 5-10 mg qhs	⁽²⁾ Zolpidem (Ambien; ER, regular) IR 5 mg qhs, 6.25 mg qhs Females, 12.5 mg qhs Males ⁽²⁾ Eszopiclone (Lunesta) 1mg qhs	

Sateia MJ, Buysse DJ, Krystal AD, Neubauer DN, Heald JL. Clinical Practice Guideline for the Pharmacologic Treatment of Chronic Insomnia in Adults: An American Academy of Sleep Medicine Clinical Practice Guideline. *J Clin Sleep Med.* 2017;13(2):307-349. Published 2017 Feb 15. doi:10.5664/jcsm.6470

Non-FDA- Approved Medications

Sleep + other

Depression	Anxiety	RLS	SUD	Pain	Anorexia	Psychosis	Bipolar	PTSD	ADHD	HTN
Trazodone ✓	✓							✓		
Amitriptyline ✓	✓			✓ Fibro						
Mirtazapine (Remeron) ✓	✓		Stimulant Use d/o ✓		✓			✓		
	Gabapentin ✓	✓	Alcohol Use d/o ✓	✓			✓			
Quetiapine (Seroquel) ✓	✓					✓	✓	✓		
	Prazosin							✓		✓
	Guanfacine ✓								✓	✓
	Clonidine		Opiates & ETOH withdrawal ✓					✓		✓
	Hydroxyzine ✓		Anxiety withdrawal SX in ETOH ✓					✓		✓
	Propranolol ✓							prophylactic ✓		✓

Keep Meds Minimal BUT targeted

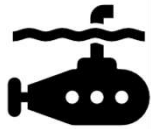


OTC Sleep Aids

Magnesium



- 75-600* mg qhs (avg 350)
- cause diarrhea
- + help migraine



Melatonin

Sleep onset & maintenance



- 2-10 mg 
- 0.5-3mg (children)

Diphenhydramine

Sleep onset & maintenance



- 25-50 mg qhs

Doxylamine

Sleep onset & maintenance



- 25 mg qhs

* Anticholinergic s/e
* Avoid in elderly

Maladaptive, Counterproductive,
Compensatory Push & Pull



Anxiety or another
psychiatric d/o

Medical conditions /
Meds

Why are my
meds **NOT**
working

Perception



Ellis, J. G., Perlis, M. L., Espie, C. A., Grandner, M. A., Bastien, C. H., Barclay, N. L., ... & Gardani, M. (2021). The natural history of insomnia: predisposing, precipitating, coping, and perpetuating factors over the early developmental course of insomnia. *Sleep*, 44(9), zsab095.; Fernandez-Mendoza, Julio PhD; Calhoun, Susan L. PhD; Bixler, Edward O. PhD; Karataraki, Maria PsyD; Liao, Duanping MD; Vela-Bueno, Antonio MD; Jose Ramos-Platon, Maria PhD; Sauder, Katherine A. BA; Basta, Maria MD; Vgontzas, Alexandros N. MD. *Sleep Misperception and Chronic Insomnia in the General Population: Role of Objective Sleep Duration and Psychological Profiles*. *Psychosomatic Medicine* 73(1):p 88-97, January 2011.

Myth or Fact

Antidepressants can cause worse sleep?



Medication Side Effects

- Antidepressants
 - Fluoxetine (Prozac)
 - Bupropion (Wellbutrin)
 - Venlafaxine (Effexor)
- Other Medications:
 - Stimulants
 - Glucocorticoids
 - Opioids

Pearls

Collaborate to Connect

Open to Modifying Perspectives

- Collect good history, review:
 - mental health problems
 - medical problems
 - medication/ substance use
- Empower patient to re examine sleep history themselves. Help with Perspective Shifting
- Avoid sleep pills as much as possible.
 - Pills don't teach skills
 - Medication can ADD or WORSEN the Problem!
- Refer out for the positive history for hypersomnia, parasomnia, sleep apnea

Educate on Habits & the Brain

Sleep Hygiene always, not just when sleep is worse.

- Discuss Sleep Need, Sleep Drive, Circadian rhythm
- Discuss Sleep Stages, why is sleep is important and changes over time
- Review what is Insomnia
- Review the 3 P's (predisposing, precipitating, and perpetuating factors)
- Break down CBT-I

Resources

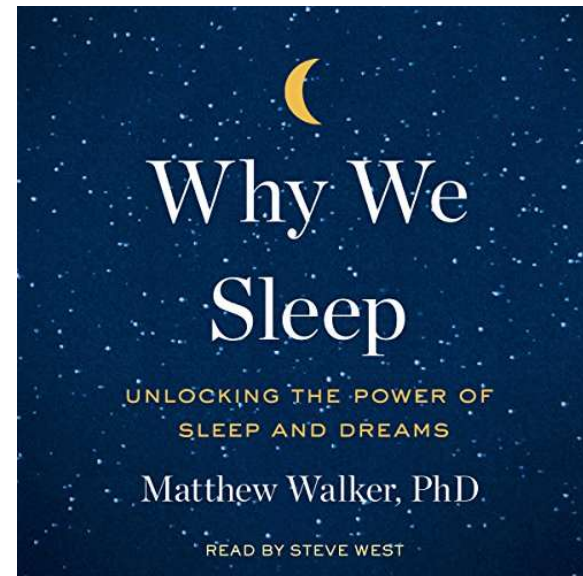
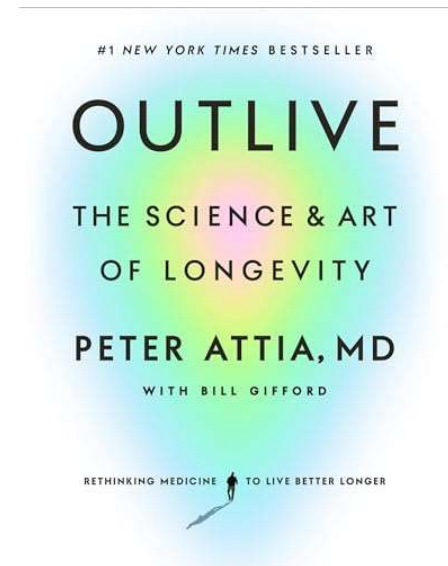
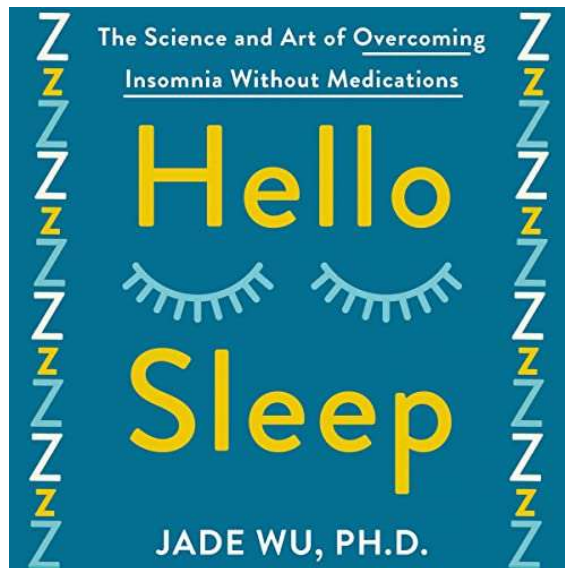
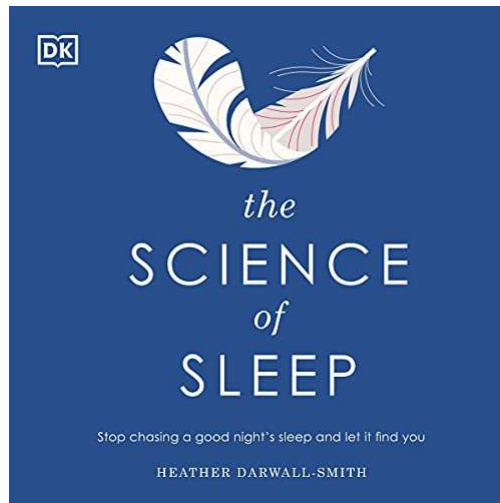
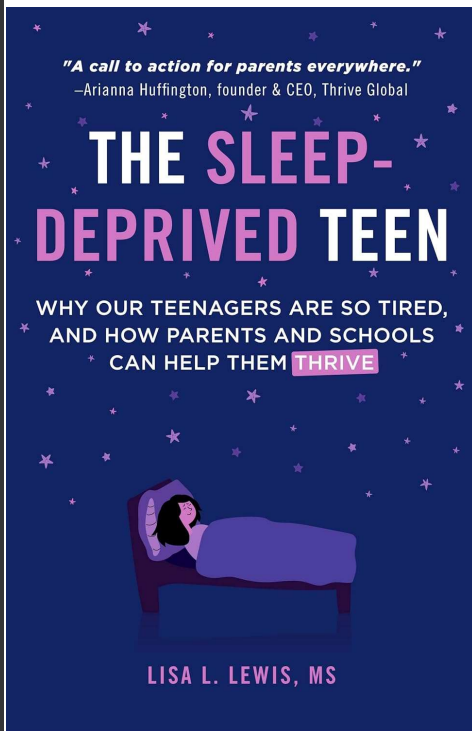
Lecture Handout Provided

- Sleep History & Screening Tools
- Sleep Hygiene Handout
- Cognitive Techniques Handout
- CBT-I Handout
- And much more....

- **CBT-I training**
 - AASM
 - PESI
 - Cbtiweb.org
- **Sleep education-**
<https://www.med.upenn.edu/sleepctr/cme.html>
- **Find CBT-I Therapist**
 - <https://www.psychologytoday.com/us/therapists/sleep-or-insomnia>

- **Provider resources from AMERICAN ACADEMY OF SLEEP MEDICINE:**
<https://aasm.org/clinical-resources/provider-fact-sheets/>
- **Patient Resources from NATIONAL SLEEP FOUNDATION:**
<https://www.sleepfoundation.org/sleep-disorders/insomnia>

Books



Thank you

Mercedes Dodge, MPAS,
PA-C, CAQ-Psychiatry

mercedes@redirect-wellness.com

www.redirect-wellness.com



Sleep



Mortality
& co-morbidities



Perception
& expectations



Habits
& Behavior