All Rise Justice for Vets

TACKLING SLEEP HYGIENE IN JUSTICE-INVOLVED INDIVIDUALS

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Learning Objectives

- Review key elements of sleep and disorders of sleep
- Recognize common signs and reported symptoms commonly associated with sleep deprivation/insomnia
- Identify how symptomology can mimic other common psychiatric disorders.
- Describe a systematic approach to sleep hygiene that can significantly improve sleep and decrease insomnia.

What is sleep?

Sleep

- A period of reduced activity resulting in decreased responsiveness to external stimuli
- Our bodies regulate sleep in much the same way that we regulate other powerful life sustaining activities
- Brain wave activity patterns and other physiological changes:
  - Blood Pressure
  - Temperature
  - Respiration
  - Cardiovascular

Brain Wave Activity

- **Gamma:** Fastest brain waves produced>35 Hz to 100Hz. – intensely focused or actively engaged in solving a problem. – Peak state of consciousness, peak performances
- **Beta:** 4-30Hz Awake, normal alert consciousness
- **Alpha:** 9-13 Hz relaxed, calm consciousness greatest amplitude are recorded from the occipital and parietal regions
- **Theta:** 4-8 Hz deep meditation – light sleep
- **Delta:** 1-3Hz deep sleep

Non-REM

- Promoted by preoptic nuclei
- TEMP – relatively stable
- BREATH - Slight decrease and very regular
- HEART/BP- reduction
- Learning and Memory
- Emotional health

REM

- Regulated by pontine pathways
- TEMP – drops 1 to 2 degrees
- BREATH – Increases/Variable
- HEART/BP-increases/variable
- Metabolism and weight
- Rejuvenation of immune, nervous, muscular, and skeletal systems

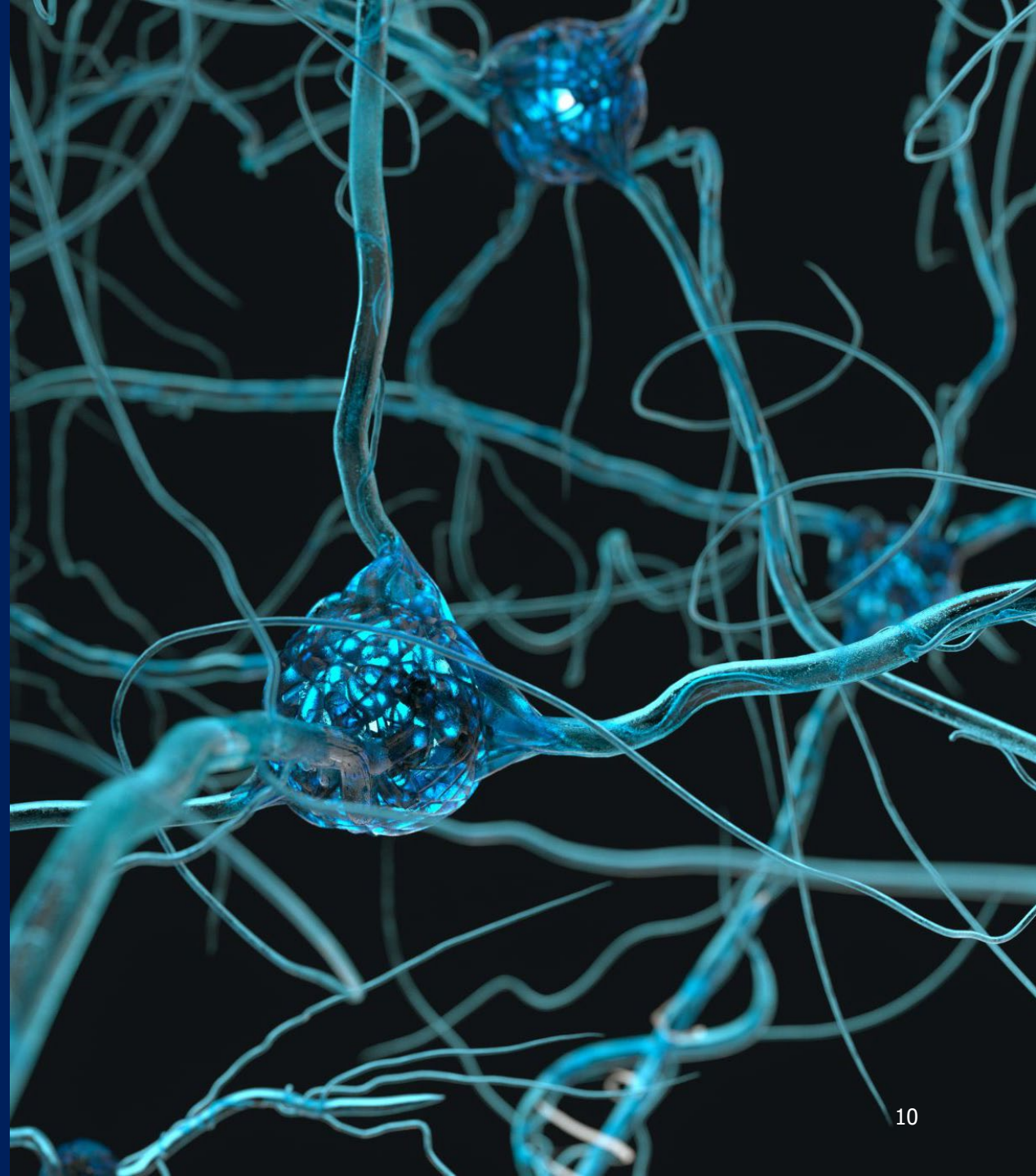
Physiological Activity During Sleep

Kidney function slows – Slow metabolic processes

Increase growth hormone

Cell repair and growth

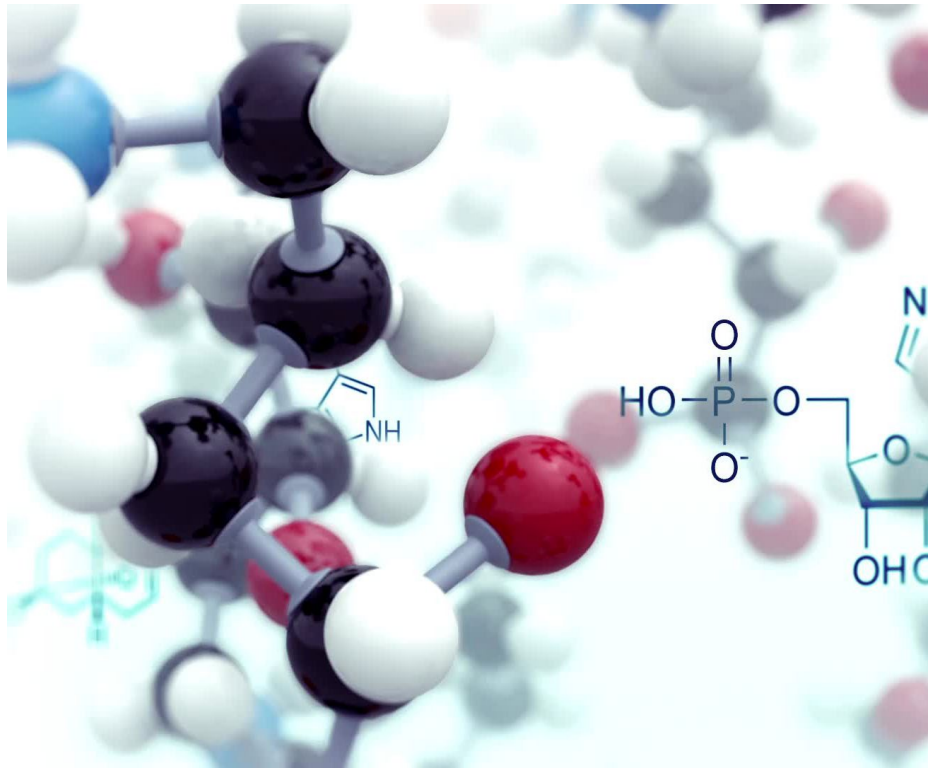
Glymphatic system!



Glymphatic System

- Waste removal system of the brain
  - Proteins (i.e., soluble, beta-amyloid peptides)
  - Metabolites
- Helps distribute non-waste compounds throughout the brain
- Possible contributing role in neurological diseases (Mestre and Nedergaard, 2020).

Guess when this system is mainly engaged?



Benefits of Sleep

Benefits of sleep

Supports immune function	Improves heart health	Aids in weight management	Enhances physical performance	Supports cognitive functioning
Supports emotional regulation	Increases productivity	Enhances mood	Promotes Safety	Improves skin health

Benefits of Sleep, cont.

- Energy conservation
- Restorative
- Brain Plasticity
- Improve learning and memory
  1) Increased efficiency from feeling refreshed
  2) Sleep process itself is believed to play a role in consolidation of memory which is essential to learning (Rasch & Born, 2013).

Impact of Sleep Deprivation

Impact of Inefficient Sleep (neuro)

- Overworked neurons become less effective in coordinating processes to access learned information (Bushey et al., 2011)
- Diminished
  - Focus
  - Attention
  - Vigilance (Killgore, 2010; Yoo et al., 2007))
  - Alters interpretation of events (Walker, 2017)
  - Less able to make sound decisions based on poorer ability to assess, plan, and execute correct behavior
  - Impaired Judgement (Killgore, 2013; Liu et al., 2016)

Executive Functioning

- Higher order cognitive processes subserved by the prefrontal cortex in concert with the anterior cingulate and posterior parietal systems seem particularly vulnerable to insufficient sleep

In other words...

- The parts of the brain that help with complex thinking, focus, and decision-making are especially affected when you do not get enough sleep

Sleep and Neuropsychological Functioning

Higher sleep fragmentation associated with incident dementia and >20% increase in annual rate of cognitive decline (Lim et al., 2013).

Less time spent in REM and stage 1 sleep was associated with poorer attention, processing speed, and executive functioning (Blackwell et al., 2011). Minutes awake after sleep onset related to poorer executive functioning.

Neurocognitive Functioning and Lack of Sleep

- Processing speed, working memory, and other attentional based processes appears most sensitive to sleep deprivation.
- Metanalysis of short-term sleep deprivation and cognitive performance (Lim and Dinges, 2010).
- Simple attention most strongly affected with sustained attention seen as underlying issue affecting higher order cognitive abilities such as decision making, working memory, etc.

Older Adults

- Variable findings (methodological and sample differences)
- Attention, working memory, and executive functioning
- Mildly disturbed sleep week prior and month prior associated with reduced working memory (Seelye, 2015) vs. no impact from night prior to testing

Functional Impact of Inefficient Sleep

Staying awake for 17-19 hours straight impact cognitive and motor than a blood-alcohol level of .05% (Dawson & Reid, 1997)

24 hours = .10 percent

- (Williamson & Feyer, 2000)

Safety Issues

- Increased errors at the workplace
- Decreased productivity
- Accidents leading to serious injury and/or death
  - Pilot error – Air France Crash 447 – ”I didn’t sleep enough last night. One hour – it’s not enough”
  - Medical error – One study found that hospitals could reduce the number of medical errors by as much as 36 percent by limiting an individual doctor’s work shifts to 16 hours and reducing the total work schedule to no more than 80 hours per week (Lockley et. Al., 2007)

Driving Safety

- 60% of 168 million people report driving while feeling drowsy
- More than 30% of 103 million have actually fallen asleep
- Conservative estimates of 100,000 police-reported crashes are a direct result of driver fatigue
- Drowsy driving is responsible for 20% of all motor vehicle crashes
- Approximately 1 million crashes, 500,000 injuries, and 8,000 deaths each year in the U.S.
- (CDC, 2022)

Poor Sleep and Medical Issues

Physical Health Effects of Poor Sleep

Cardiovascular

- C-reaction protein concentration increased in total and partial sleep deprivation (Irwin et al., 2016)

Obesity

- Sleep duration negatively correlated with Body Mass Index (BMI) (patel et al., 2014)

Diabetes

- 6 Hours or less associated with increased prevalence of type 2 Diabetes (Shan et al., 2015)

Poor Sleep and Immune Function

- Short sleep duration has been associated with reduced immune responses, including lower production of antibodies and impaired immune cell function (Besedovsky et al., 2012)
- Studies have shown that people who sleep less than 6 hours per night are more susceptible to infections, such as the common cold (Benedict et al., 2012)

Poor Sleep and Mental Health

Poor Sleep and Mental Health

- Poor sleep is closely associated with mood disorders such as depression and anxiety.
- Sleep disturbances can exacerbate symptoms and make these conditions harder to treat.
- Sleep is crucial for emotional regulation and the ability to cope with stress.
- Poor sleep can lead to increased emotional reactivity and difficulty managing stress. (Palmer, et al., 2017; Simon et al., 2020)

Insomnia

Insomnia (DSM-V)

Dissatisfaction with the amount or quality of sleep along with:

- Difficulty initiating sleep
- Difficulty maintaining sleep
- Early morning awakening

Causes clinically significant distress or impairment

Happens at least 3 nights per week

Has lasted at least 3 months

Not better or adequately explained by:

- Opportunity for sleep
- Another sleep disorder (e.g., sleep apnea, narcolepsy or a circadian rhythm sleep disorder)
- Substance use
- Other mental or medical condition.

(APA, 2013)

Insomnia

- Approximately 30% to 35% of American adult population achieve less than recommended 6 to 8 hours of sleep per night at some point in their life
- 10% to 15% suffer chronic, unrelenting sleep difficulties (CDC, 2020)
- Frequently undetected

What percentage of adults in the State of Washington are not getting enough sleep?

32.8%

(CDC, 2022)

Insomnia

SECONDARY

- Medical Disorders
- Psychiatric Conditions
- Substance Abuse
- Other primary sleep disorders (e.g., sleep apnea)
- Middle-aged/Older Adult population prone

PRIMARY

- Primary insomnia
- Effects 1% to 2% of the general population
- Most commonly found in younger age groups

Insomnia in the Military

Research indicates that insomnia affects approximately 40-60% of veterans, which is significantly higher than the 10-15% prevalence of chronic insomnia in the general U.S. adult population. (Pigeon et al., 2017)

Insomnia is the most common symptom reported by veterans returning from deployment (McLay et al., 2010)

Almost 1/3, or approximately 600,000, military personnel returned from post 9/11 deployments with sleep disturbances (Seelig et al., 2010)

Insomnia is a symptom of many other problems, including PTSD, TBI, depression, and pain

Mental Health Conditions with Sleep Disturbance as a Symptom

Anxiety Disorders:

Generalized Anxiety Disorder (GAD)

Panic Disorder

Social Anxiety Disorder

Post-Traumatic Stress Disorder (PTSD)

Obsessive-Compulsive Disorder (OCD)

Mental Health Conditions with Sleep Disturbance as a Symptom, cont.

- Depression
- Post Traumatic Stress Disorder (PTSD)
- Bipolar Disorder
- Psychotic Spectrum of Conditions
- Personality Disorders
- Eating Disorders
- Substance Use Disorders

Substance Abuse (SA) and Insomnia

SA can contribute to sleep disorders

- Every stimulant abuse worsens insomnia: cocaine, caffeine, nicotine, ADHD medication, etc.

Marijuana decreases slow wave sleep and REM sleep

- Also decreases sleep quality
- May be initially helpful with initiation of rest but long-term marijuana use is associated with problems in both sleep initiation and maintenance (Sznitman et al., 2019)

Alcohol and Insomnia

- 28% of people with insomnia use alcohol to sleep (Johnson et al., 2000)
  - Drinking results in waking up 2.5 to 3 hours later to urinate (Roehers and Roth, 2001)
  - Alcohol disrupts the sequence and duration of sleep states (Ebrahim et al., 2013)
  - Alcohol consumed within 1-6 hours of bedtime disrupts the 2nd half of sleep (Brower, 2001)
  - Drinking decreases total sleep time (Chan and Spencer, 2004)

Depression and Insomnia

- Insomnia predicts depression (Baglioni et al., 2011)
- Approximately 73% of patients with Major Depressive Disorder report significant insomnia symptoms (Nutt, Wilson, and Patterson, 2008)
- Insomnia lasts after treatment for depression

Traumatic Brain Injury (TBI) and Sleep

Traumatic Brain Injury has been associated with:

-Alterations in Circadian Rhythms

-Disrupted Sleep Patterns

-Diminished Sleep Quality

20%-94% of veterans with TBI experience insomnia (Orr et al., 2017)

PTSD and Sleep

Insomnia is one of 20 defining characteristics of PTSD

- It frequently continues even after PTSD is successfully treated

Nightmares is also one of the defining characteristics

- Both nightmares and avoidance of nightmares can lead to insomnia

Somogyi Effect

Nighttime drop in blood sugar amongst those with DM-II?

Other Sleep Disorders

Obstructive Sleep Apnea (OSA) and Insomnia

- 39-58% of individuals with OSA suffer from insomnia (Sweetman et al., 2020)
- Bi-directional relationship
- Treated with CPAP, APAP, BIPAP – Compliance issues
- You cannot treat insomnia with behavioral interventions if OSA is not addressed

Narcolepsy

- Neurological disorder
- Affects 1 in 2,000 people
- Hypnogogic/hypnopompic hallucinations
- Sleep paralysis
- Fragmented sleep throughout the night
- With or without cataplexy
- Secondary narcolepsy – hypothalamus damage

Neurocognitive Functioning and OSA

- Metareview of OSA and neurocognitive function (Bucks et al., 2013)
  - Supported deficits in attention/vigilance, delayed long-term visual and verbal memory, visuospatial/constructional abilities, and executive functioning. Language and psychomotor function are unaffected
  - Attention/vigilance dysfunction appeared to be associated with sleep fragmentation and global cognitive function with hypoxemia.

How to improve sleep?

Sleep Hygiene: Definition

- Refers to a set of behavioral and environmental practices aimed at promoting consistent, uninterrupted, and restorative sleep.
- These practices help optimize the quality and duration of sleep and are essential for overall health and well-being.
- Good sleep hygiene involves:
  - creating an ideal sleep environment
  - maintaining a consistent sleep schedule
  - adopting habits that enhance the ability to fall asleep and stay asleep

Sleep Hygiene

Consistent sleep schedule

Go to bed and wake up at the same time every day, including weekends. This helps regulate the body's internal clock (circadian rhythm).

Consistent wake time is most important

Sleep Hygiene

Sleep Friendly Environment

Make the bedroom conducive to sleep by keeping it cool, dark, and quiet.

- Consider using blackout curtains, earplugs, or white noise machines if necessary.

Invest in a comfortable mattress and pillows that provide adequate support.

What should the bed be used for?

Sleep Hygiene

Daily Exposure to Sunlight

Morning Sunlight Exposure: Getting at least 30 minutes to 2 hours of direct sunlight exposure in the morning can help regulate your sleep-wake cycle, boost mood, and promote better sleep at night (Czeisler & Duffy, 2011).

Daylight Exposure: Consistent exposure to natural light throughout the day, especially in the first half of the day, can help reinforce the body's natural circadian rhythms and improve sleep quality at night (Brainard et al., 2001).

Sleep Hygiene

Limit Exposure to Screens at Night

Avoid electronic devices such as smartphones, tablets, and televisions at least an hour before bedtime.

The blue light emitted by these screens can interfere with the production of melatonin, a hormone that promotes sleep.

Sleep Hygiene

Relaxation Techniques

Incorporate relaxation practices

Reading

Meditating

Taking a warm bath

Engaging in gentle yoga before bed to help unwind and prepare the body for sleep

Sleep Hygiene

Avoid Stimulants:

Reduce or avoid consumption of caffeine and nicotine, particularly in the hours leading up to bedtime. These substances can interfere with the ability to fall asleep.

Limit Alcohol Consumption:

While alcohol might help some people fall asleep initially, it can disrupt sleep later in the night and reduce overall sleep quality.

No Nicotine

No Drugs

Sleep Hygiene

- Regular Exercise
- **Aerobic Exercise**: Engaging in at least 150 minutes of moderate-intensity aerobic exercise (such as brisk walking) per week, which amounts to about 30 minutes on most days, can significantly improve sleep quality (Kredlow et al., 2015).
- **Strength Training**: Including muscle-strengthening activities on two or more days a week can also contribute to better sleep.
- **Timing**: While exercise can improve sleep, the timing of exercise may also impact sleep quality. Engaging in vigorous exercise too close to bedtime (within an hour) may have stimulating effects, making it more difficult to fall asleep for some people. However, for many, exercising later in the day does not negatively impact sleep.

Sleep Hygiene

Mindful Eating:

- Avoid large meals and heavy snacks right before bedtime.
- Opt for a light, healthy snack if necessary.

Napping Habits:

- Limit daytime naps to 20-30 minutes
- Avoid napping late in the afternoon or evening, as it can make it harder to fall asleep at night.

Sleep Hygiene

- If you can’t fall asleep in 20 minutes, get out of bed and do something relaxing
- Listen to calming music
- Read boring material
- No smoking or drinking
- When feeling of sleepiness comes, then re-attempt sleep

Treatments

Supplement/Diet

- Melatonin
  - Typically taken 30 minutes to an hour before bedtime, with dosages ranging from 0.5 mg to 5 mg or higher, based on individual requirements and doctor recommendations.
- Tryptophan
  - Foods high in tryptophan include turkey, chicken, milk, cheese, yogurt, eggs, fish, peanuts, and pumpkin seeds.

Medications

- Trazodone
- Mirtazapine
- Prazosin (nightmares)

NO hypnotics, anxiolytics, opioids, marijuana, et.

Cognitive Behavioral Therapy for Insomnia (CBT-I)

Cognitive-Behavioral Therapy for Insomnia (Perlis et al., 2008)

- 6 sessions
- Psychoeducation about sleep and what interferes with it
- Sleep restriction
- Stress management
- Cognitive restructuring
- Relapse prevention

Cognitive Behavioral Therapy for Insomnia (CBT-I)

- CBT-I works (Smith et al., 2002)
- It also works in veterans (Talbot et al., 2014)
- Sleep improvements maintained after 6 months
- Group CBT-I works too (Koffelet al., 2015)

Imagery Rehearsal Therapy (IRT)

IRT is a five-session cognitive-behavioral treatment for nightmares

- It is based on two concepts (Krakow & Zadra, 2006):
  - Repetitive nightmares become habits
  - Internal imagery can be changed through rehearsal

Protocol

- Learn about how nightmares function
- Practice imagery rehearsal
- Rewrite nightmare ending and rehearse rewritten nightmare

IRT

- **It works!** (Kunze et al., 2017; Harb et al., 2019; Gieselmann et al., 2019)
- **70% of patients experience clinically meaningful improvements in nightmares** (Krakow & Zadra, 2010)
- **IRT decreases nightmare distress** (Krakow & Zadra, 2006)
- **Changes are maintained over time, from 12-30 months** (Forbes et al., 2003; Krakow et al., 1993)
- **IRT also improves sleep quality** (Krakow et al., 1995)

What can treatment courts do to help?

Strategies for Addressing Insomnia in Treatment Courts: Screenings and Education

- **Comprehensive Screening:**
  - Implement thorough screening processes to identify sleep problems and related disorders (PTSD, TBI, depression) during initial assessments.
- **Use of Sleep Diaries and Questionnaires:**
  - Encourage veterans to keep sleep diaries and use validated sleep questionnaires (e.g., Pittsburgh Sleep Quality Index) to track sleep patterns and identify insomnia.
- **Sleep Hygiene Workshops:**
  - Conduct educational workshops on sleep hygiene practices, covering topics such as maintaining a consistent sleep schedule, creating a conducive sleep environment, and avoiding substances that interfere with sleep.

Strategies for Addressing Insomnia in Treatment Courts: Behavioral Treatment

- **Cognitive Behavioral Therapy for Insomnia (CBT-I)**
  - Offer CBT-I and evidenced-based treatment that focuses on changing sleep-disruptive thoughts and behaviors.
  - This therapy includes techniques such as stimulus control, sleep restriction, and cognitive restructuring

- **Mindfulness and Relaxation Techniques**
  - Teach patients/veterans mindfulness medication, progressive muscle relaxation, and deep breathing exercises to reduce stress and anxiety that contribute to insomnia

Strategies for Addressing Insomnia in Treatment Courts: Medication/Additional medical evaluation

- **Medication Management:**
  - Work with healthcare providers to evaluate the appropriateness of medications for sleep disturbances.
  - Use pharmacological interventions carefully, considering potential interactions with other treatments and the risks of dependency.
- **Referrals to Specialists:**
  - Refer veterans to sleep specialists for polysomnography or other diagnostic evaluations if sleep apnea or other sleep disorders are suspected.

Resources

VA/DoD 2025 Treatment Guidelines

The 2025 VA/DOD Clinical Practice Guidelines focus on the management of Chronic Insomnia Disorder (CID) and Obstructive Sleep Apnea (OSA).

These guidelines are designed to assist healthcare providers in making informed decisions regarding the care of patients suffering from insomnia and related sleep disorders.

The guidelines include 29 evidence-based recommendations and clinical algorithms to guide practitioners in the Department of Veterans Affairs (VA) and Department of Defense (DoD) health care systems. Veterans Affairs

Cognitive Behavioral Treatment of Insomnia

- Free online self-administered CBT-I:
- https://www.veterantraining.va.gov/insomnia/

IRT Description

- Krakow, B., & Zadra, A. (2006). Clinical management of chronic nightmares: Imagery Rehearsal Therapy. *Behavioral Sleep Medicine, 4*(1), 45-70.

APPS

- www.rainymood.com
- Sleep Pillow
- White Noise
- Relax Melodies
- IRT APP (Dream EZ Rewrite Your Nightmares)

Assessments/Screenings

- Include sleep screenings
  - Epworth sleepiness scale
- Sleep actigraphy
- Sleep logs
- Collateral information regarding sleep behaviors
- OSA
  - The STOP BANG Questionnaire. If score is greater than or equal to 3, then refer to an overnight sleep study.

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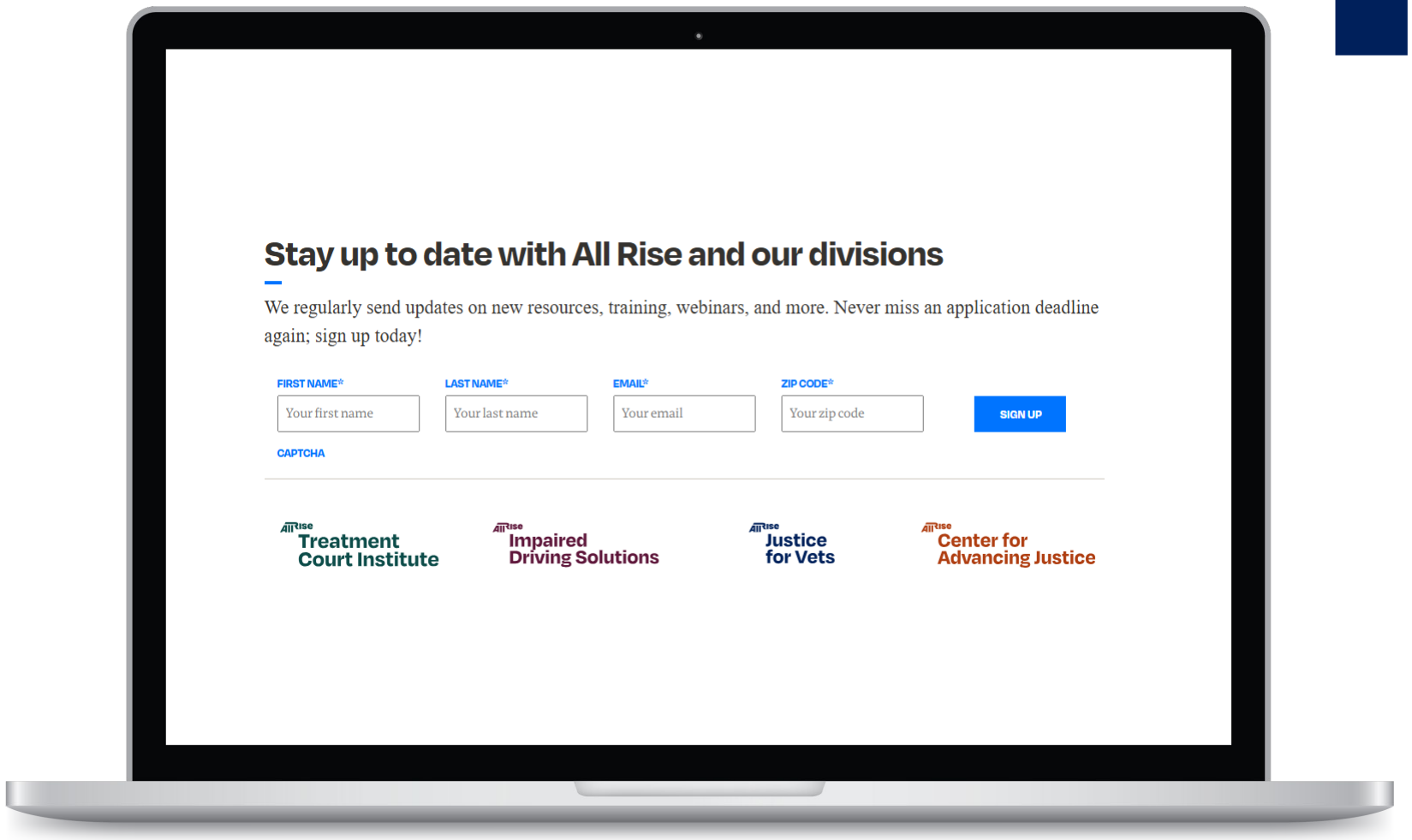
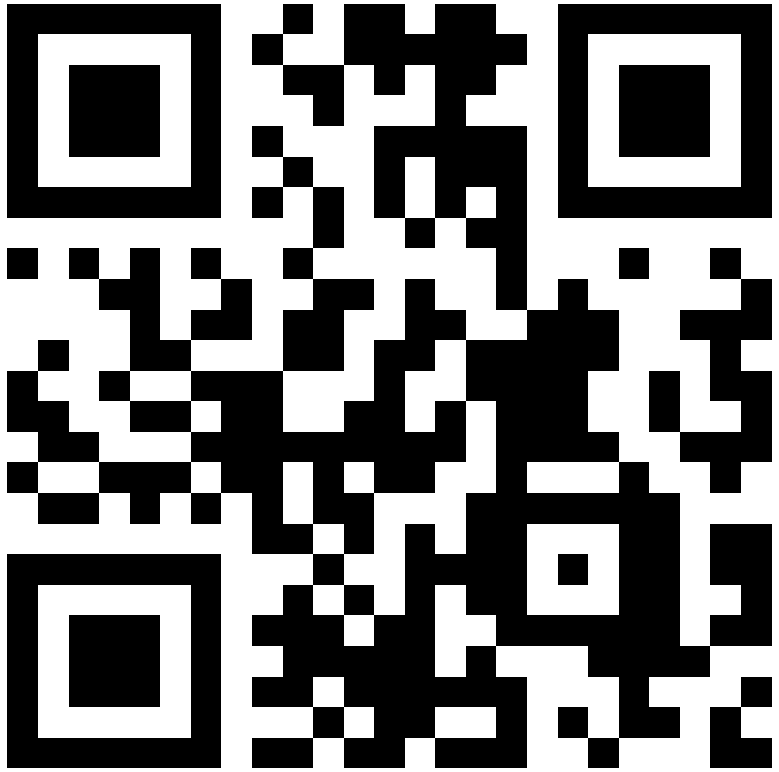


Evaluations



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Thank You

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