

Understanding and Treatment of Primary Insomnia

Bradley L. Edgington, Ph.D
Intermountain Healthcare
February 19th 2009

What is Primary Insomnia?

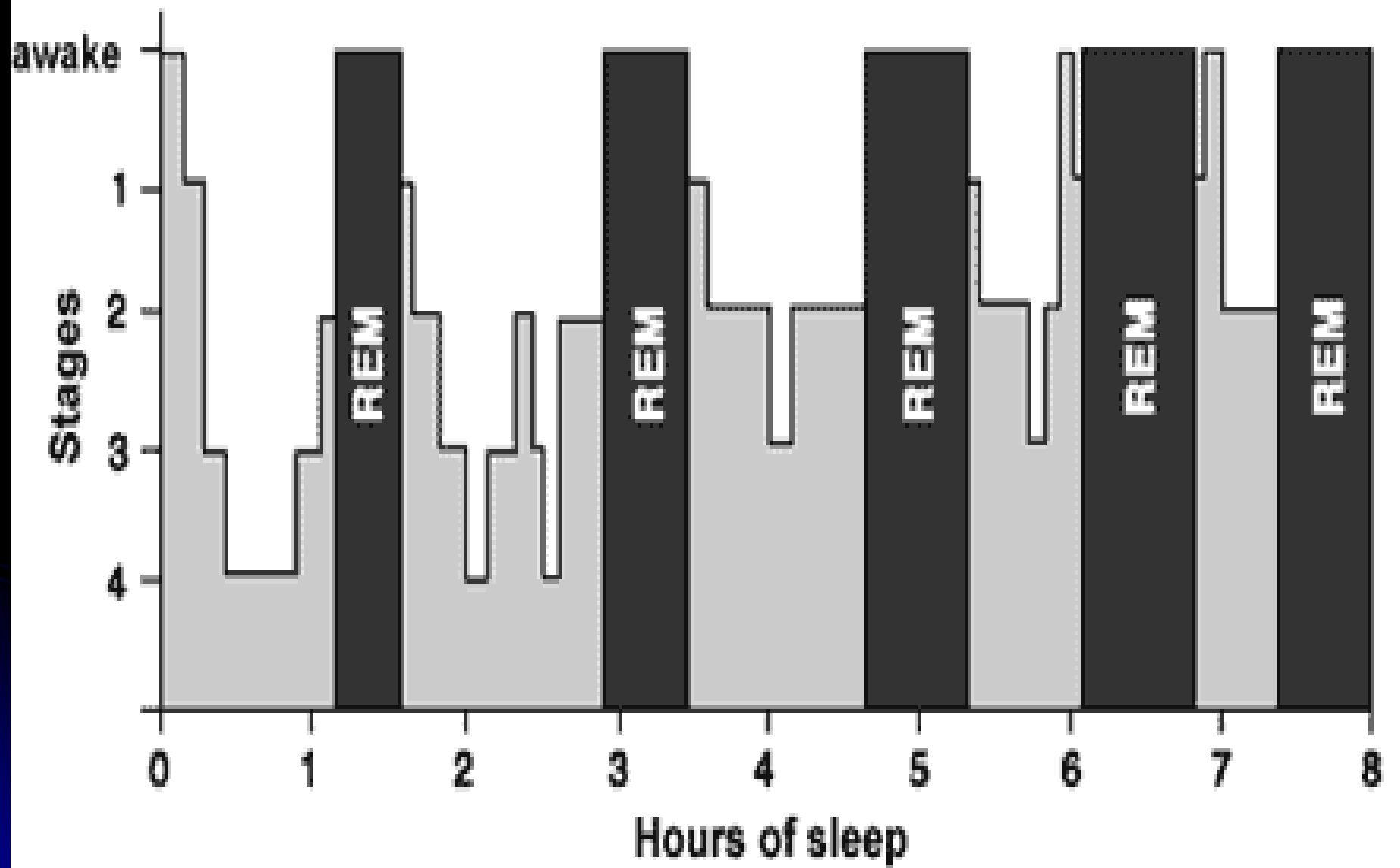
- The subjective complaint of difficulties:
 - Initiating Sleep
 - Maintaining Sleep
 - Nonrestorative Sleep
 - Marked Distress
- Significant Functional Impairment:
 - Social
 - Occupational
 - Other

Sleep Stages

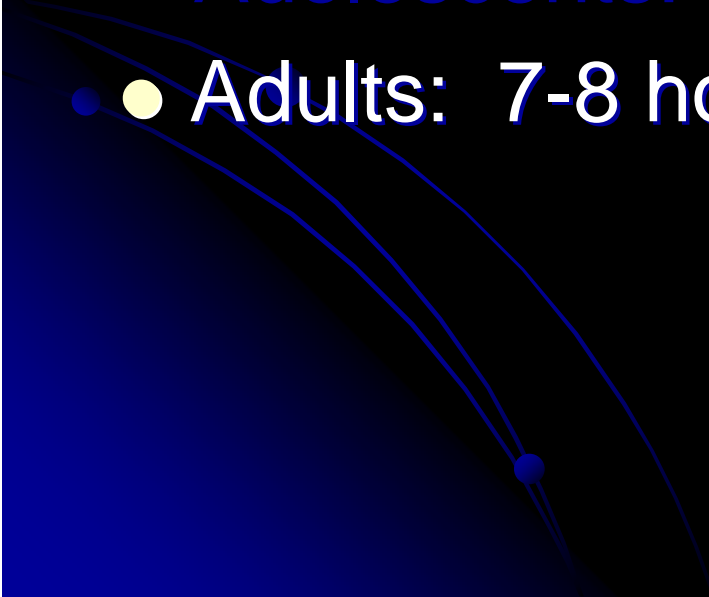
- Non-rapid Eye Movement (NREM)
 - Stage 1: transition to sleep
 - 5% total time (5-10 minutes)
 - Stage 2: 50% total time (10-15 minutes)
 - Stages 3 and 4: slow-wave sleep
 - 10-20% total sleep time (20-40minutes)
 - Restful and restorative sleep achieved here
- Rapid Eye Movement (REM)
 - 20-25% total sleep time (90 min)

Sleep Cycles

- Normal, healthy people start with NREM1 then NREM 2, 3, 4, 3, 2, and then REM.
- Cycle repeats at 90-120 minute intervals
- Total cycle repeats 3-4 times a night
- NREM 3 and 4: more prominent in first half of the night, and decrease later on.
- REM: less prominent in the early night, and increases as the night progresses




How much sleep do you need?

- Infants: 16-18 hours per day
 - Adolescents: 9 hours per day
 - Adults: 7-8 hours per day
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Sleep at different ages

- Sleep varies with age
- Infants sleep 66% of the day; adults, 33%
- Elderly have a reduction in the depth, intensity , and continuity of sleep

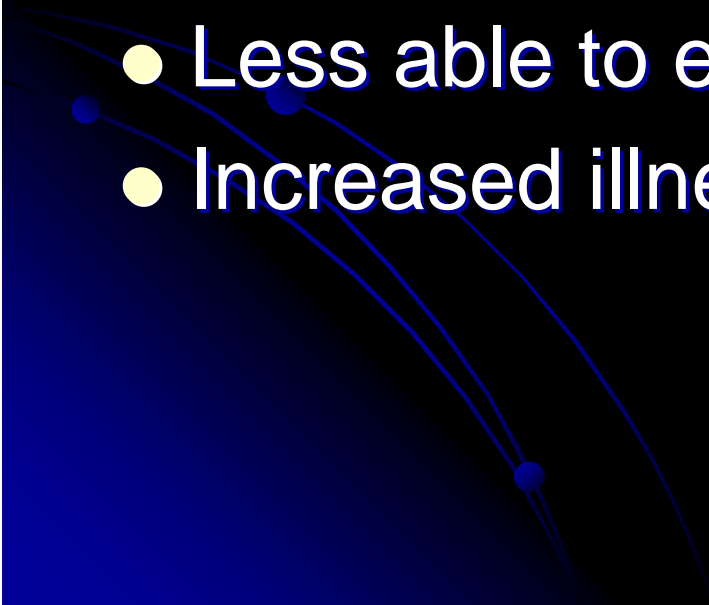
Types of Insomnia

- **Sleep Onset Latency**
 - **Sleep Maintenance**
 - **Nonrestorative Sleep**
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How many are affected by insomnia?

- Up to 40% of adults are affected
- 1/3 adults are affected intermittently
- 10% are chronic
- Treatment alone costs \$2-11 billion
- Total financial impact: \$35 billion

Daytime Consequences

- Tiredness and lack of energy
 - Poor concentration and performance
 - Irritability and/or depression
 - Compromised sense of well-being
 - Less able to enjoy life
 - Increased illness
- 

Real Consequences*

- Absenteeism
- Poor performance
- Social disability
- Healthcare use
- Career impact
- 2.5x more accidents due to fatigue
- Depression

Psychiatric Causes of Insomnia*

- Depression
- Generalized Anxiety Disorder
- Stress
- Post Traumatic Stress Disorder
- Obsessive Compulsive Disorder
- Adjustment disorders
- Personality disorders
- Bipolar disorder
- Dysthymia
- Anxiety
- Psychosis including schizophrenia

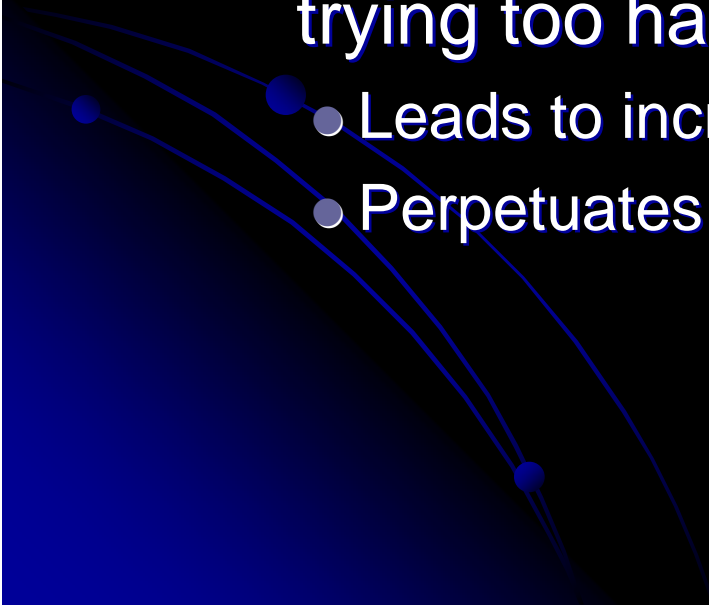
Medical Causes of Insomnia*

- **Pain**
- **Cardiovascular**
- **Pulmonary**
- **Gastrointestinal**
- **Genitourinary**
- **Endocrine/Metabolic**
- **Neurologic**

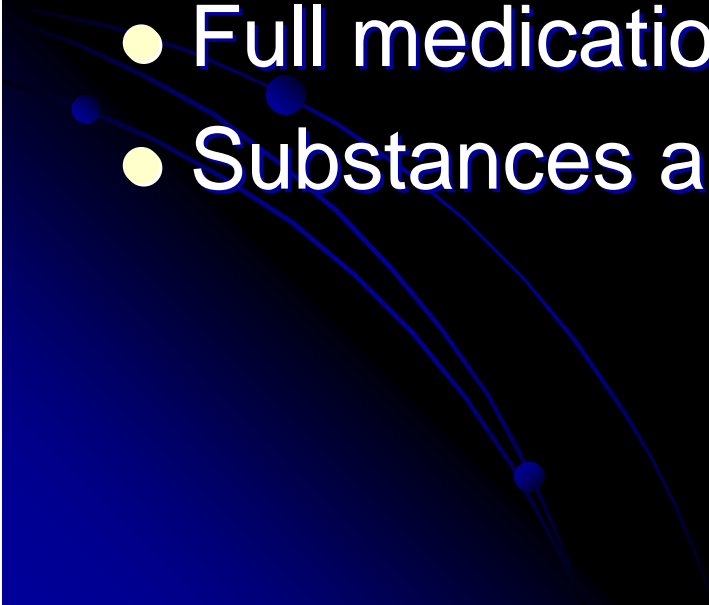
Circadian related Insomnia*

- Time zone change (jet lag) syndrome
- Shift work sleep disorder
- Irregular sleep-wake pattern
- Delayed sleep phase syndrome
- Advanced sleep phase syndrome
- Non-24-hour sleep-wake disorder
- Circadian rhythm sleep disorder NOS
- Shifts with age (adolescent or elderly)

Behavioral Causes

- **Poor sleep hygiene**
 - **Psychophysilogic**
 - Learned behavior
 - Worrying about getting to sleep/
trying too hard to sleep
 - Leads to increased anxiety and arousal
 - Perpetuates insomnia
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Proper Diagnosis*

- The medical interview is everything
 - Focus on underlying causes
 - Sleep partner should be present for the interview if possible
 - Full medication list is required
 - Substances and alcohol use
- 

Medical Interview*

- Current state of complaint
- Onset, duration, frequency of insomnia
- Sleep history... is there trouble with:
 - falling asleep?
 - maintaining sleep?
 - not being able to go back?
 - early awakenings?
 - not feeling rested?

Medical Interview*

- Daytime consequences

can you function/stay awake to drive?

- Do you experience (or bed-partner report):

Leg or arm jerking while asleep?

Loud snoring/gasping/choking, or stopping breathing when asleep?

Uncomfortable feelings in your legs that go away with moving them?

Sleep Habits

- Usual bedtime
- Usual morning awakening time
- Time spent in bed awake prior to sleeping, and following the onset of sleep
- Estimated time spent asleep
- Do you take anything to make you sleep?
- Do you drink to help you go to sleep?
- What else do you do in your bedroom?

Sleep Habits

- Anything disruptive to sleep?
 - Infants
 - Noises
 - Lights
 - Snoring partner
 - Partner with different bed/wake times
 - TV
 - Pets
 - Not feeling safe where you sleep

Sleep Habits (bad!)

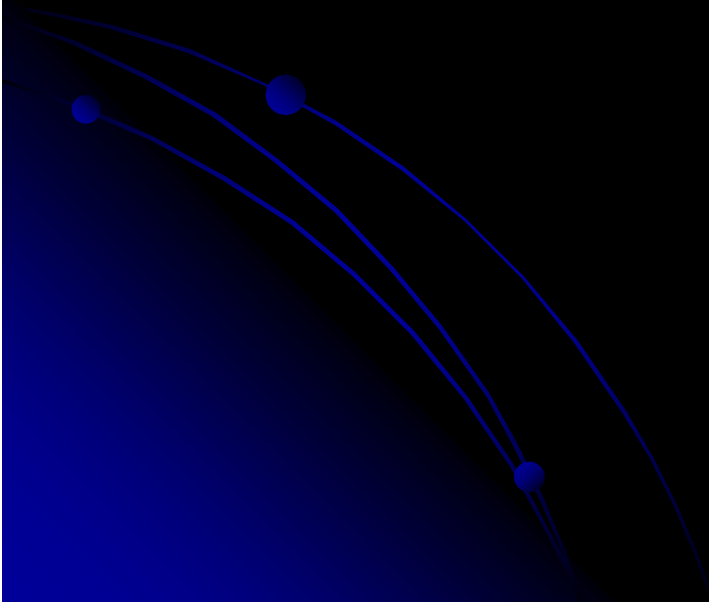
- Do you consume: nicotine, caffeine, alcohol, other stimulants, decongestants prior to bedtime? Half lives are important!
- Do you smoke/eat when you wake up, or perform other tasks like cleaning?
- Do you check the clock when you wake up?
- What is your pre-bedtime routine: exercise, work, TV, eating?

What's New With You?

- Medical issues
- Medication changes
- Lifestyle issues
 - Work stress
 - School stress
 - Financial stress
 - Relationship changes/stress
 - Complaints from partner

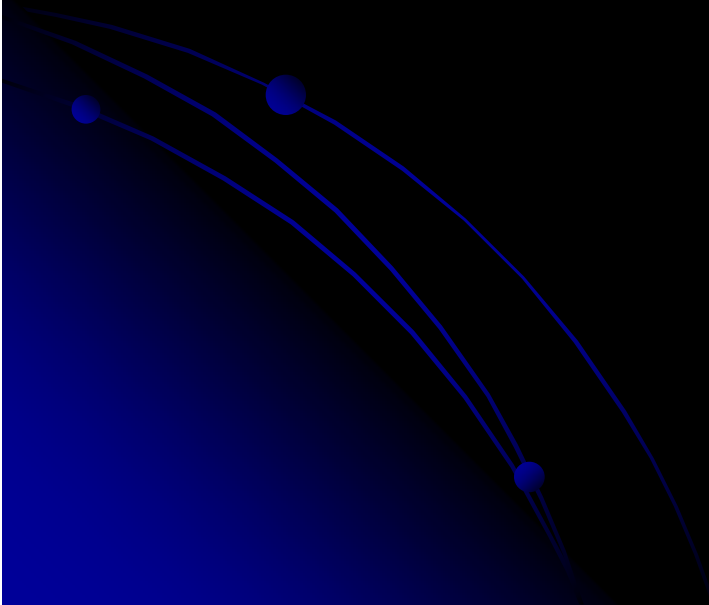
Measures of Sleep

- Insomnia Severity Index
- Sleep Diaries
- Reports of significant others

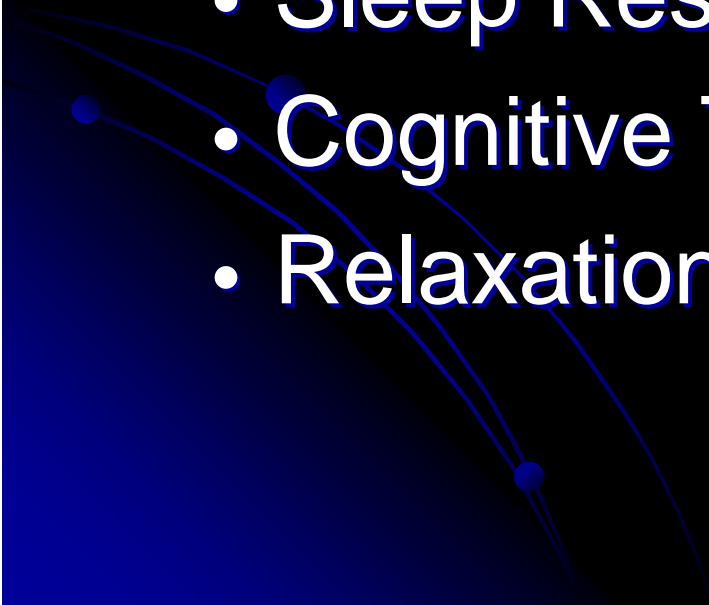


Sample Sleep Diary

- See handout



Cognitive-Behavioral Therapy of Insomnia

- Sleep Hygiene Education
 - Stimulus Control Therapy
 - Sleep Restriction Therapy
 - Cognitive Therapy
 - Relaxation Training
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Sleep Hygiene--Basics

- Don't spend excessive time in bed, including daytime napping.
- Get into bed when sleepy.
- Maintain a regular sleep/wake schedule.
- Bed is for sleep, not TV or Books!
- Increase exercise and fitness
- Avoid caffeine and nicotine at least 4-6 hours before going to bed.

Sleep Hygiene--Basics

- Never use alcohol to go to sleep.
- Avoid excessive liquids or a heavy meal in the evening.
- Minimize noise, light, and temperature extremes during sleep.
- Move alarm clock away from bed if it is distracting

Sleep Hygiene--Relaxation

- Plan a relaxation period before bed, develop a bedtime routine.
- Relaxation Therapy:
 - Progressive muscle relaxation
 - EMG Biofeedback
 - Meditation
 - Imagery training
 - Self-hypnosis
 - Diaphragmatic breathing

Sleep Hygiene—Sleep Restriction

- If unable to fall asleep within an acceptable amount of time (Rule of 15), leave the bedroom, engage in a relaxing activity until sleepy, and then return to bed. This is called sleep restriction
- Repeat as necessary.
- Boring activities (reading the phone book) count. TV/video games doesn't count as relaxing or boring—the flashing lights stimulate the brain.

Sleep Hygiene—Sleep Restriction

- Sleep Restriction Therapy

- Track average total sleep time per night
- Spend only this amount of time in bed; minimum being 4.5 hours.
- Once 90% of time in bed is spent asleep (sleep efficiency), increase total time in bed by 15 minutes every 5-7 days.

Sleep Hygiene—Sleep Restriction

- If sleep efficiency falls to less than 80%, decrease time in bed by 15 minutes
- Work set, daytime hours (whenever possible).
- As sleep consolidation improves, time in bed (and asleep) increases.
- Creates a mild state of sleep deprivation, and thus promotes more rapid sleep onset and more efficient sleep.

Sleep Hygiene—Cognitive Therapy

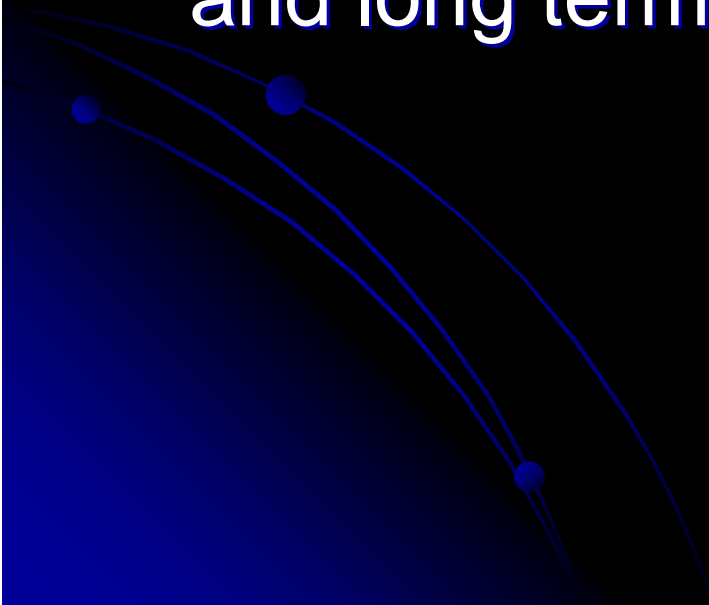
- Cognitive Therapy works to change beliefs about insomnia:
 - Misconceptions about the causes
 - Performance anxiety and loss of control over the ability to sleep
 - Unrealistic sleep expectations
- Identify and replace dysfunctional beliefs and attitudes about sleep
- For example, questioning the idea that you must sleep 8 hours to function effectively

Stimulus Control Therapy

- Founded on the notion that insomnia is a conditioned response based on cues associated with sleep.
- Trains the brain to associate the bed / bedroom with sleep.
- Leave the bedroom if not sleeping within 15-20 minutes.
- Effective for sleep onset and sleep-maintenance.

What works best?

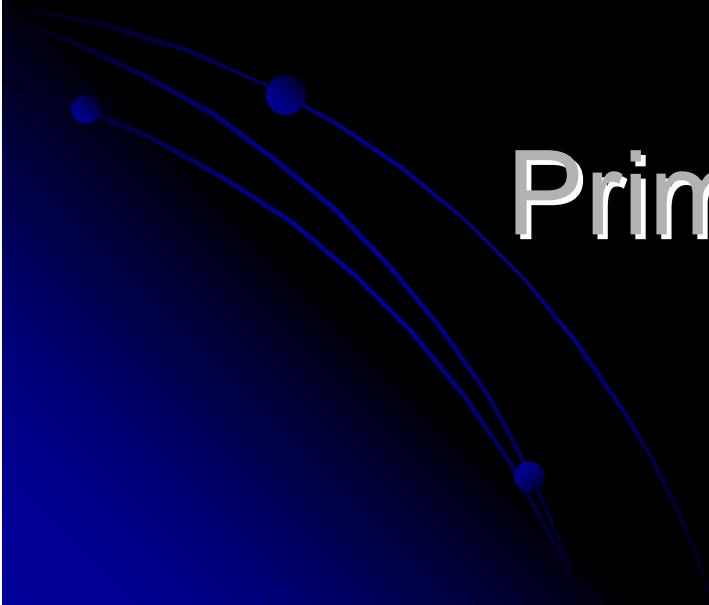
- Multidimensional Cognitive Behavioral Therapy works better than both placebo and pharmacotherapy (medicines) in short and long term cases.



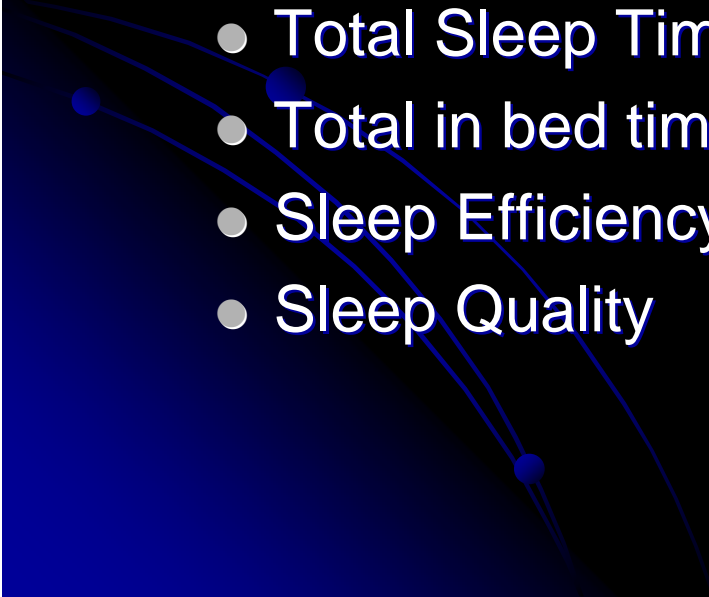
If you have to use drugs: Pharmacotherapy Guidelines*

- Use the lowest *therapeutic* dose
- Use for the shortest duration necessary
- Discontinue medication gradually
- Be alert for rebound insomnia
- Use agents with short half-lives to minimize daytime sedation

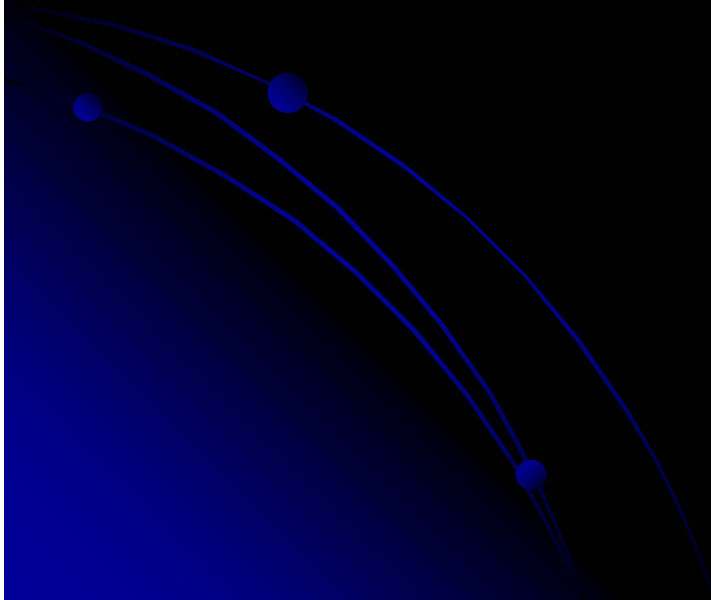
Intermountain Healthcare
Research
of
Cognitive Behavioral Therapy
for
Primary Insomnia



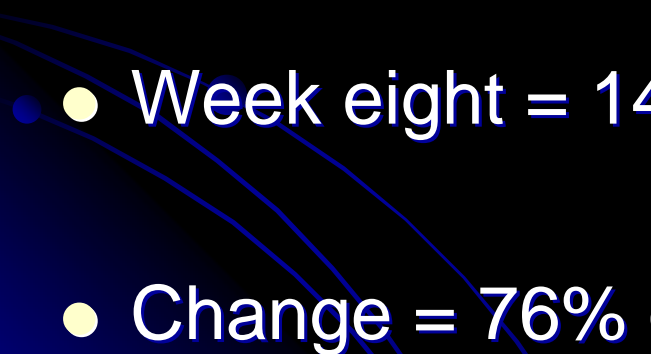
Measures of Sleep

- Insomnia Severity Index (ISI)
 - Sleep Diary
 - Sleep Onset Latency
 - Number of waking times after sleep onset
 - Wake time after sleep onset
 - Total Sleep Time
 - Total in bed time
 - Sleep Efficiency
 - Sleep Quality
- 

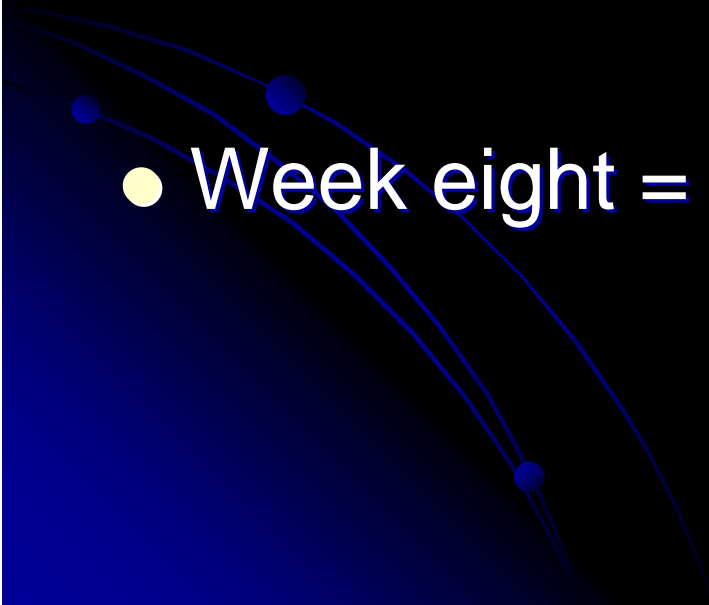
Intermountain Healthcare Research Results



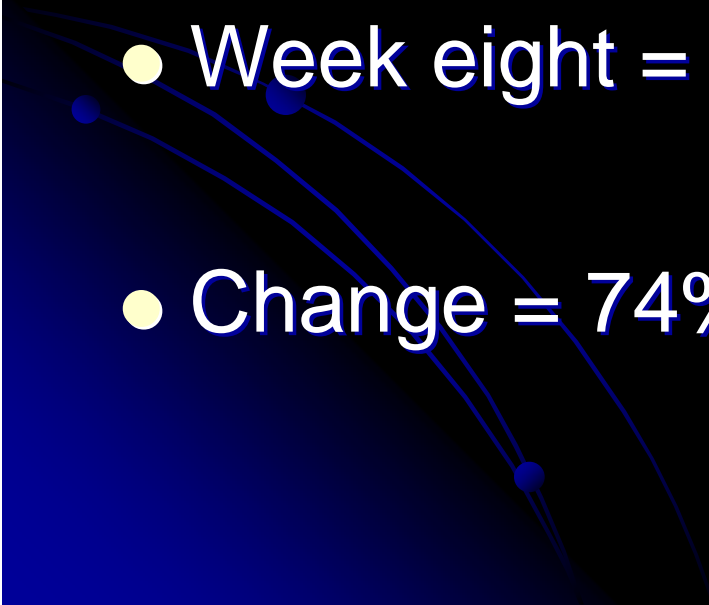
Sleep Onset Difference (minutes)

- Baseline = 58 minutes
 - Week four = 18 minutes
 - Week eight = 14 minutes
 - Change = 76% or 44 minutes
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Number of times waking after sleep onset

- Baseline = 2.79
 - Week four = 1.29
 - Week eight = 1.33
- 

Wake after sleep onset (minutes of change)

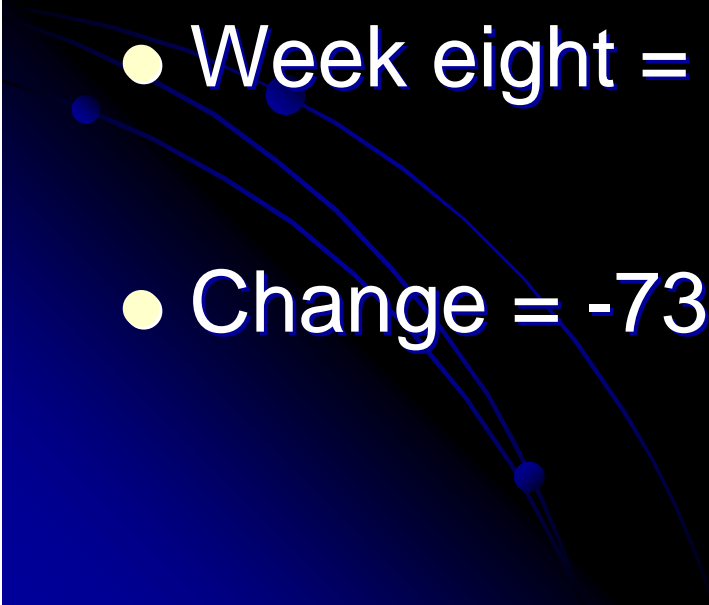
- Baseline = 77.23
 - Week four = 15.5
 - Week eight = 20.11
 - Change = 74% or 57 minutes
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Total Sleep Time Change (minutes)

- Baseline = $352.77 * (5.8 \text{ hours})$
- Week four = 343.01
- Week eight = 377.63^* (6.3 hours)

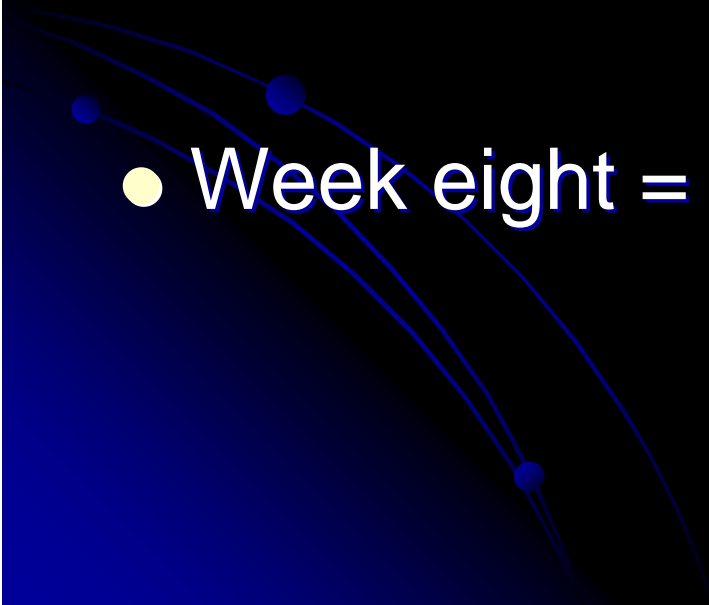
*There is a 33 minute difference when actual last week is considered vs. week eight.

Total Time in Bed (minutes)

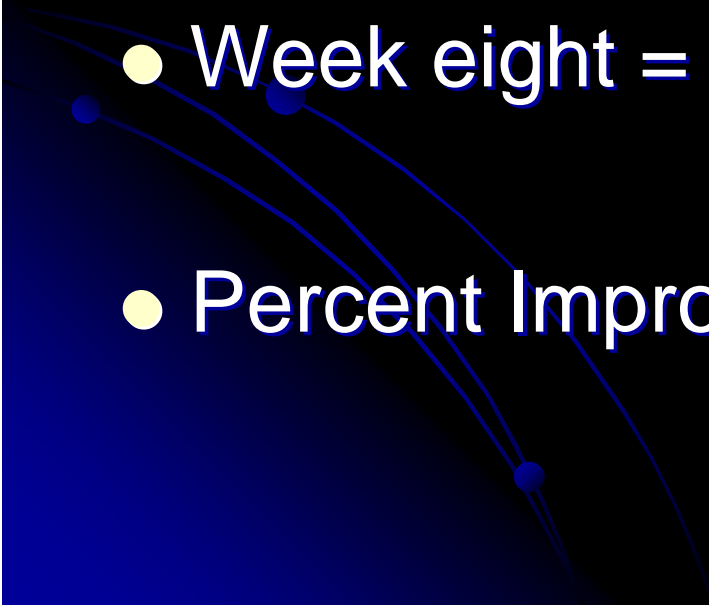
- Baseline = 482.65 (8 hours)
 - Week four = 375.73
 - Week eight = 409.32 (6.8 hours)
 - Change = -73 minutes
- 

Sleep Efficiency

(time sleeping / time in bed)

- Baseline = 73.29%
 - Week four = 91.16%
 - Week eight = 93.47%
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Insomnia Severity Index

- Baseline = 22.03
 - Week four = 10.56
 - Week eight = 7.08
 - Percent Improvement = 68%
- 

ISI Treatment vs. Control



Thank You

