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Improving Sleep: Promoting Sleep Hygiene Techniques

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The Problem: Prevalence of poor sleep and its effects on physical & mental health

- More than **one third of adults** in the U.S. do not get enough sleep regularly, defined as **less than 7 hours of sleep** over a 24 hour period.¹
- It is recommended that adults get 7 or more hours of sleep per night. ²
- Multiple chronic conditions have been found to more prevalent in those that don’t get sufficient sleep; these include **coronary heart disease, myocardial infarction, stroke, obesity, depression, and diabetes**.³
- Furthermore, health risk factors such as obesity, physical inactivity, and current smoking are more prevalent in those receiving inadequate sleep. ³
- Sleep is therefore instrumental to physical and mental health. It is crucial to learning, memory, mood, and cognitive performance.
- New evidence suggests that disruption in sleep may be implicated in the pathophysiology of Alzheimer’s disease.⁴
- Insufficient sleep is also a risk factor for motor vehicle accidents.⁵
- Poor sleep or insomnia are **common complaints** of patients visiting their **primary care** providers. Often times, this is an additional issue brought up in addition to the reason for their scheduled visit. **Even though sleep is relevant to many of the chronic health conditions being managed, there is often insufficient time to take a full sleep history and adequately address all the sleep hygiene issues.**
Problems with a Pharmacologic Approach to Sleep & Need for Behavioral Intervention

- **Sedative hypnotic medications** can have many **side effects** such as daytime drowsiness, cognitive impairment, and increased risk of falls and hip fractures in the elderly.\(^6\)
- Over the counter (OTC) sleep aids such as those with diphenhydramine have anticholinergic side effects (sedation, dizziness, blurred vision, increased risk for falls).\(^6\)
- Cognitive Behavioral Therapy–Insomnia (CBT-I), relaxation therapy, and exercise are recommended as effective, nonpharmacologic treatments for chronic insomnia (**Grade A Evidence**).\(^7\)
- **The American Academy of Sleep Medicine recommends CBT-I as a standard of care and as a primary intervention for those with chronic insomnia.**
  - Medications are recommended in chronic insomnia only for those who can’t participate in CBT-I, for those who are still symptomatic despite CBT-I, or as a temporary adjunct in certain cases. \(^6\)
- **The American Geriatrics Society** recommends **against use of benzodiazepines or other sedative-hypnotics in older adults as a first line** treatment for insomnia.\(^8\)
- Despite these recommendations, **9 million U.S. adults** reported taking prescription sleep aids in the past month in data from 2005-2010 collected by the CDC.\(^9\)
- **Sleep hygiene** is an important part of CBT that provides an effective behavioral approach to improving sleep and avoiding pharmacologic options.
Public Health Costs

- In 1995, the **direct cost of insomnia** in the U.S. was estimated as $13.9 billion, which included expenses related to doctor visits, prescription medications, OTC medications, and falls in the elderly.\(^{10}\)
- Indirect costs related to sleep loss and sleep disorders are much higher and include those from motor vehicle accidents and decreased productivity & absenteeism from work.
- Estimates of total annual costs of insomnia in the U.S. range from $30 billion-$107.5 billion.\(^{10}\)
- In 2014, there were 846 fatalities reported that were related to **drowsy driving**. Between 2005-2009, drowsy driving was responsible for an estimated average of 83,000 crashes per year.\(^5\)
- In **Chittenden County**, VT, it is estimated that **26-29%** of adults in 2014 usually got **short sleep (<7 hours per 24 hour period)**.\(^3\)
  - This means that the patient population in this region is also at risk for the same detrimental health and safety consequences related to insufficient sleep.
People will often come in to the UVM Sleep Center with the complaint of feeling fatigued during the day or not getting refreshing sleep. There are often two separate presenting issues:

1) **Insomnia**: stress and poor sleep habits are the most common causes.
2) **Daytime sleepiness**: sleep apnea is a very common cause. An inadequate amount of sleep also contributes to this.

In working up a patient with a sleep disorder, it is important to take a detailed sleep history (including amount of sleep, sleep hygiene, substances, etc) and to consider life stressors and possible underlying mood disorders. If they have a profile suspicious of sleep apnea, a sleep study should be ordered.

For insomnia, CBT-I is typically recommended before pharmacologic therapy; this includes relaxation techniques, sleep restriction, sleep hygiene.

One big issue in management of sleep is putting patients on sleep medications before trying other things and focusing on other issues (ie sleep hygiene, underlying mood disorders). More education in primary care about not jumping to sleep medications could help. Medications like Ambien are fine for temporary insomnia but should not be used for chronic insomnia.  
-Physician, Sleep Medicine Specialist, UVMMC
Community Perspective

- "Healthy sleep **never includes medication.**"

- "The **sleep architecture** is as or more important than how much time you actually spend asleep."
  
  - James Ulager, MD, Hinesburg Family Medicine

- "When I work with people on weight loss, high blood pressure, hyperlipidemia, I don’t think they realize how big a role sleep has. **Sleep has a huge effect on multiple processes in our body.** For example, sleep deprivation can affect eating habits and levels of hormones such as leptin and ghrelin that control hunger."

- "I always ask patients about sleep and give attention to that. Often times, patients will want a pill for sleep, some sort of a quick fix. I talk to them about going to bed earlier and **creating more sleep opportunity**; about having a cool, dark, and comfortable room; and about **meditation and relaxation techniques**, such as taking a warm bath, meditation, yoga/stretching, focusing on their breath."

  - Karen Dean, Health Coach, Community Health Team
Intervention & Methodology

- Poor sleep was a common complaint during my patient encounters over the course of the family medicine rotation. By eliciting the patient perspective as well as the extent of their understanding on sleep hygiene, I identified this as an area of need for further education.

- Through dialogue with the providers at Hinesburg Family Practice and the Community Health Team, they also identified sleep hygiene as an important topic and agreed that an educational handout would be a useful resource.

- My interviews and research guided the creation of an informational handout on sleep hygiene which:
  - Explains the importance of sleep and defines sleep hygiene
  - Details behavioral modifications for better sleep hygiene
  - Provides additional resources

- This handout is written with accessible language in an easy-to-read format, which includes the “do’s” and “don’ts” of sleep hygiene techniques.
**Sleep Hygiene Techniques: Tips for Better Sleep**

**Why Sleep is Important:**
Experts recommend that adults should get 7 or more hours of sleep each night. Not only is the number of hours (quantity) of sleep important, but good sleep quality is important so that you wake up feeling refreshed.

Good sleep is important for your overall physical and mental health — it helps with learning and memory, alertness, energy, mood, regulating weight, and immune system function, among other things.

Poor sleep is linked with many chronic conditions, such as heart disease, stroke, obesity, depression, and diabetes. Not getting enough sleep also puts us at risk for drowsy driving and motor vehicle accidents, and affects our ability to think and function at our best throughout the day.

**What is Sleep Hygiene?**
Sleep hygiene is a set of healthy sleep habits that are used to improve the quality of your sleep. Changing sleep behaviors may also limit the need for sleep medications, many of which can have side effects.

**Do's:**
- Go to bed at the same time every night and wake up at the same time every morning (even on the weekends).
- Try setting alarms to remind you that it's time to go to bed and to wake up at a regular time in the morning.
- Create a comfortable sleep environment: a bedroom that is dark, quiet, and at a cool/comfortable temperature. Some people find white noise helpful.
- Use the bed for sleep and intimacy only.
- Get regular exercise during the day — this promotes better sleep.
- Remove electronics and screens from your bedroom (TVs, computers, smart phones, tablets, etc).
- Keep a Sleep Diary to track your bedtimes and quality of sleep.
- Try techniques to relax before bed: guided meditation, breathing exercises, stretching/yoga, taking a warm shower/bath, journaling, or reading.
- If you have trouble falling asleep after 20 minutes, or if you find your mind racing and worrying about not sleeping; go into a dark, quiet room and try doing a relaxing activity (without using screens, for example: non-excitatable reading). Return to your bedroom when you feel sleepy again.

**Don'ts:**
- Use your bedroom for other activities — ie working, eating, watching TV. It is best to associate the bedroom with sleeping only.
- Use electronics before bedtime. Limit your screen time for 2-3 hours before bed — the blue light in these devices throw off your circadian rhythms (your body's internal clock).
- Go to bed too hungry or too full. Avoid large or heavy meals before bedtime.
- Exercise right before bedtime — this increases your body temperature and is stimulating, making it harder to fall asleep.
- Have caffeine (coffee, soda, tea, energy drinks, chocolate) late in the day — avoid caffeine at least 8 hours before bedtime.
- Drink alcohol before bedtime — this disrupts your sleep cycle.
- Take long naps, especially late in the day. If you do need to nap, keep it to 20-30 minutes.
- Watch the clock or fall victim to anxious thoughts about your amount of sleep. Instead try relaxation techniques.

See next page for Additional Resources

**Additional Resources:**
- Sleep.org (by the National Sleep Foundation)
- cdc.gov/sleep
- https://www.nytimes.com/guides/well/how-to-sleep
- Sleep Diary Worksheet: https://sleepfoundation.org/sites/default/files/SleepDiary6.pdf
- Guided Meditations: http://marc.ucla.edu/mindful-meditations
- Calm application for guided meditation and sleep relaxation

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Results & Response

• The informational handout was given to providers and was positively received as a useful resource which would be beneficial to distribute amongst their patients.

• The handout is being hung up in patient exam rooms.
Effectiveness & Limitations

Effectiveness:
• A short survey could be created to evaluate the effectiveness of the informational handout. This could include:
  • Patient response to the handout and its utility
  • Whether they had attempted to implement any of the sleep hygiene strategies outlined in the handout and which ones were most beneficial
  • The quantity (average number of hours of sleep per night) and quality of sleep (eg whether they woke up feeling refreshed) before and after trying these techniques
  • Whether there was a change in the usage of sleep medications

Limitations:
• There was limited time to assess the effectiveness and response to the handout.
• It is difficult to accurately assess how improving sleep may impact other physical and mental health issues.
• Patient motivation to try and implement these techniques is an important limitation. Many patients may find starting or continuing a medication for sleep as an easier or quicker fix.
• The online resources and phone app listed under Additional Resources may not be available to patients who don’t have regular access to internet or smart phones.
• Some patients may find in-person CBT-I therapy more helpful; however there may be limited access to such services.
Recommendations for Future Interventions

- Further distribution of this handout at additional family medicine practices and via the community health team.

- The handout could also be converted to a *dot phrase* which could be printed with patient discharge instructions when a patient presents with questions or concerns about sleep.

- Further feedback on the content and utility of the handout from patients via a survey would be beneficial.

- A study on the quantity and quality of sleep before and after implementing sleep hygiene techniques would add further information.

- Investigating presence, accessibility, and usage of local CBT-I programs.

- The number of prescriptions for sleep medication that are ordered or refilled could be tracked via PRISM before and after implementation of this handout.
References