

WELLaware

UPDATE
from the
**Center for
Pharmacy
Care**

Duquesne University
Mylan School of Pharmacy

January-February 2006

Sleepless in the City:

Sleep Disorders Impact Productivity & Health of Nearly 60 Million Americans

More than 40 million Americans suffer from chronic, long-term sleep disorders and approximately 20 million more experience occasional disturbances in sleep. Nearly \$100 billion a year is lost due to decreased productivity, medical expenses, sick leave, and property and environmental damage resulting from sleep disorders. It also is estimated that 100,000 automobile accidents occur each year that may be related to sleep disorders. The most common of these problems include insomnia, sleep apnea, restless legs syndrome and narcolepsy. Sleep disorders are potentially dangerous and can significantly affect daily activities.

What does it mean to sleep?

Sleep is a temporary state of unconsciousness from which a person can be awakened. During the sleep cycle, people fluctuate through five different phases. A person's body may not move throughout sleep, but the brain remains highly active. The five phases of the sleep cycle are listed in the table to the right.

Phase	Classification	Time	Description
Stage 1	Drowsiness	≤ 5%	Person closes eyes and begins to relax. May drift in and out of sleep, but is easily awakened.
Stage 2	Light sleep	50-60%	Eye movement stops, brain waves slow and become irregular with short bursts of activity known as sleep spindles. Person is not as easily aroused.
Stage 3	Deep sleep	15-20%	Extremely slow brain waves while muscles relax and vital signs decline. Difficult to arouse individual from sleep.
Stage 4	Slow-wave deep sleep		Vital signs are at lowest level and muscles are extremely relaxed. May be very difficult to arouse. If aroused, children may experience bed-wetting, night terrors, and sleep walking.
REM	Rapid eye movement	20-25%	Breathing is rapid, irregular and shallow, and eyes flicker as if watching TV. Vital signs increase and brain consumes more oxygen. Most dreams occur during REM, although nightmares are usually associated with stages 3 and 4. It is the most difficult phase for awakening.

Upcoming Events *Mark Your Calendar*



All events held in the Center for Pharmacy Care, Room 320 Bayer Learning Center, unless otherwise noted.

WELLNESS MONDAYS

- Jan. 9, 23 & 30, Feb. 6, 13, 20 & 27
9:00 a.m.-1:00 p.m.

BLOOD PRESSURE SCREENING

- Jan. 11 & 25, Feb. 8 & 22, 11:00 a.m.-1:00 p.m.

Locations:

Union Concourse, 3rd Floor – (Jan.25 & Feb. 8)
Union Atrium, 2nd Floor – (Jan.11 & Feb. 22)

CENTER FOR PHARMACY CARE —

Wellness Mondays

The Center offers the following complimentary screenings on Mondays by appointment: bone density, body composition analysis, facial skin analysis & cholesterol screening.
Please call x5874 for an appointment.

ATTENTION DIABETES PATIENTS!

Call today for your **FREE** A1c—the most important blood-sugar test for people with diabetes. Be one of the first 15 people to register to get a **FREE** test—a \$30 value! To schedule your test during any Wellness Monday, call x5874.

TOBACCO CESSATION PROGRAM

Any employee or student interested in joining a group to quit tobacco should call x5874.
Dates will be determined after sign-up.

Sleep Disorders: *Impacting Millions of Americans*

How much sleep do we need?

A person's sleep requirement varies and is influenced by various factors including age. Infants generally require approximately 16 hours a day while a teenager may only need nine hours of sleep daily. The recommended amount of sleep for adults is seven to eight hours. However, this may range from five to 10 hours. If a person does not fill the requirements for sleep in previous days, the body does not forget and begins to run a "tab" on its sleep debt. If this "tab" is not repaid, a person's judgment, reaction time and other functions may be impaired. It has been demonstrated that a tired person's hand-eye coordination may be worse than that of an individual who is intoxicated.

Common sleep disorders

The four most common sleep disorders are insomnia, sleep apnea, restless legs syndrome and narcolepsy.

• INSOMNIA

The problem may be experienced as a short-term or long-term complication. It is defined as difficulty falling asleep or staying asleep. People with this disorder often wake up during the night and cannot fall asleep again. Insomniacs also waken too early in the morning and do not feel refreshed from their night of sleep. This disorder may be recurrent and can last from one night to a few weeks (acute) or greater than a month (chronic).

• SLEEP APNEA

This occurs when a person's breathing is disrupted during sleep. This can happen hundreds of times throughout the night. There are two main types of sleep apnea – obstructive and central. The obstructive form is more common and develops when muscles relax excessively and the windpipe collapses. It is usually accompanied by loud snoring. This can last for up to a minute and eventually causes the person to awaken. In central sleep apnea, the windpipe is not affected, but the brain fails to signal the muscles to breathe. Sleep apnea deprives

people of oxygen and may result in headache, declined mental function, elevated blood pressure, irregular heartbeat, and increased risk for cardiovascular emergencies such as heart attack and stroke. Diagnosis of sleep apnea is based on the results of a test called polysomnography, which is usually administered by a sleep specialist.

• RESTLESS LEGS SYNDROME (RLS)

RLS affects nearly 12 million Americans and is accompanied by leg tingling, crawling, prickling, or painful sensations. These symptoms create an urge for the person to move their legs and often results in insomnia. Patients with RLS have trouble falling asleep and awaken easily due to the discomfort in their legs. This disorder is most prevalent in the elderly, but may occur at any age.

• NARCOLEPSY

This condition is caused by a neurological defect that disrupts a person's control of sleep. Narcolepsy often causes people to suffer "sleep attacks" during the day. These are *sudden* periods of sleep that can occur during any type of activity and at any time of the day. The attacks can last from a matter of seconds to more than 30 minutes. Other symptoms that may be experienced include disrupted evening sleep, loss of muscle control during emotional periods and temporary paralysis while awakening. This condition is usually hereditary, but also may be caused by head injury or other neurological diseases.

How do you treat sleep disorders?

There are varieties of prescription and over-the-counter (OTC) medications that can be used to treat insomnia. In addition, there are several non-drug measures that might be beneficial. It is best to avoid caffeine, nicotine and alcohol. Make and adhere to a schedule that ensures you go to sleep and wake up at approximately the same time each day. Do not lie in bed while awake. Exercising for 20-30 minutes each day helps to promote a good night's sleep. Practice relaxation techniques and use them before going to bed. Drinking warm liquids, taking a warm bath and reading are good examples of ways to relax. Control the temperature in your room because extreme temperatures may cause awakening during the night. If your problem persists, contact a physician to determine whether a prescription medication is right for you. Other measures that might be useful for sleep apnea, RLS and narcolepsy are identified at the Web sites provided below.

Please access the electronic version of this newsletter, located at www.duq.edu/wellaware for a discussion of the drug treatment of sleep disorders.



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Additional information may be obtained from the Pharmaceutical Information Center by calling x4600 or sending an e-mail to pic@duq.edu.

Questions about screenings or programs: Christine O'Neil, Pharm.D, B.C.P.S., x6417

For additional information, please visit the following Web sites:

- www.nlm.nih.gov/medlineplus/sleepdisorders.html
- www.rls.org
- www.narcolepsynetwork.org
- www.sleepapnea.org

Drug Treatment of Sleep Disorders

Many drugs have been used for the management of insomnia. They are often referred to as hypnotics because they promote sleep. They should be prescribed for short periods (seven to 10 days) and taken only when necessary because patients may become dependent upon them. Some of these agents are most useful for patients who cannot fall asleep, while others may be preferred for those who awaken during the night or earlier than desired. With the exception of trazodone (and other antidepressants), ramelteon, antihistamines and

dietary supplements, each of these drugs is considered to be a controlled substance and may produce physical dependence and addiction. Agents such as temazepam and Ambien® are still extremely popular. Lunesta® is a controlled substance, but may be used for more extended periods than other drugs currently labeled for insomnia. The other sleep disorders require more specific therapies, such as the use of ropinirole for RLS. The following is a list of medications commonly used for the management of sleep disorders.

• INSOMNIA

- **zolpidem** (Ambien®) – non-barbiturate hypnotic approved for short-term use
- **eszopiclone** (Lunesta®) – non-barbiturate hypnotic approved for short and long-term use
- **antidepressants** – trazodone (Desyrel®), imipramine, etc.
- **benzodiazepines** – clonazepam, diazepam, triazolam, temazepam, oxazepam, lorazepam and flurazepam (this class may cause physical dependence and addiction)
- **antihistamines** – diphenhydramine, doxylamine, and promethazine
- **natural medications** such as valerian root and melatonin
- **ramelteon** (Rozerem®) – a non-barbiturate hypnotic that works similarly to the hormone melatonin

• SLEEP APNEA

- **acetazolamide and medroxyprogesterone** (Provera®) for obstructive sleep apnea
- **intranasal fluticasone** (Flovent®) for obstructive sleep apnea

• RESTLESS LEGS SYNDROME

- **ropinirole** (Requip®) – this dopamine agonist is the only medication labeled for this indication by the FDA
- **other dopamine agonists** such as levodopa, pergolide, bromocriptine and Sinemet®
- **opioids** (this class can also cause physical dependence and addiction)
- **benzodiazepines**, especially clonazepam (this class has addiction potential)

• NARCOLEPSY

- **modafinil** (Provigil®; only drug FDA labeled for narcolepsy)
- **amphetamines** such as methylphenidate (Ritalin®) and dextroamphetamine (this class has addiction potential)
- **phentermine** (has addiction potential)
- **propranolol** for daytime sleepiness
- **clonidine**