

What is a Sleep Disorder?

**Satellite Conference and Live Webcast
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Faculty

**Tiras J. Jackson, RPSGT
Sleep Services Manager
Baptist Medical Center South
Sleep Disorders Center
and Prattville Baptist Center**

Generally Speaking

- Anything that interferes with a normal sleep pattern
- Some are pulmonary related
 - Sleep Apnea
- Some are neurological
 - Narcolepsy
- Some are psychological

Generally Speaking

- Something as simple as a dog barking or a light shining through a window can be disruptive to a normal sleep pattern

What is a Normal Sleep Pattern?

- It truly varies from person to person and varies immensely with age
 - People generally need less sleep as they grow older

What is a Normal Sleep Pattern?

- On average 6 - 8 hours of sleep for a healthy adult should be adequate
 - Exceptions
 - People who can get by on less
 - People who need much more

What is a Normal Sleep Pattern?

- In today's society, we try to cram so much into a single day that we try to sacrifice sleep
 - It is not possible to sacrifice sleep
 - Your body will take the sleep it needs in one form or another

What is a Normal Sleep Pattern?

- Having adequate sleep is still not enough to say you have a normal sleep pattern
 - A pattern in itself repeats
 - Inconsistent sleep wake cycles are like changing time zones everyday
 - i.e. Traveling salesman flying from east coast to west coast

Is Sleep Really Important?

- YES!!!!
 - Sleep renews us
 - Sleep restores us
 - Quite literally a recharging of the batteries

Is Sleep Really Important?

- You are a light
 - You shine bright when fully charged
 - You shine at certain times when not fully charged
 - You shine all day but dimly
 - You flicker
 - When you are not rested you cannot perform at your very best

Is Sleep Really Important?

- Sleep deprivation does not occur after you have missed several hours of sleep or had several days of inconsistent sleep
 - If you require 8 hours of sleep and you get 6, then you owe yourself 2 hours of sleep
 - Sleep deprivation has begun
 - That's called sleep debt and it must be paid back

What Could Possibly Happen? It's Just Sleep Right?

- If you are someone of poor health or recovering from something then a lack of sleep will weaken every part of your system
 - A weakened system for anyone makes you more susceptible because your body can't fend for itself in the manner that it should

What Could Possibly Happen? It's Just Sleep Right?

- Medications
 - Are not cures
 - The body has to respond to the medication
 - An exhausted body is not going to respond to anything in the time that a rested body would

What Could Possibly Happen? It's Just Sleep Right?

- Certain sleep disorders play a vital role in medication resistance
- Patients that have sleep disorders generally are tired and want to sleep a great deal of the time
 - We already spend a third of our lives sleeping

What Could Possibly Happen? It's Just Sleep Right?

- If that increases only a little it can easily become half and the times you are awake you are exhausted
 - Imagine the longest time you've spent awake and the way you felt
 - Now imagine that was the way you felt all day everyday

Sleep Disorders Are Very Common

- Sleep disorders may sound like a weird exotic fruit
 - Actually they are more common than many of the more publicized diseases and disorders
 - A vast majority of Americans suffer from some sort of sleep disorder

Sleep Disorders Are Very Common

- Many of us are not getting adequate sleep or have very poor sleep habits
- Many things that we see as harmless can be detrimental to long-term good sleep
 - Sleeping in
 - Your body won't let you sleep in if you are adequately rested

Sleep Disorders Are Very Common

- This is a clear sign that you may be sleep deprived
 - Dependency
 - Most people understand that by taking a sedative every night or drinking alcohol they have a dependency issue

Sleep Disorders Are Very Common

- A fan for white noise, while completely harmless, may give you the inability to sleep in a place that is perfectly tranquil but lacks a fan

Sleep Disorders Are Very Common

- That makes you dependent on something outside of your body's natural ability to fall asleep

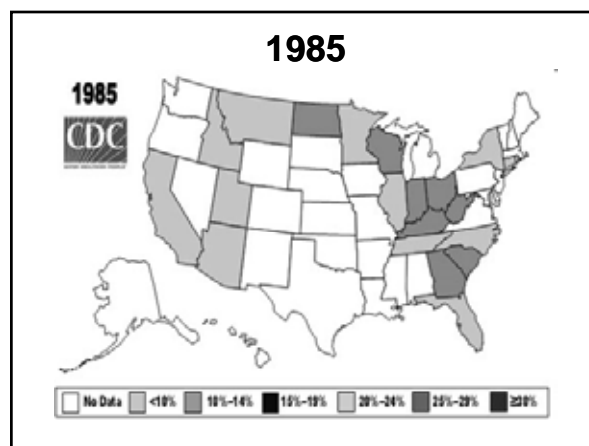


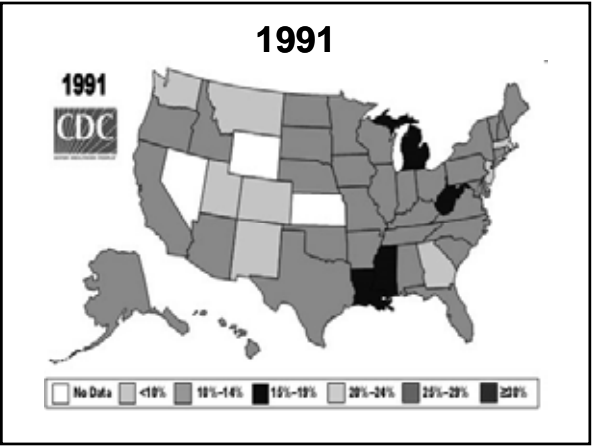
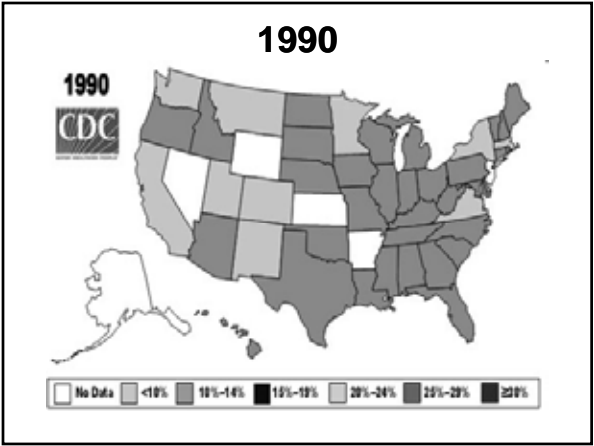
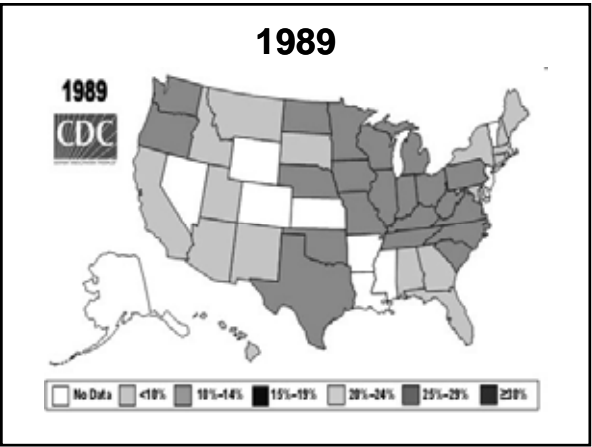
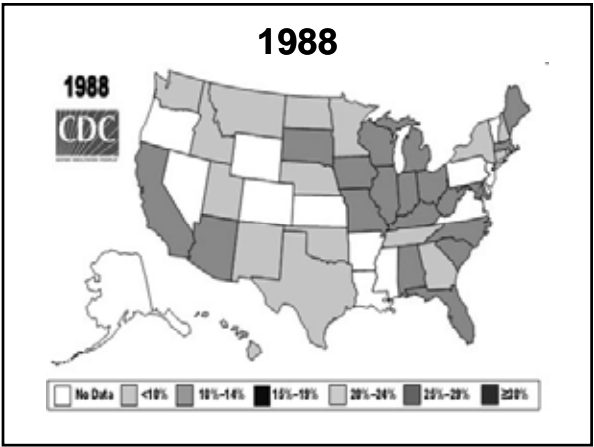
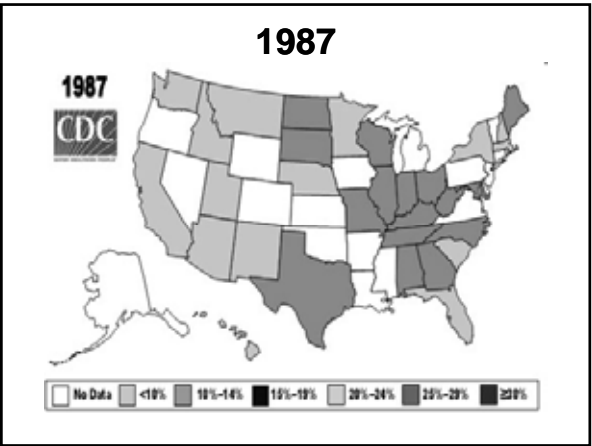
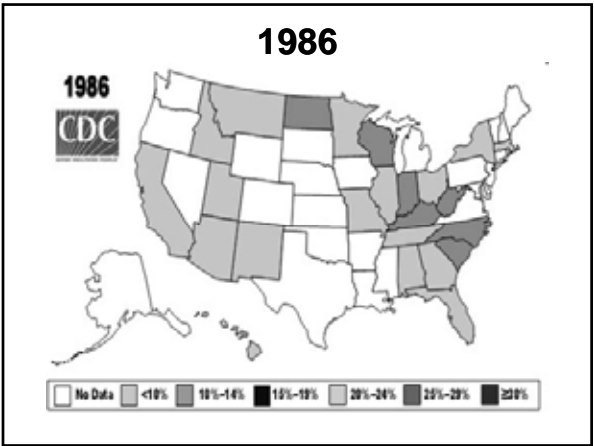
U.S. Obesity Trends

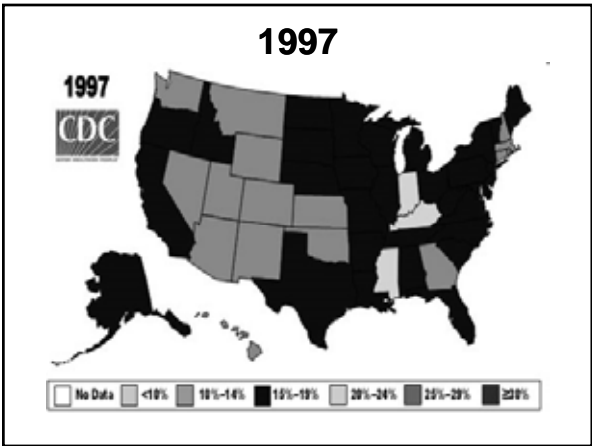
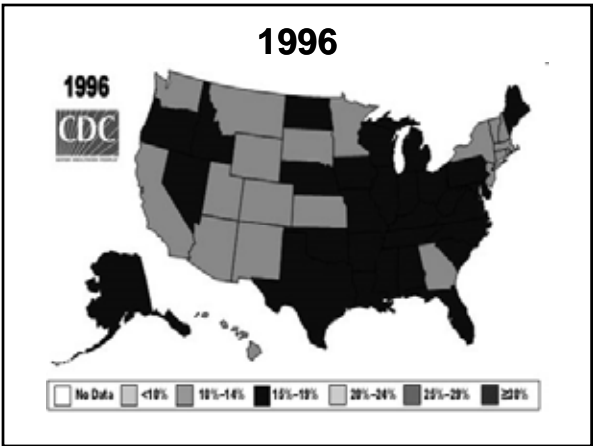
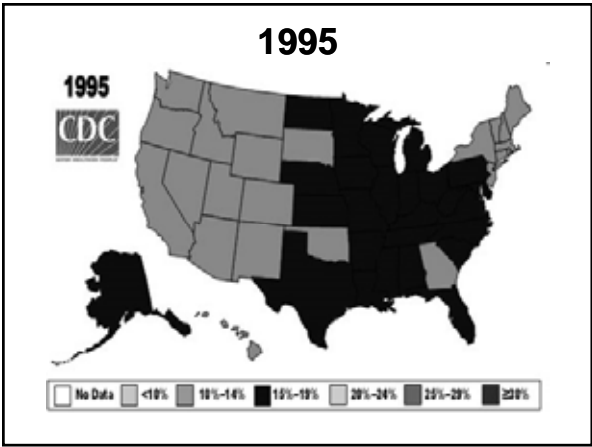
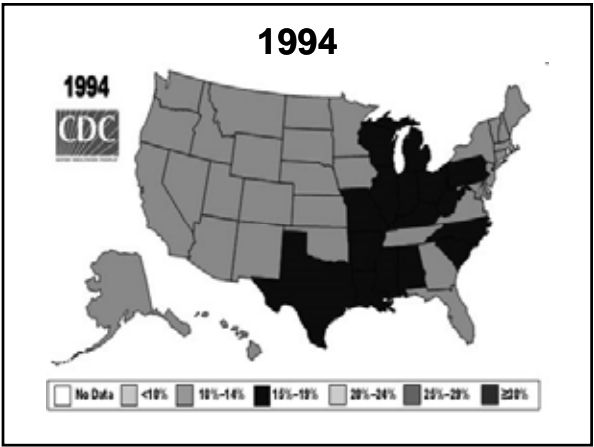
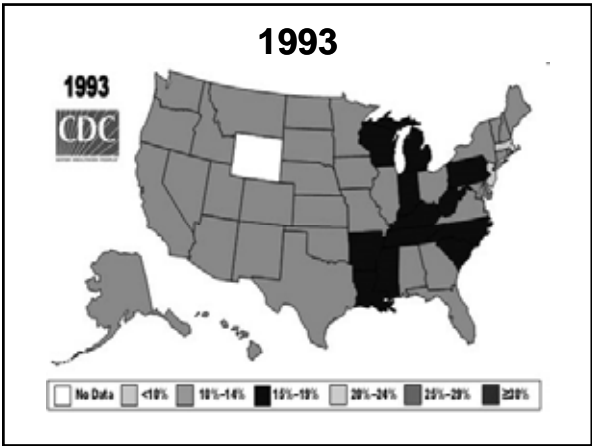
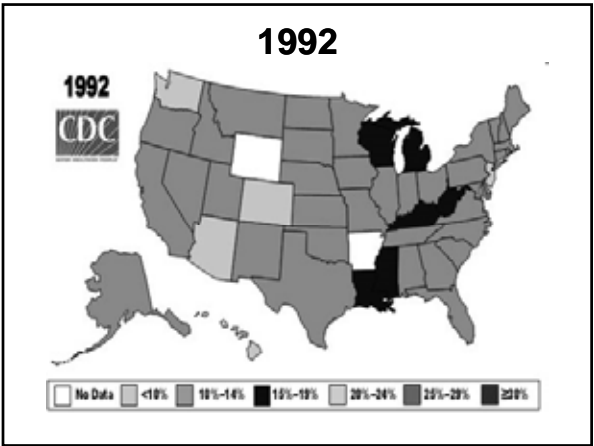
- Obesity is defined as a body mass index (BMI) of 30 or greater
 - BMI is calculated from a person's weight and height
 - Provides a reasonable indicator of body fatness and weight categories that may lead to health problems

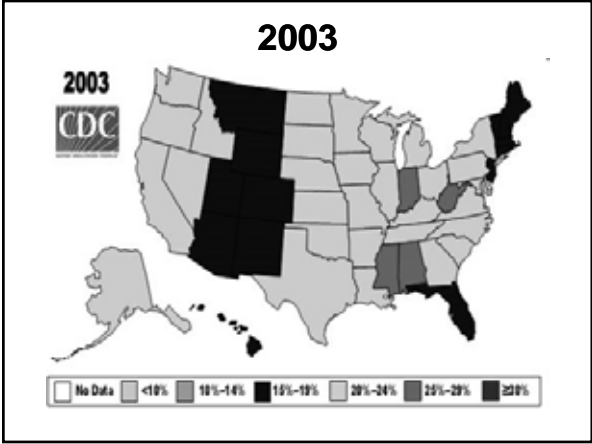
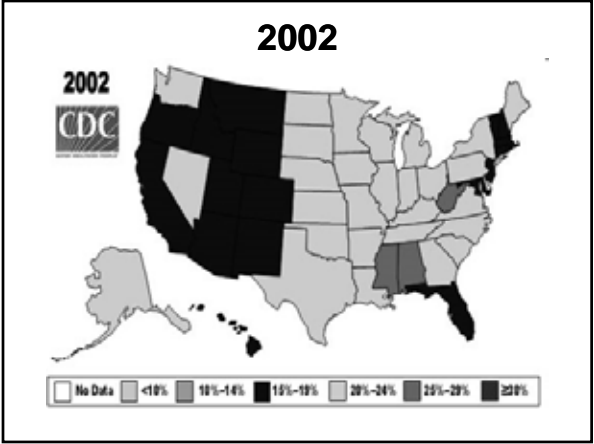
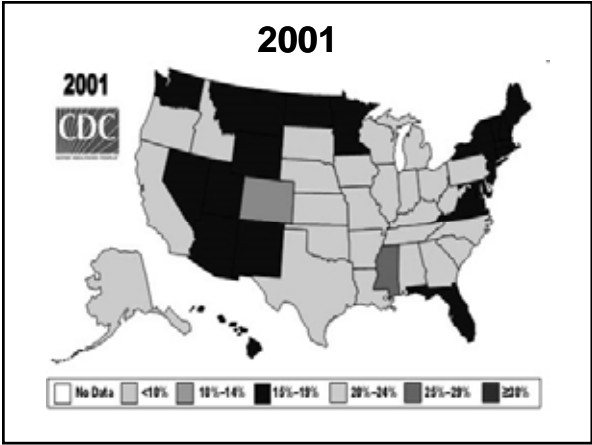
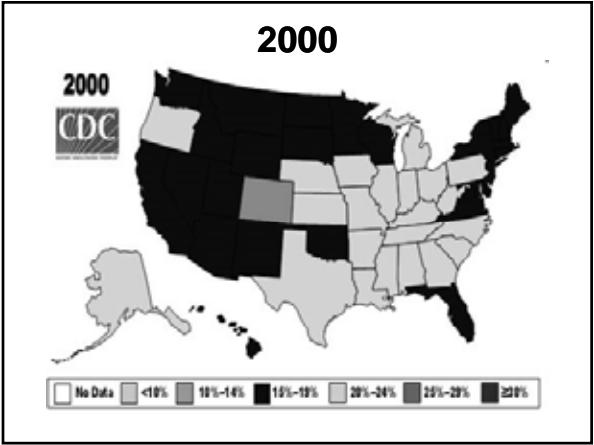
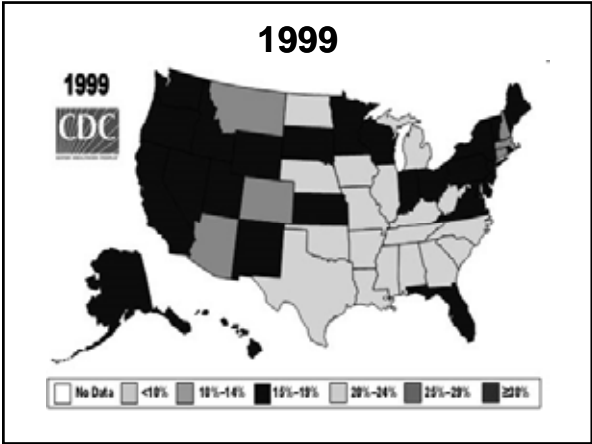
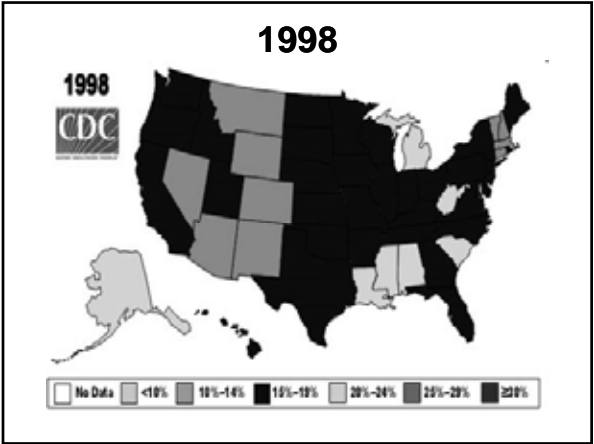
U.S. Obesity Trends

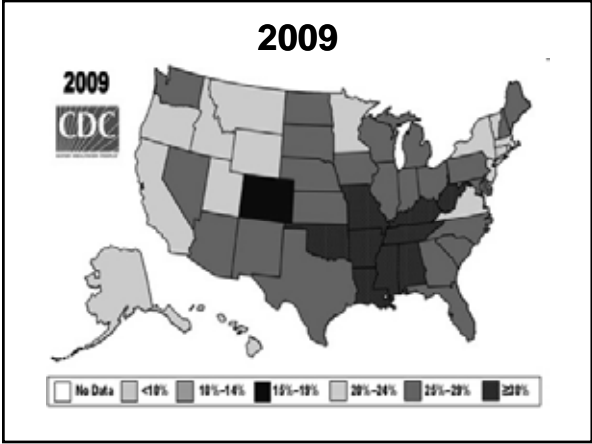
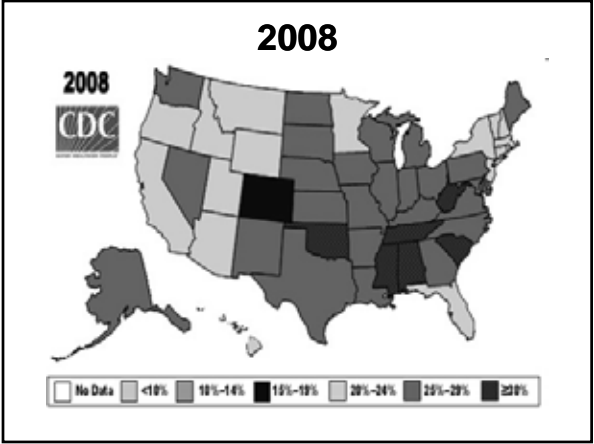
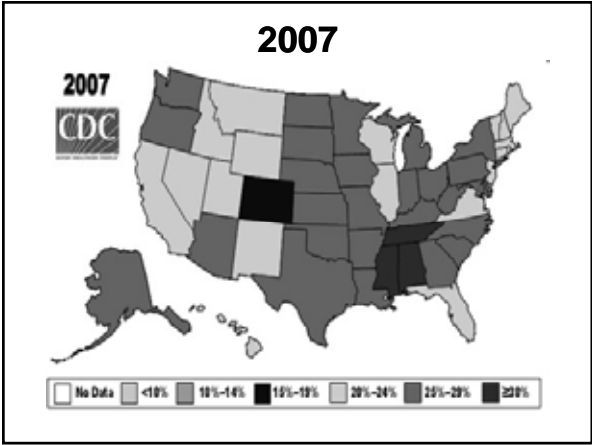
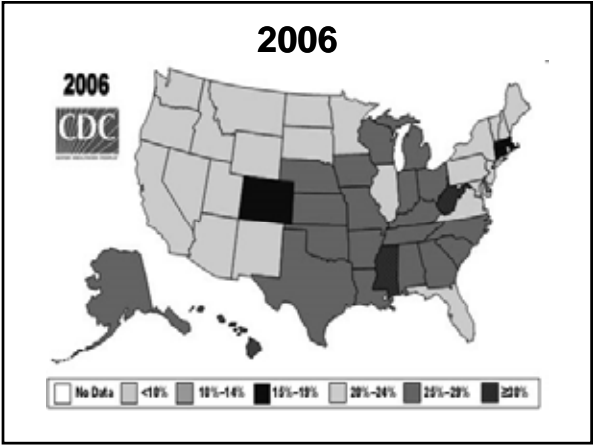
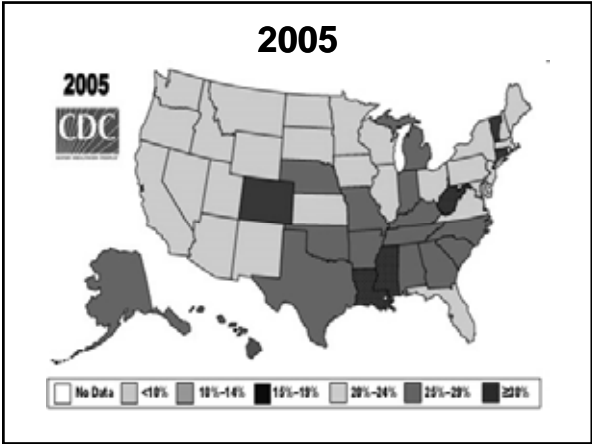
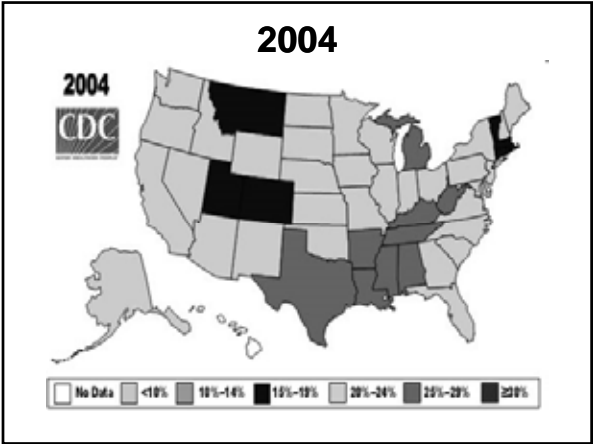
- Major factor for
 - Cardiovascular disease
 - Certain types of cancer
 - Type 2 diabetes











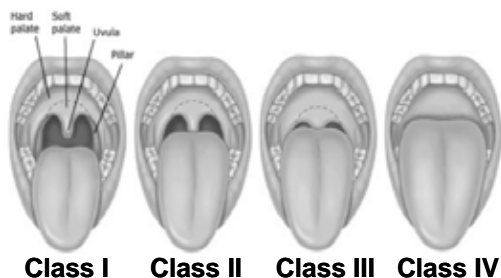
The Mallampati Classification for Difficult Laryngoscopy and Intubation

- Mallampati scale
 - Class one is present when the soft palate, uvula, and pillars are visible
 - Class two when the soft palate and uvula are visible

The Mallampati Classification for Difficult Laryngoscopy and Intubation

- Class three when the soft palate and only the base of the uvula are visible
- Class four when only the hard palate is visible

The Mallampati Classification for Difficult Laryngoscopy and Intubation



Sleep Apnea

- One of the most well known sleep disorders
 - Not the most prevalent
- Easy to diagnose
- Harmful
- Snoring
 - Most recognizable symptom
 - Much more than that

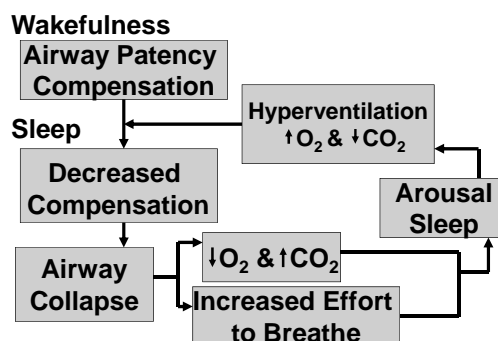
Normal Airway

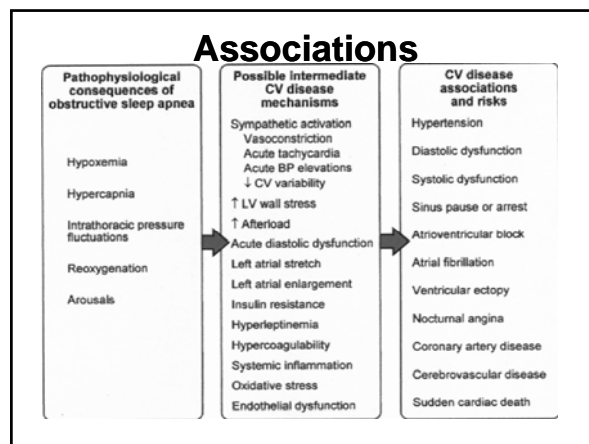
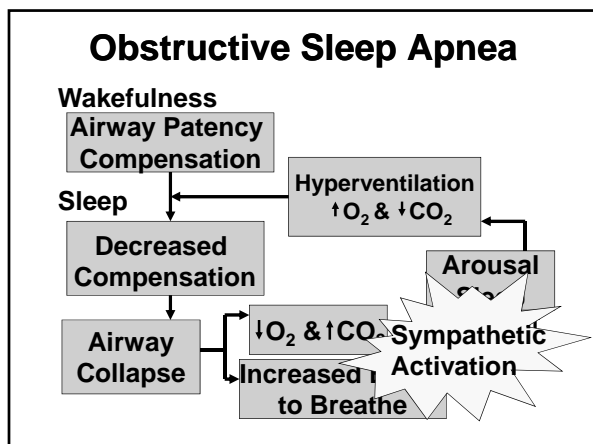


Obstructed Airway



Obstructive Sleep Apnea





Hallmark OSA Signs and Symptoms

- Loud, disruptive snoring
- Excessive daytime sleepiness (EDS) unexplained by other factors
 - Nocturnal choking gasping/snorting
 - Nocturnal pauses in breathing

Additional Symptoms of OSA

- Recurrent nocturnal awakenings
- Un-refreshing sleep
- Daytime fatigue
- Impaired concentration/memory loss
- Mood/behavioral changes
- Morning headaches
- Loss of sexual interest

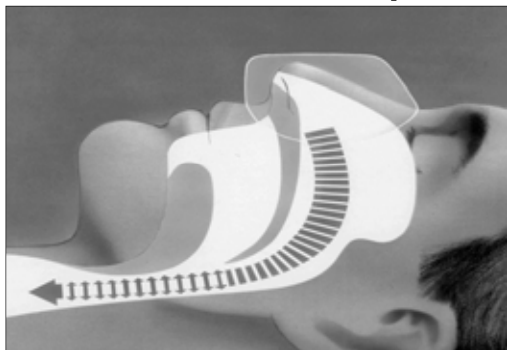
Polysomnogram

- Test used to diagnose most sleep disorders
 - Performed in a sleep disorders center or sleep lab
 - Consists of monitoring several physiological components
 - Brain waves
 - Eye movements

Polysomnogram

- Muscle activity
- Leg movements
- Respiratory pattern snoring
- ECG
- Oxygen saturations
- Body position

CPAP: Pneumatic Splint



Delayed Sleep Phase Syndrome

- This is a sleep disorder that is typically misunderstood
 - It can occur with a move to a different time zone or with shift workers

Delayed Sleep Phase Syndrome

- It can also occur in situations where people are hospitalized or never see the sun and are generally disoriented as to what time of day it is

Delayed Sleep Phase Syndrome

- You don't just simply need a bedtime per say
 - Your body is set to sleep in a phase
 - You have an awake phase you have a sleep phase

Delayed Sleep Phase Syndrome

- If your body wants to sleep from 9 pm - 6 am and you sleep from 11 pm - 8 am then there is a conflict
 - Even if you get the exact same amount of sleep your sleep phase is delayed

Delayed Sleep Phase Syndrome

- This can work in the opposite fashion also where you sleep earlier then your body would like

Treatment Options

- To prevent delayed sleep keep a set bedtime and sleep time
 - Not just for children
 - Your bed time should be as consistent as possible even on your days off
 - Your body is not set by a clock on the wall

Treatment Options

- If you go to sleep at 9 pm on the west coast then on the east coast it will be midnight
- A sleep aid may be needed in some instances to help you fall asleep
 - When appropriate
 - Until your body can change phases

Narcolepsy

- A central nervous system disorder
- An important cause of persistent sleepiness
- The second most common cause of disabling daytime sleepiness after sleep apnea

Narcolepsy

- Typically begins in the teens and early twenties
 - Can occur as early as age 5 or after age 40
- Symptoms may worsen over first few years and persist for life
- Half of all patients report symptoms interfere with job, marriage, or social life

Narcolepsy

- Can be considered a disorder of state control
 - Elements of sleep intrude into wakefulness, and wakefulness intrudes into sleep
 - This state instability results in characteristic symptoms

Narcolepsy Symptoms

- Excessive daytime sleepiness
 - Almost all patients with narcolepsy have chronic sleepiness
- Over 24 hours
 - Do not sleep more than normal controls
 - Prone to fall asleep throughout the day, often at inappropriate times

Narcolepsy Symptoms

- **Sleep attacks**
 - Hypnagogic hallucinations
 - Vivid, often frightening hallucinations that occur just as the patient is falling asleep
 - Likely result from a mixture of REM sleep dreaming and wakefulness

Narcolepsy Symptoms

- **Sleep paralysis**
 - A complete inability to move for a minute or two just after awakening
 - Episodes of sleep paralysis may be accompanied by hypnagogic hallucinations

Narcolepsy Symptoms

- **Cataplexy**
 - Sudden episodes of bilateral muscle weakness leading to partial or complete collapse
 - Often triggered by strong emotions such as laughter, anger, or excitement

Narcolepsy Symptoms

- Episodes last 1 - 2 minutes
- Not associated with impairment of consciousness
- Sixty percent of narcoleptic individuals develop cataplexy

Diagnosing Narcolepsy

- Complete evaluation includes an overnight polysomnogram (PSG)
- Multiple Sleep Latency Test (MSLT)

Treatment for Narcolepsy

- **Mainstays of therapy**
 - Stimulants for the treatment of sleepiness
 - REM sleep-suppressing medications for the treatment of cataplexy
 - Napping and sleep hygiene
 - Psychosocial support

Treatment for Narcolepsy

- A few may get by with an occasional nap
- Most patients require a wake promoting drug
 - These drugs improve performance as measured by reaction time and simulated driving tasks

Treatment for Narcolepsy

- Performance usually does not exceed 70 – 80% of normal control levels
- Goal is obtaining normal alertness throughout conventional waking hours

Treatment for Cataplexy With Narcolepsy

- Gamma hydroxybutyrate (GHB)
 - 2002 - approved by the FDA for the treatment of cataplexy
 - Especially useful in patients with severe cataplexy
 - Can also improve daytime sleepiness

Treatment for Cataplexy With Narcolepsy

- GHB is a metabolite of GABA
- Mechanism of action in patients with cataplexy is unknown
- Gained notoriety as a "date-rape" drug

Periodic Limb Movements Disorder and Restless Leg Syndrome

- While both pertain to the legs they are not the same thing
- Sometimes patients suffer from both ailments but they are completely different

Periodic Limb Movements Disorder (PLMD)

- Periodic limb movements in sleep are repetitive movements
 - Most typically in the lower limbs
 - Brief muscle twitches, jerking movements, or an upward flexing of the feet
 - Occur about every 20 - 40 seconds

Periodic Limb Movements Disorder

- They cluster into episodes lasting anywhere from a few minutes to several hours
- Also referred to as PLMS

Periodic Limb Movements Disorder

- PLM is found with high frequency in those suffering with restless legs syndrome
 - As many as 85% of people with RLS also have PLM

Periodic Limb Movements Disorder

- Conversely, the number of people with PLM also having RLS is quite low
 - PLM is somewhat more common than RLS

Periodic Limb Movements Disorder

- PLM can occur in the legs or arms
 - Most often appears in the legs
 - In 5% of adults over 30
 - In nearly 50% of adults over 65
 - Tied to the immune system
 - More likely to appear in those with weaker immune systems

Periodic Limb Movements Disorder

- It occurs rarely in children

Restless Leg Syndrome

- Restless Legs Syndrome (RLS) is a neurologic sensor motor disorder
 - Characterized by an overwhelming urge to move the legs when they are at rest
 - Urge usually, but not always, accompanied by unpleasant sensations
 - Typically felt while awake

Restless Leg Syndrome

- There are two types of RLS
 - Primary RLS
 - Secondary RLS

Restless Leg Syndrome

- Primary RLS
 - The most common type
 - It is also called idiopathic RLS
 - Primary means the cause is not known
 - Once it starts, usually becomes a lifelong condition

Restless Leg Syndrome

- Over time, symptoms tend to get worse and occur more often, especially if they began in childhood or early in adult life
- In milder cases, there may be long periods of time with no symptoms, or symptoms may last only for a limited time

Restless Leg Syndrome

- Secondary RLS
 - Caused by another disease or condition or, sometimes, from taking certain medicines
 - Symptoms usually go away when the disease or condition improves, or if the medicine is stopped

Diagnosis

- Periodic Limb Movement Disorder
 - The polysomnogram is the best method for detecting the severity of the movements
 - Also detects any other possible sleeping disorders that may be contributing to PLM

Diagnosis

- Restless Leg Syndrome
 - The way that you describe your symptoms is very important
 - Your doctor will:
 - Take a complete medical history
 - Do a complete physical exam
 - Order other tests

Diagnosis

- The diagnosis of RLS usually requires the following four conditions be present:
 - An urge to move the legs due to an unpleasant feeling in the legs
 - The urge to move the legs, or the unpleasant feelings in the legs, begins or gets worse when at rest or not moving around frequently

Diagnosis

- The urge to move the legs, or the unpleasant feelings in the legs, is partly or completely relieved by movement (such as walking or stretching) for as long as the movement continues

Diagnosis

- The urge to move the legs, or the unpleasant feelings in the legs, is worse in the evening and at night, or only occurs in the evening or at night
- There is no test currently available to diagnose RLS

Treatment for PLMD

- Treatment for PLM is similar to the treatment for RLS
 - Someone with both conditions will likely find relief from both syndromes with one treatment

Treatment for PLMD

- This includes iron supplements when low iron levels are considered to be at the root of the problem and anti-seizure medications
 - For extreme cases, sleeping pills or pain killers may be prescribed

Treatment for PLMD

- Additionally, changes in your daily routine will probably be recommended
 - Healthy diet and balanced exercise schedule
 - Most important is to implement good sleep hygiene practices

Treatment for PLMD

- This will improve the speed you reach REM sleep, and your ability to stay in it
- The chances of PLM occurring during REM sleep are much lower than while in earlier sleep phases

Treatment for PLMD

- Good sleep hygiene includes improving the sleep conduciveness of the environment you sleep in
 - Have a comfortable bed and pillow that is right for you
 - Avoid stimulants of any kind before bed time

Treatment for RLS

- Medicines can help relieve some symptoms of RLS
 - Doctors prescribe medicines to treat RLS in people with clearly defined symptoms that cannot be controlled by lifestyle and non-drug treatment

Treatment for RLS

- Lifestyle changes can improve and relieve symptoms of RLS
- Lifestyle changes may be the only treatment needed for mild RLS
- Lifestyle changes include
 - Avoiding things that make RLS symptoms worse
 - Alcohol, tobacco

Treatment for RLS

- Caffeine
 - Chocolate, coffee, tea, and some soft drinks contain caffeine
 - Although it may seem to help overcome daytime sleepiness, caffeine usually only delays or masks RLS symptoms, and often makes them worse

Treatment for RLS

- Some medicines
 - Some over-the-counter and prescription medicines can make RLS symptoms worse
 - Antidepressants (most of them)
 - Anti-nausea medicine

Treatment for RLS

- **Other activities that may also help relieve symptoms:**
 - **Walking or stretching**
 - **Taking a hot or cold bath**
 - **Massaging the leg or arm**
 - **Using heat or ice packs**