**How is Sleep Apnea Diagnosed?**

The best method of diagnosing sleep apnea and other sleep problems is an overnight test in a sleep laboratory. This test is called **polysomnography (PSG)**. You will be connected to wires that monitor breathing and sleeping. A sleep doctor will explain the results and suggest treatment.

**Stages of Sleep**
- Brain activity
- Eye movement
- Muscle tone
- Heart beats
- Leg movement

**Breathing during Sleep**
- Air movement
- Movement of chest
- Movement of abdomen
- Oxygen level in blood

**Polysomnography:** an overnight test in the sleep laboratory.
How is Sleep Apnea Treated?

The goal of any treatment for sleep apnea is to prevent airway collapse during sleep.

Over 25 years ago Dr. Collin Sullivan successfully treated a sleep apnea patient with the use of continuous positive airway pressure (CPAP). This was delivered through a mask glued to his nose! Years later, CPAP is still the best treatment for obstructive sleep apnea.

The best treatment for obstructive sleep apnea is continuous positive airway pressure (CPAP) produced by a CPAP machine (also called a flow generator). This pressure is then delivered through tubing and a mask to your airway. The mask is held in place by a headgear.
How Does CPAP Work?

The CPAP machine delivers a constant flow of air through tubing and a mask to the airway. This creates a ‘splint’ that supports the tissues at the back of the throat, preventing collapse. The amount of pressure developed in the airway by the CPAP machine is prescribed by your sleep specialist, usually after monitoring the effects of treatment during testing at the sleep laboratory. Once your airway is open, the obstructive apnea events and snoring are prevented from happening.

CPAP equipment has improved over the years. Smaller, quieter machines, heated humidity, pressure relief and automatic CPAP machines are all newer options. Machines now record information about how the therapy is working.

CPAP is a treatment, not a cure.

You will feel better only as long as you use it.

If you stop using the CPAP, your symptoms will return. We understand that wearing CPAP can be difficult, especially if you still feel tired or cannot sleep with a mask on your face. It is important to work with your doctor and equipment supplier to solve any problems you may have.

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CPAP Masks

CPAP equipment is usually purchased through a home oxygen company. When you try on a mask it should feel comfortable right away. Keep in mind that it may take some time to get used to wearing any type of mask. The following are only some of the masks that are available on the market. Please work with your supplier to find the best fit for you. Masks can also be purchased through many on-line sites.

Nasal Masks

- Resmed
  - Mirage Activa™

- Respironics
  - ComfortGel™

- Fisher & Paykel
  - FlexFit™ 405

Nasal Pillows or Cushions

- ResMed
  - Mirage Swift™

- Respironics
  - ComfortLite™ 2

- Fisher & Paykel
  - OPUS™ 360
Full Face Masks

Resmed
Ultra Mirage™ 2

Respironics
ComfortFull™ 2

Fisher&Paykel
FlexFit™ 432

Child’s Mask

ResMed
Mirage Kidsta™
CPAP Machines
These are a few examples of the many machines available today.

Fisher&Paykel ICON™
ResMed S9

Respironics REMstar™ M Series

BiLevel PAP Machines

Respironics
BiPAP A 30™

ResMed
VPAP™ III
CPAP Mask Fitting

The key to using CPAP therapy successfully is a good mask fit. Your mask needs to be comfortable.

**What is a good fit?**

- The top of the mask should be at the bridge of your nose.
- The bottom of the mask should be about halfway between the bottom of your nose and the top of your upper lip.
- The edge of the mask should be close to the sides of your nose without actually touching it.
- The smallest mask that fits is usually best.
- A small leak is acceptable unless air is blowing into your eyes.
- The headgear should not need to be pulled tightly to control leaks.

**Picking the right mask is very important.**

**Ask yourself these questions:**

- Can I breathe through my nose or do I breathe through my mouth? If you breathe through your mouth, a full face mask or chin strap may be better.
- Am I claustrophobic? If so, nasal pillows may suit you better.
- Can I handle something inside my nose? If not, a nasal mask might be better.

**Do not be in a rush at the CPAP store.**

- Be sure to lay back and also on each side to see how it will feel when you are in bed.
- Try the mask with a CPAP machine attached.
- Make sure the headgear is easy for you to use.
- Ask about a trial period for a new mask or a trade-in policy in case the mask does not work out.
- Take your time when choosing a system that is right for you.
Common Problems with CPAP

Dry Nose
- A humidifier that can be attached to the CPAP machine will often help with dryness. A heated humidifier will deliver more moisture.
- Placing a room humidifier in your bedroom is not recommended as it may damage the CPAP machine. Moisture drawn into the machine can affect the motor.

Nasal Stuffiness
- Nasal stuffiness can happen when you begin CPAP therapy. Try adding a heated humidifier to your system.
- Nasal stuffiness may also be caused by sinusitis, allergies or rhinitis. Contact your doctor to determine the cause and an effective treatment. It is important that your nose is as clear as possible to make wearing your CPAP mask more comfortable.
- Nasal blockages can happen because of polyps or old fractures. Blockages can interfere with CPAP treatment. These problems should be treated by an ear, nose and throat specialist.
- A full face mask may be the best mask for you.

Sore or Red Areas
- Any marks should disappear very shortly after removing the mask.
- Sore or red areas on the bridge of the nose are caused by either a poorly fitted mask or by over-tightening the headgear.
- Adjust your headgear until it is just tight enough to make a seal without large leaks. A small air leak that does not blow into your eyes is acceptable.
- Consider trying a different style of mask.

Skin Irritation
- Wash your mask with warm, soapy water and air dry every day.
- Wash your face and dry well before putting the mask on.
- Contact your doctor if a rash develops; a prescription cream may be needed to treat the problem.
- Try a different style of mask.
Mouth Leaks (nasal mask users)

- Usually the pressure of the CPAP will cause you to keep your mouth closed.
- If you do open your mouth at night, you will wake up with a dry mouth. You also may not be getting the most benefit from your treatment.
- A chin strap may help to keep your mouth closed, but it does not work for everyone.
- A full face mask may be a solution; please discuss this with your sleep doctor.
- A prescription from your doctor is required for a full face mask.

Dry Mouth (full face mask users)

- A heated humidifier will make a difference to the dryness of your mouth.
- Ask your pharmacist about artificial saliva or oral lubricant products that can help with a dry mouth.

Removing the Mask during the Night

- It is normal to sometimes remove the mask in your sleep. Keep in mind that the goal of treatment is to wear it all night.
- If you move around a lot in your sleep adding a chin strap may keep the mask on your face.
- You may pull the mask off because of nasal congestion. Try adding a heated humidifier.
- Talk to your sleep specialist if you cannot use your CPAP equipment, he/she may be able to suggest some hints or test for other problems.

Treating sleep apnea is very important for your overall health. If you have experienced problems getting used to your CPAP equipment, please do not give up. It may take a few weeks, or even months to be comfortable wearing a mask. Be patient. Return to your supplier to look for ways to deal with any problems you have. Talk to your sleep doctor about any medical concerns. Do not give up.

Why Does Adding a Humidifier Help?

Your lungs need air that is moist and warm to work properly. It is the job of your nose and throat (upper airway) to add warmth and moisture to the air you breathe in. If you breathe dry air for too long, it can become too much for the nose and throat to handle. The result can be a dry or stuffy nose, a dry throat or even a bleeding nose.

Using a heated humidifier with your CPAP will help prevent these problems from happening. A heated humidifier delivers more moisture than an unheated humidifier.
CPAP Equipment Care

CPAP Mask:
The best information about your specific mask can be found in the information pamphlet that comes with it. The following are general care instructions:

**Daily**
- Wash mask with pure soap and warm water. Rinse and air dry.
- Do not use solutions containing bleach, chlorine, alcohol, moisturizers, scents or antibacterial agents.
- Vinegar in the rinse water will reduce odour and germs.
- Do not expose the mask system to direct sunlight.

**Weekly**
- Hand wash tubing and headgear with pure soap and warm water.
- Remove excess water with towel and air dry.

**After 6 months**
- Replace mask, tubing and headgear as they become worn.

CPAP Machine:
- Change or clean the filter every 2 months, or as needed.
- Be careful not to let water from the humidifier to spill into your machine. Always empty the humidifier before moving your CPAP machine.

Heated Humidifier:
- Use distilled water. Replace the water each night.
- Follow the instruction manual for cleaning your humidifier.
Insurance Coverage for CPAP Equipment

Many insurance policies will cover CPAP equipment that has been prescribed by a sleep doctor. A copy of the prescription must be sent along with the claim. The following is an example of a complete prescription:

<table>
<thead>
<tr>
<th>Dr. Joe Blow</th>
</tr>
</thead>
<tbody>
<tr>
<td>123 Any Street</td>
</tr>
<tr>
<td>Any Where</td>
</tr>
</tbody>
</table>

- CPAP flow generator at ___cm H₂O pressure
- CPAP mask - full face mask if required
- Heated humidifier
- CPAP tubing and headgear.

Traveling with CPAP Equipment

Sleep apnea does not take a vacation. You need to take your CPAP with you when you travel. If you are flying, the CPAP machine should be taken as carry-on luggage.

To make getting through security as smooth as possible it is wise to have a letter from your doctor.

The letter should state the following:

- The equipment is required for a medical condition.
- The model (e.g. ResMed S7 Elite) and the serial number.

Check about the type of electrical supply in the country where you are traveling. You may need a converter.
Portable Monitors

As public awareness of sleep apnea grows, so does the demand to be tested. In some areas the waiting time for sleep laboratory testing is very long.

If your doctor believes that your symptoms suggest that you very likely have sleep apnea, and you have no other serious illnesses, portable machines may be used. Portable machines can be used at home and can provide information about oxygen levels, airflow through the nose and mouth, breathing patterns, and snoring. You will be shown how to hook up to the machine so you can do it at home. Testing should be done under the supervision of a physician with training in sleep medicine. If it is discovered that you have sleep apnea, follow-up is needed to decide the best treatment for you.

Portable monitors record information about you while you are sleeping at home in your own bed.