



# **Emergency Medical Training Services**

**Emergency Medical Technician – Paramedic Program Outlines**

**Outline Topic: BIPAP/CPAP**

**Revised: 11/2013**

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BiPAP stands for Bi-level Positive Airway Pressure. It is a breathing apparatus that helps people get more air into their lungs. It was developed in the 1990s as a development from the C-PAP, which stands for Continuous Positive Airway Pressure. In the 1980s, people used a C-PAP in their homes to help combat breathing difficulties such as sleep apnea.

Sleep apnea is a problem in which the person's upper airway collapses. This causes the person to repeatedly stop breathing. Apnea sufferers usually wake suddenly with a huge rousing snore. Their quality of sleep is poor and can lead to mental problems such as depression and lack of concentration. The physical health of the sufferer can also deteriorate.

The extra pressure from C-PAP allowed users to sleep by keeping the airways open. The problem with C-PAP was that the person had to exhale against the extra pressure. This made it unsuitable for people suffering from neuromuscular diseases.

With the development of BiPAP, air delivered through a mask can be set at one pressure for inhaling and another for exhaling. This makes BiPAP much easier for users to adapt to and also allows neuromuscular disease sufferers to use the device. Because of these dual settings, BiPAP allows people to get more air in and out of the lungs without the natural muscular effort needed to do so.

BiPAP has been found to be especially useful for patients with congestive heart failure and lung disorders, especially those that result in above normal levels of carbon dioxide. In addition, patients for whom intubation is not possible can benefit from the breathing assistance from BiPAP.

Sufferers of atelectasis will also benefit from a BiPAP. Atelectasis is when all or part of a lung collapses, and results in the loss of the ability of air sacs at the furthest reaches of the lungs to expand.

There are several tests a doctor can perform to find out if a BiPAP would be beneficial if you are a sufferer of atelectasis. One is a respiratory test, which involves breathing into a machine to measure your lung capacity. The Forced Vital Capacity test is another important test; it basically tests how deep a breath you can take. However, these tests will not show if you have sleep apnea, which is usually diagnosed with the help of sleep studies.

A BiPAP machine may cost between 2000 and 3000 US dollars (USD). The BiPAP should be covered by medical insurance. It is also possible to purchase your own machine. If that's not feasible, you also have the option to rent a BiPAP from a respiratory care company through an agreement with which you end up owning the machine. Your doctor or neurologist should be your first point of contact if you think you may benefit from a BiPAP.