Dealing With Mouth Leaks

Mouth breathing is a common problem for CPAP and BiPAP users. If the mouth is partially or fully open while using a nasal mask, the pressurized air will escape through the mouth. The air just takes the path of least resistance, and you miss the benefits of the CPAP therapy.

Symptoms Include:
- Congestion
- Dry Nose and Throat
- Sore Throat
- Nose Bleeds

Increased nasal symptoms can worsen Obstructive Sleep Apnea (OSA) and lead to increased nasal airway resistance. This, in turn, leads to further mouth breathing, thus perpetuating the cycle, as illustrated here.

The result is loss of effective therapy, loss of comfort, and disrupted sleep, all of which can lead to loss of compliance and less effective therapy.

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How do you know if you need a new facemask?

A full face mask covers both your nose and your mouth so that effective therapy can be delivered whether you breathe through your nose or mouth.

Would you benefit from using a full face mask?
- Have you ever had a broken nose?
- Do you have a deviated septum?
- Have you had previous nasal surgery?
- Are you currently using any nasal therapy or medication?
- Are you continuing to snore even when using the therapy?
- Do you use a chinstrap with therapy?
- Does your machine indicate you are experiencing leaks?

If you answered YES to one or more of these questions, you may benefit from using a full face mask.
The History of the CPAP Machine

Before the invention of the CPAP machine, the standard treatment for sleep apnea was a tracheotomy. A tracheotomy is a surgical procedure in the neck to open a direct airway through an incision in the trachea. The CPAP machine was invented by Colin Sullivan of Australia in 1980 and this is his account of how he came up with the revolutionary idea:

One afternoon we were setting up for a nighttime study on a patient with severe OSA who was scheduled for a tracheotomy. He was participating in a series of nightly studies before and after the procedure to measure breathing during sleep.

Discussing the issue with me, the patient was eager to know if there was anything else that might work. I suppose I was thinking out loud, looking at the mask and all the tubing sitting around for the experimental procedure, when it occurred to me that putting pressure in the upper airway might just hold it open.

The patient was keen to give it a try, and so we started searching around for equipment that we could use. We had large bore tubing which we cut holes for nasal prongs to fit into. Then we used plenty of Silastic glue to hold the nasal prongs in place. Our next problem was sourcing the blower to create an appropriate pressure. We had a blower we used to calibrate the Fleish pneumotach and thought that might work. So, in a couple of hours, the first nasal CPAP device for OSA was born.

What we weren’t prepared for was how quickly and easily we were able to unblock the upper airway obstruction. As we turned the pressure up, the obstruction disappeared, and the patient went immediately into REM. We then reduced the pressure and recreated the classic obstructive pattern that we had seen the night before. Turning the pressure up again relieved the obstruction.

Although we initially had planned to use the pressurized system for just a short time during the first night, the impressive response in terms of sleep quality and respiratory symptoms, as well as the patient’s tolerance to it, made me decide to continue on for the whole night. We had an extremely satisfied and rested patient the next morning. The results we say were absolutely clear-cut, and I knew straight away that the upper airway obstruction was a passive process simply by how easy it was to unobstruct the airway.

Q: What kind of equipment was first used?

We actually made the first blowers using a two-stage vacuum cleaner motor that we modified for home use. We tried a whole range of head harnesses, but one of the earliest setups that worked was using the inside of a bicycle helmet to hold the mask in place. We also individually molded masks and provided patients with large pots of Silastic paste and catalyst to glue the mask on. We later accessed the Vortex blower motor, which was designed for dental drills, and these worked really well for home use and were easily accessible.

In 1981, Jim Bruderer, a Swiss-born toolmaker, joined our team, and he was responsible for many of the technological improvements in the equipment and mask for home use. By 1984, we were beginning to move away from the individually molded masks. From just a couple of patients on home treatment in 1980, by 1985 we had more than 100 patients at home on CPAP therapy.

CPAP has come a long way since those first nights of research in 1980. Improvements in mask and machine design have increased patient comfort & acceptance of CPAP. Other technological advancements such as bi-level pressure, auto-adjusting CPAP, humidification and compliance monitoring have expanded the usefulness of CPAP therapy.