

spokes

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Inside this issue...

- New equipment preview page 3
- Clinical excellence award page 5
- I am part of it page 7
- New driving certification page 6
- In memoriam page 5
- Employee winners page 10
- News briefs page 8-9

Customized respiratory mask provides patients with alternatives

A unique night-time ventilation system for patients with respiratory muscle fatigue has been implemented through the efforts of DRI's director of cardiopulmonary services, Susan Sortor, and a Dallas oral prosthodontist, Dr. Carolyn Parker. The system is a customized respiratory mask which provides appropriate patients with an alternative to tracheostomy tubes, iron lungs or other bulky ventilation systems.

The idea originated when Ms. Sortor met a girl from Germany during the G.I.N.I. conference in St. Louis. Brunhilde had an acrylic mask, perfectly

molded to her face, which she used at night for ventilation. "This was one mask, for one girl in Germany. She had a dentist make it just for her because she needed a respirator only at night. She was married and a tank respirator was not something she was willing to utilize."

Ms. Sortor thought the system was unique, and brought the idea back to DRI with her, having the chance to try it out on a patient a short time later. Working with Dr. Parker, Ms. Sortor helped develop a customized mask for a 22 year old named Maureen who had a paralyzed

» See story on pg. 2 »

Unique mask gives patients respiratory alternatives

(from page 1)

diaphragm and was suffering from respiratory fatigue at night. Some of the standard respiratory systems, a tracheostomy, iron lung or pulmwrap, were not methods Maureen wanted to use. Ms. Sortor suggested the customized mask.

The first mask took two weeks to make and two solid nights of monitoring and adjusting to make sure the fit was perfect and no air was leaking from the mask. This mask was also made of acrylic with upper and lower bitewings inside the mask to separate the teeth into a relaxed position and hold the mask into place. It utilized positive pressure ventilation (air being forced into the lungs), so it was critical that the fit be exact and no leakage occurred. It required minimal equipment on the body and just covered the nose, cheeks and part of the chin. It allows the individual to breathe through either the nose or mouth.

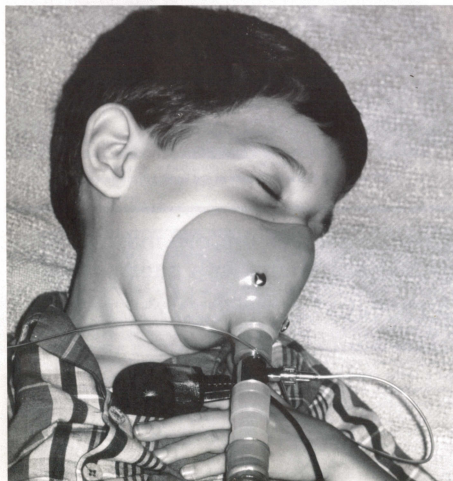
"She loved the mask and had really good success using it. The next patient we tried this with was an inpatient who had a C3 spinal cord injury. He also needed a respirator at night," Ms. Sortor stated. "We made him a mask and it worked perfectly for him. The idea started catching on. We have also explored it with some outpatients, post-polio patients who have respiratory fatigue at night, as an alternative to systems already being used."

Five patients have been fitted with the customized mask to date. Although other facilities are researching similar types of systems using a mouthpiece instead of a mask, Ms. Sortor said DRI is the only facility she knows of in the U.S. that is working with this particular type of system.

The mask is time-consuming to make, but does have some advantages over similar systems. The bitewings inside the mask reduce the tendency for dental complications because they hold the

teeth in a more relaxed position and use the entire biting surface to hold the mask in place. By allowing patients to breathe through their nose in the mask, it also allows the body's own filtering systems to operate and can reduce the risk of infection.

Patients who are potential candidates for this system can receive pulmonary evaluations on an inpatient or outpatient basis through the cardiopulmonary services department. More information can be obtained by calling (214) 358-8341.



Chad Ferrand, a 6 year old patient with spinal muscular atrophy, rests comfortably with a customized respiratory mask.

Staff box

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