



The Madonna Minute

A briefing about the programs and innovations at Madonna Rehabilitation Hospital

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Breathing easier with creative expertise from Madonna's Pediatric Pulmonary Program team

by Rebecca Wills, MA, BA, CRT, CRT-NPS, Pulmonary Program Manager

Madonna's Pediatric Pulmonary program serves children and adolescents with various diagnoses, including cardiopulmonary, neuro-disabilities and those children permanently or temporarily reliant on ventilators and/or tracheostomy tubes. Acute and chronic conditions may lead to ineffective and inefficient breathing patterns and other pulmonary impairments, such as:

- Weak, ineffective cough
- Hypopneic breathing patterns
- Increased oral and bronchial secretions
- Recurrent pneumonia and atelectasis

Trans-disciplinary approach

Madonna's dedicated team of specially trained pulmonary staff complete a comprehensive, multidisciplinary intake assessment to develop individualized care plans. The initial assessment includes:

- Current breathing pattern
- Cough and secretion management
- Swallow and phonation

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- Chest wall expansion measurements
- Activity tolerance
- Breath and postural support

Adam's story

Last night, fifteen-year-old Adam Carpenter-Dolce slept like a baby. It was the first time in his life the teenager wasn't connected to a ventilator. “I felt like a new person,” said Adam of Omaha, Neb.

Adam was born with omphalocele, a rare birth defect which caused his abdominal organs to form outside of his body.

Following 10 months in a pediatric intensive care unit in Denver, Colo., Adam came home with his mother, Stacie. Adam's breathing was dependent on a ventilator and tracheostomy — a duo that became a constant presence.

Life has been full of challenges for Adam, including 50 surgeries. “It's been hard,” said the eighth-grader who loves sports, video games and the Twilight movies. “I just want to be a normal kid.”

Two years ago, Adam and his family moved to Omaha. Walking to classes at Monroe Junior High is an arduous task for Adam. “I usually arrive late and out of breath,” he said. Shooting basketball hoops causes his asthma to flare.

In April 2011, pneumonia zapped Adam's stamina and his pediatrician, Dr. John Andresen with Children's Physicians, recommended the teenager come to Madonna Rehabilitation Hospital



Adam Carpenter-Dolce used a Passy-Muir Valve to achieve greater independence following his ventilator weaning. Lynn Dolezal, occupational therapist, incorporated fun exercises to develop Adam's weakened diaphragm muscles and improve his breathing mechanics.

to rebuild his strength. “It looked like a cool place for kids,” said Adam, who arrived at the hospital Sept. 26.

Adam's goal was to be trach-free before starting high school. The initial step was weaning Adam from the vent. “Despite his age, Adam is very knowledgeable about his pulmonary condition,” said Dana Jackson, respiratory therapist. Adam's respiratory and nursing teams successfully weaned Adam from the vent in two days. During the night, Adam transitioned to a BiPAP®, a non-invasive method of ventilation delivered via a face mask. Adam's reliance on the trach was reduced by introducing the Passy Muir Valve™ during the day and wearing a trach cap 24/7. “Adam learned a whole new way of doing things — from coughing to taking his respiratory treatments,” said Dana.

Years of ventilator use never allowed Adam's diaphragm to fully develop.

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Occupational Therapist Lynn Dolezal incorporated fun, yet therapeutic exercises to target those weak muscles and worked toward independent breathing. “I encouraged Adam to blow bubbles, a kazoo and sing,” said Lynn. Adam’s speech language team also created exercises to retrain his respiratory muscles and improve his breathing mechanics. Adam gradually learned to recognize how it felt to use his diaphragm correctly.

After a month of intensive therapy, Adam was breathing independently. He is back home awaiting an evaluation to determine his trach removal. The teenager now walks six minutes without getting winded. “I’m definitely stronger!” said Adam, as he launches a basketball in the air. “Madonna has been an awesome place for me.”

Specialized services

Madonna staff incorporates evidence and research supported techniques to help children/adolescents reach developmental landmarks and maximize their potential. For example, Madonna’s pediatric team has been trained by physical therapist and published researcher, Dr. Mary Massery. Her course, “If You Can’t Breathe You Can’t Function,” demonstrates the relationship between breathing and postural control, and the need to treat them together. The expertise of a rehabilitation team that incorporates these types of strategies allows each child to achieve the best possible outcome.

Technology

The Passy-Muir® Valve plays a vital role in the rehabilitation of pediatric tracheostomy patients. Within 48 hours of admission, a speech-language pathologist and a respiratory therapist assess each person with a tracheotomy for their speech, voice and swallowing abilities. Whether the goal is ventilator and/or trach tube management or independence, use of the Passy-Muir® Valve allows maximum participation in the rehab process.

The latest technology packaged in the most portable ventilators allows children requiring mechanical respiratory support to fully participate in the rehabilitation experience, which may include therapeutic community outings, home visits or other outings off Madonna’s campus.

Madonna’s family-focused Pediatric Pulmonary program includes siblings and peers, integration of age-appropriate play therapy, early discharge planning and school and community re-entry.

For more information on Madonna’s Pulmonary Program, contact Rebecca Wills, CRCP, CRT-NPS, at (402) 486-8622.