

A.P.O.V. *

*Alumni Point of View

Breathing Lessons

A mother looks back on a daring Vanderbilt experiment.

By LEE SMITH PENUEL, BA'59

WHEN OUR DAUGHTER, Martha, decided to be born on Halloween 1961 instead of during the Christmas season, we had no idea what was ahead. Her dad, then a Vanderbilt medical student, looked very grave when he came into my hospital room the next morning. He had just seen X-rays of Martha's immature lungs and knew immediately that she had no hope for survival. In the medical student perspective of the day, basically she was dead.

Dr. Mildred Stahlman, Vanderbilt professor of pediatrics and pathology, was then conducting experiments on sheep to develop ways to treat premature infants unable to breathe on their own. In fact, some of those sheep were actually grazing in one of Vanderbilt Hospital's courtyards, much to the delight of staff around the hospital.

Dr. Stahlman and her physician team offered us one option. Would we give permission for them to try these experimental methods with Martha? After months of preparation, they had not yet tested these new procedures on a human baby. They guaranteed nothing but were ready and willing to try. We agreed, and the bold experiment began.

The first priority was to find a way to breathe for Martha until she could breathe for herself. Second, all her systems would be monitored around the clock so she would not develop other life-threatening problems. And always, always, they must prevent infection. Those first 72 hours were critical. "Do not get your hopes too high," they warned, as they explained all the risks involved. No one knew the long-term outcomes. One challenge, for example: Babies who received 100 percent oxygen faced

the possibility of becoming blind and mentally retarded, but they needed to use 100 percent oxygen with Martha.

Six physicians worked intensely with her around the clock that first 72 hours. They never slept.

Several days later, when I looked through the glass of the premature nursery to see my daughter for the first time, she was peacefully nestled

in her first "crib," a tiny iron lung similar to the larger ones that breathed for polio patients when their lungs were paralyzed. A team of special hospital engineers and technicians had designed and built this device by hand so it would be ready when the first baby needed it.

Tubes were everywhere, and beeping equipment constantly recorded Martha's heartbeat. I watched as this tiny cylinder breathed

for her, moving her chest up and down as the air pressure changed.

Miraculously, she survived that first 72-hour hurdle, but our anxious wait was not over. Every day brought a new challenge. Now Martha's job was to gain weight and strength, and the physicians' job was to make this possible. It sounds easier than it was, and we all learned many lessons in patience and tenacity.

When they began to wean Martha off the respirator, the new question was, "Can Martha make this transition?" Earlier we had been thrilled to find a way to breathe for her, but now it was strictly up to her. Does she have the strength and sheer will to do this? Also, Martha had to switch from tube feedings (the easy way) to learning to nurse. It was time for her to learn many baby skills, and her treatment team knew she had to learn at her own pace. Martha took her time mastering these skills. Then, after adding a little more weight and strength, we brought Martha home to begin learning how to be a "typical" baby. Our family pediatrician, Dr. Eric Chazen, now professor of clinical emergency medicine at Vanderbilt, followed her progress from the beginning and patiently coached us through every new stage.

At this point Dr. Stahlman's team explained their long-term interest: to use these procedures to treat previously untreatable premature infants. Their goal was not simply clinical survival, but for these children to enjoy quality of life. This was the unknown. Would survivors have serious lung problems all their



lives? Would they have typical intelligence and be able to learn? Dr. Stahlman and her researchers planned to study these questions by tracking each child's progress, thanks to a long-term research grant, in order to refine treatment and improve the lives of future children. Thus, the next phase of this adventure began, and gradually the number of babies involved in the study grew.

When Martha was nearly 2 years old, President and Mrs. John Kennedy's son, Patrick Bouvier Kennedy, was born premature with symptoms of hyaline membrane disease. They flew him to Harvard Children's Hospital for treatment. We, along with the rest of the country, agonized over his progress for the next two days. The Vanderbilt parents desperately wished the son of the president could benefit as our children had. Sadly, young Patrick did not survive his tough fight. Later we learned that Dr. Stahlman had consulted with the Harvard physicians.

By now a strong bond had developed between the treatment team and Martha. She was *their* baby, in or out of the hospital. They cele-

brated each time she came back for a check-up. Often a nurse or nursery worker would check Martha's ear, or a place where a tube had made an impression, to make sure "their baby" did not have any lasting marks from any of the equipment they had used.

On one such occasion, we took a few minutes to ask Dr. Stahlman to be Martha's godmother. We also wanted to include "Stahlman" in Martha's name, to perpetuate this link. Dr. Stahlman graciously accepted, explaining that she too had an investment in Martha's future. She told us that if this experiment had not worked for Martha, she never would have tried it on another baby. She and Dr. Chazen, Martha's godfather, joined with our families as we celebrated Martha's baptism.

Soon my parental focus shifted to getting

Martha ready for new activities such as nursery school. At home she assumed her new role as older sister to her new baby brother. About this time I realized that this research study would have an effect far beyond just my child. In fact, the impact of this work with premature infants extended beyond U.S. borders. For 10 years Dr. Stahlman collaborated with Swedish researchers to study res-

for her, had been retired from active service. Many new developments and refined treatments now helped even smaller babies.

In 1982 the children and families participating in the study came to Nashville for a 20th reunion. The numbers then totaled 2,000 newborns: babies whose quality of life had improved dramatically as a result of these efforts in the neonatal nursery of Vanderbilt

Hospital. The ABC network filmed much of this reunion and interviewed parents, children, and some of the physicians. Later those interviews became the nucleus of a TV documentary about this medical research and the difference it had made in the lives of the children and families involved.

Many then, as now, called this landmark work with premature infants a stroke of genius. Martha's dad simply says, "When it came to these babies, Dr. Stahlman was bold, daring and aggressive. She simply would not quit."

Today Martha has her own family, and we are proud grandparents of healthy grandchildren. When she heard about this article, Martha wanted to

add something: "Mom, please include that I worked for Dr. Stahlman a short time after graduation. That's important. Some of those nurses who took care of me when I was first born were still there when I came back after college, and I got to work with them."

This glimpse back into the tiny world of Vanderbilt's premature nursery 40-plus years ago reminds us of many things we value, from medical excellence and bold determination to gentleness and compassion.

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[Editor's Note: Just before press time, Dr. Mildred Stahlman (BA'43, MD'46, HO'48) was announced as the 2004 recipient of Vanderbilt's Distinguished Alumna Award.]



NATALIE COX

piratory diseases in newborns, and in 1975 she received an honorary doctor of medicine degree from the University of Gothenburg for her work. This degree was granted by the king of Sweden.

Shortly before she entered college, Martha had an opportunity to share with Dr. Stahlman her plans to study biomedical and electrical engineering at Duke University. As we left, Dr. Stahlman looked very sternly and directly into Martha's eyes and said, "Martha, you go to Duke and learn everything you can so you can come back here and help me save babies!" Then the team of nurses and physicians gathered to cheer their first baby getting ready to leave the nest.

We also learned on this visit that Martha's first "crib," the tiny iron lung that breathed