



## under the microscope

by BILL O'NEILL

# Tracking tiny patients

Each day, the world's littlest human beings fight for their lives in Neonatal Intensive Care Units, their lungs unable to breathe on their own, their bodies unable to regulate their temperature, their blood pressure fluctuating to life-threatening levels.

Sometimes born at less than 2 pounds, these babies require around-the-clock attention to survive.

A pediatrician with three decades of experience in neonatology and developmental medicine, Howard Needelman, M.D., knows firsthand the obstacles that premature infants may face, both during those initial months of hospitalization and throughout their lifetime.

For the past 13 years, a program led by Dr. Needelman and Barbara Jackson, Ph.D., director of Education and Child Development at UNMC's Munroe-Meyer Institute, has served children who spend at least 48 hours in one of Nebraska's seven major NICUs.

Through the follow-up program, Developmental TIPS (Tracking Infants Progress Statewide), approximately 5,000 children have been assessed for neurodevelopmental disability. The children are assessed through various tools, depending on factors including the extent of their prematurity, complexity of their medical history, and the results of preliminary hearing and vision screenings. The children are followed through age 3.


"Developmental TIPS is the largest standardized follow-up program of its kind in the country," Dr. Needelman said. "It ensures that each child

is assessed by a team with expertise in early childhood development, which in turn provides the children with the best opportunity for success, especially if early intervention is necessary."

That early intervention usually comes from a school district or educational service unit, and often involves physical, occupational or speech therapy. The intervention also highlights the collaborative nature of the TIPS program.

"One key to the TIPS program's success was the collaboration across entities to establish a standard system of follow-up and one centralized database," said Dr. Needelman, an assistant professor of pediatrics at UNMC. "The university, the hospitals, the schools, the educational service units, the state of Nebraska – a lot of entities have worked together to ensure this program's success."

The program's findings, Dr. Needelman said, are mixed. Although the smallest babies have the highest risk of disabling conditions such as cerebral palsy, mental retardation, lung problems, blindness and others, many of those babies do quite well. The larger babies – traditionally thought to be low-risk because of the relatively few services required in the NICU – also do well, but they ultimately receive early intervention services at a rate five to 10 times greater than the average population.

"As a neonatologist, it's wonderful to know that most kids who come out of the NICU do pretty well, even the most vulnerable, smallest children," Dr. Needelman said. "That said, I think our research results have shown that all children who are in the NICU – even the babies who are there for a short time – need to be followed closely so that they can be given appropriate attention medically and educationally, to ensure that they reach their full potential." 

**Funded primarily by the state Department of Education with assistance from the state's hospitals and the Department of Health and Human Services, Developmental TIPS does not charge families for services. A pilot program, measuring how NICU graduates function through their kindergarten years, is being considered.**

19-month old Kylie Gilbert looks for Clifford the Big Red Dog during a Developmental TIPS assessment session that includes her mom, Vicki, Barbara Jackson, Ph.D., and Howard Needelman, M.D. Kylie is one of triplets.

