

# New screening tool helps identify children at risk

December 7 2009

---

When a baby is born, new parents often wonder, "Will he be the next President of the United States?" or "Could she be the one to find a cure for cancer?" But the underlying question for many specialists is, "Is this child 'at risk' for developmental issues?"

Until now, an answer to this question has been elusive. A newborn exam, developed by a team led by Barry Lester, PhD, director of the Brown Center for the Study of [Children](#) at Risk at Women & [Infants](#) Hospital of Rhode Island and The Warren Alpert Medical School of Brown University, will be featured in the December 7 issue of *Pediatrics*, the official journal of the American Journal of Pediatrics. The exam, called the NICU (neonatal intensive care unit) Network Neurobehavioral Scale (NNS), was created to identify newborns who may have problems with [school readiness](#) and behavior at age four. This opens up the possibility of early intervention to prevent these problems.

"There has long been interest in the use of newborn neurobehavior to forecast the future development of children," said Dr. Lester. "Many babies are considered 'at risk' for having behavioral, emotional or cognitive problems, especially as they reach school age, because of prenatal factors such as prematurity or substance exposure and postnatal factors like poverty or violence."

Dr. Lester explained that the problem has been that not all babies who are identified as "high risk" will actually go on to have problems, and there has been no way to tell which high-risk infants will have problems

and which will not. "If we could identify these babies at birth or shortly thereafter, we could develop preventive interventions to eliminate or minimize later developmental problems," he explained.

Previous attempts to develop newborn neurobehavioral exams that predict later development were not very successful. The NNNS exam was developed under a contract for the National Institutes of Health and has been studied extensively through a large, multi-site study entitled the "Maternal Lifestyle Study" (MLS) that is headquartered at Women & Infants Hospital under the leadership of Dr. Lester.

"Over a period of two years, the NNNS exam was administered to more than 1,200 babies in four locations (Detroit, Memphis, Miami and Providence). We identified five distinct neurobehavioral profiles on the exam that ranged from normal performance to poor performance," continued Dr. Lester.

At three to four and one half years of age, infants with poor performance were more likely to have behavior problems (age three), school readiness problems (age four) and low IQ (age four and one half). Forty percent of these infants had clinically significant problems externalizing (impulsivity and acting out), internalizing (anxiety, depression, withdrawn personalities), and with school readiness (delays in motor, concepts and language skills), and 35% had low IQ.

Dr. Lester said, "One of the reasons that it has been so difficult to use tests on infants to predict later development is that infancy is a period of rapid change. We're measuring a moving target. Many children appear 'normal' as babies but develop problems later on, and many children who appear worrisome as babies go on to develop normally."

Identification of children with developmental delay has received a great deal of attention in recent years, as children are believed to benefit most

if they participate in intervention services as early as possible. In fact, the American Academy of Pediatrics has called for a referral to early intervention or special education following a positive screening result.

"The NNNS profiles identify the neurobehavioral deficits associated with poor outcome that could serve as target behaviors for the development of new or improved intervention studies. These findings can be used to guide programmatic intervention efforts targeted to those with indicated dysfunction," noted Dr. Lester.

"These findings could also stimulate an important social policy debate. On the one hand, if used as a screen, the NNNS could fail to identify many infants who will later develop behavior problems, and it will identify many infants as deviant who will develop normally. The latter could suffer the negative effects of being labeled, and resources would be used unnecessarily. On the other hand, the NNNS is non-invasive, early intervention is benign, and there is the ethical responsibility of offering [early intervention](#) to parents whose infants have a 40% chance of having a childhood behavior disorder or school readiness problem.

"Infant neurobehavioral tests may never meet standard criteria for medical screening, but we believe that the NNNS screen is an important tool in identifying potential problems and enabling intervention that could have life-long impact."

The NNNS exam is now being used in centers in the U.S. and around the world for both research and intervention. Training for professionals to use the NNNS is being done at Women & Infants [Hospital](#).

Source: Brown University ([news](#) : [web](#))

Citation: New screening tool helps identify children at risk (2009, December 7) retrieved 24 April 2024 from <https://medicalxpress.com/news/2009-12-screening-tool-children.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.