

“An Interdisciplinary Study of the Trajectories of At-risk Infants and Children”

By Hillel Goelman and Bozena Zdaniuk, The University of British Columbia

This study focused on the educational outcomes of children who were treated in a Neonatal Intensive Care Units (NICU) and a comparison group of non-NICU children. The purpose was to track the growth and development of young children who were identified at birth with serious medical conditions that included prematurity, low birth weight, congenital anomalies, respiratory conditions and other challenges to normal growth and development. These children were referred to Neonatal Intensive Care Units, usually shortly after birth, where they received care and intervention until their situation stabilized. The study considers data from birth, post-natal NICU hospitalization records, post-NICU hospitalization medical records, and school outcomes in Kindergarten and Grade 4.

The research on so-called NICU babies has largely focused on the most fragile babies during infancy; there is relatively little research on a wider range of infants (from extremely low birth weight to normal birth weights) and there is also very little research on these infants once they enter elementary school. To increase the power and generalizability of the study we included an entire population of NICU babies; that is, every baby in British Columbia who was treated in a NICU during a specific two-year period. These NICU babies were compared to the entire population – that is, every baby born in BC during the same two-year period who was NOT treated in a NICU. The study was conducted in a very non-intrusive manner. The data were drawn from children’s medical records and school records and all of the children’s identifying information – names, addresses, personal health and education numbers – were replaced by anonymous and confidential study numbers.

We wanted to examine the relationship between social factors (community income data); neonatal biomedical data (diagnoses and extent of treatment in the NICU); pediatric biomedical data (hospital visits and physician office visits); kindergarten readiness data; and Grade 4 school achievement data.

Analyses revealed that predictors of educational outcomes at school-age included both medical factors - birth weight, number of days treated in the NICU, number of post-NICU hospitalizations - and socio-demographic factors. Children’s scores in Kindergarten and Grade 4 were likely to be lower when the children:

- Were males
- Lived in poor neighborhood
- Had single parent mothers
- Lived in rural communities
- Spent more than 5 days in the NICU
- Had more visits to the family doctor between birth and Kindergarten

- Had more hospitalizations between birth and Kindergarten

These data stress the importance of multi-disciplinary teams of parents and professionals working in a collaborative way. By using these linked, universal data bases in health care and education, researchers, clinicians and parents can support parents of children with disabilities by creating comprehensive, detailed, longitudinal health and development profiles of children who are born at-risk for compromised development. These teams can understand the multiple factors which can challenge children's development as well as the many ways in which different kinds of early intervention strategies can support children's development. The data support the argument for coordinated family-centered interventions that can respond to the developmental status and strengths of individual children, to various family configurations and styles, and to the range of community resources which are needed to support children with disabilities and their families.