

On the Uptake

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Prematurity: Impacts for Children and Families



*Dr. Anne R. Synnes
Clinical Professor, Division of Neonatology,
Department of Pediatrics, Faculty of
Medicine, University of British Columbia*

What is prematurity?

A normal pregnancy lasts 37 to 42 weeks from the time of a woman's last menstrual period. About one in 10 babies are born premature so most people know a premie. In fact, 85% of preterm babies are born at 34 to 37 weeks and are called late preterm. Being born very preterm at less than 32 weeks is rare (less than 2%)

and extremely preterm birth at less than 28 weeks occurs in less than 1 in 100 births. Children born very and extremely preterm require admission to a neonatal intensive care unit (NICU), are sicker, need more intensive treatments, have longer hospital stays and are more likely to have long term challenges than those born late preterm.

Survival: Good News

Medical care of mothers and babies, including modern neonatal intensive care, has been dramatically successful. Forty

years ago it was unusual for extremely preterm babies to survive and now more than 90% of babies born at 28 weeks survive. Despite these successes, prematurity remains the leading cause of infant death. Preterm birth is increasing. Further research is needed to prevent and reduce prematurity.

The Neonatal Intensive Care Unit (NICU) experience

Most parents expect a normal term birth and the NICU experience alters expectations and can be an emotional



roller coaster. Preterm babies have typically been separated from parents and placed in an incubator with wires to monitor heart rate, breathing and oxygen levels and sometimes other equipment such as IVs and breathing machines.

The good news is that we have learned how important it is to have parents close by and involved in their babies care. New single room NICUs with space for parents are being built across Canada. Placing babies on their parents chest, “skin to skin” can help many babies by stabilizing their breathing and temperature, supporting sleep, improving breast feeding, reducing pain, improving development and makes parents feel good.

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Preterm baby brains

There is dramatic growth and maturation of the brain in the last trimester (3 months) of pregnancy. For the child born very preterm, this brain development occurs after birth while the baby is in hospital. For very and extremely preterm babies, the brain is also susceptible to bleeding from fragile blood vessels or injury from poor blood flow. Brain injury makes it more likely that a child will have a lifelong neurodevelopmental disability. Neonatologists, “baby doctors” in Canada

are working together as part of the Canadian Neonatal Network (CNN) to reduce these injuries. From 2014 to 2017, severe brain bleeds in babies born at 26 to 28 weeks has fallen from 9.8% to 7.5%. The Canadian government has recently funded further research, the Premature Baby Initiative, through the Canadian Institute of Health Research. The growing brain is also vulnerable to other problems that happen to preterm babies such as infections and sick lungs. Good nutrition is important. Canada is a leader in improving the care of preterm babies and reducing many complications of prematurity.

The childhood experience for preemies

Most children born preterm do very well. Albert Einstein, Sir Isaac Newton and Sir Winston Churchill were preemies. However the tinier the baby, the more likely that the child will have some challenges. Each child is different but there are some typical problems. Clumsiness, slightly lower intelligence, lower school performance and challenges with organizational skills are common. A supportive home environment is especially helpful for these children.



Childhood disability LINK is a bilingual website linking Information and New Knowledge on childhood disability to service providers and families. The website also focuses on enhancing the awareness and understanding of research on a variety of issues in childhood disability. Please visit us at: www.childhooddisability.ca.

Want to learn more on the topic?
Suggested readings:

Helpful links:

1. **Canadian Premature Babies Foundation:**
<http://cpbf-fbpc.org/>
2. **Canadian Neonatal Network**
<http://www.canadianneonatalnetwork.org/portal/>
3. **Canadian Neonatal Follow-Up Network**
<http://www.cnfun.ca/>

Book:

This book features stories written by adults who were born preterm. Saigal S. *Preemie Voices*. Victoria, Friesen Press, 2014

Preterm children often process sensations such as touch, noise and lights differently either wanting less or more stimulation. Typical behaviors in children born very preterm include poorer attention, more shy and anxious, more difficulty adapting to change and avoiding risks. A small number, especially the most preterm children, will have more significant lifelong challenges. Some examples are cerebral palsy which affects how children use their muscles, more severe problems with intelligence and learning, autism, blindness and hearing. Extremely preterm babies, even those with disabilities, tell us that they have a good quality of life.

Future challenges

There has been no improvement in the percentage of children born preterm who have challenges in childhood and beyond. With more preterm births and more survivors there are more children who need help and support in the community. There is emerging evidence that early intervention can make a difference to improve outcomes for children born preterm. Parents play a central role in the most successful interventions.

Celebrate World Prematurity Day November 17 each year by wearing purple.

Take home points for parents

- Medical advances have allowed more newborns to survive into adulthood than ever before.
- Brain development accelerates rapidly during the third trimester of gestation. Infants born early are vulnerable to altered brain development or brain injury.
- Brain injury is most common among extremely premature infants who are born before 27- 28 weeks of gestation, when the third trimester begins.

- Newborn babies born at term may also be at high-risk for developmental problems if their brain didn't develop optimally during pregnancy, or if the baby was exposed to a brain injury.
- Current advances in brain imaging with MRI are making it easier to recognize brain abnormalities so that newborns and children can be targeted for appropriate supportive and protective treatment and early therapeutic interventions to maximize their developmental outcomes.

Take home points for clinicians

- Early identification of at-risk newborns is important because it allows for intervention while the central nervous system is still forming new connections and reorganizing itself.
- Early treatment is more effective in influencing long-term outcome than treatment that begins after the first presentation of neurodevelopmental disability, which is often around two years of age or even later.
- Imaging studies should carefully examine the basal ganglia and cerebellum in addition to cortical and subcortical structures, as areas that are vulnerable to brain injury.