

20 Minutes with Neonatologist David Adamkin, M.D.

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University of Louisville neonatologist David Adamkin has dedicated his career to sick babies, particularly to low and very low birthweight babies their nutritional needs and strategies to help them grow and thrive.

Kentucky ranks among the highest in the U.S. for low birthweight babies with about 9 percent of its babies weighing less than 5 lbs. 8 oz. The smaller a baby is, the greater its risk of problems in neurodevelopment. An expert in infant nutrition, Adamkin has found through clinical experience and research that aggressive feeding makes a difference for these babies, especially in the first two to three weeks after birth. He has outlined his feeding guidelines and strategies in the new book "Nutritional Strategies for the Very Low Birthweight Infant."

However, his efforts have not been limited to babies born in the United States. Since 1991, he's made 15 trips to Poland in support UofL's efforts to help modernize pediatric and neonatal care in Eastern Europe. In 2006, he and a colleague from Poland coauthored Poland's first textbook on premature nutrition. Karol Marcinkowski University of Medical Sciences in Poznan, Poland, awarded him an Honoris Causa degree in April 2009 for his dedication and contribution to helping sick newborns in that country. Adamkin has written 26 book chapters, edited eight books, authored two books and published more than 72 original articles in leading medical journals. He also has served on several national and international peer-reviewed journals editorial boards, including the Archives of Perinatal Medicine, and he serves on such influential advisory boards as the American Academy of Pediatrics Committee on the Fetus and Newborn. Statewide, Adamkin serves on the Prevention of Prematurity Summit and works in collaboration with the Department for Health and Human Services on newborn care projects.

UofL Today recently talked with him about low birthweight babies and his life's work.

Why are babies born with low birthweight?

We don't always have the answer as to what leads to premature delivery or low birthweight. Frequently, it is associated with maternal conditions or complications of pregnancy that lead to premature birth or to a fetus that does not adequately grow inside the womb. Things like smoking, drug abuse, domestic violence and diabetes can all relate to premature birth and/or having a baby that is of low birthweight.

Why are Kentucky's babies' birthweights so low?

Kentucky has a higher incidence of low birthweight and prematurity than most other states around the country. This may relate to the increased number of teenage pregnancies and the use of tobacco - which is very high in Kentucky.

Why is infant nutrition important to brain development?

There are many nutrients that are essential for brain development that may be found in human milk or that have been added to formula. When the baby is born early, the brain growth occurs in the time that they are cared for in the newborn intensive care unit and directly affects their outcomes some two years later. Therefore, we know that there's direct linkage between the brain growth that occurs after birth and specific nutrients that are important for babies to receive to optimize their brain development.

Low birthweight babies are susceptible to two very serious infections: sepsis and necrotizing enterocolitis. What are these diseases?

Sepsis is an infection of the blood, spinal fluid or urine. Because premature babies have an underdeveloped immune system, they have increased risk for the entry of bacteria and viruses into their system both around the time of birth and then later during their hospital stay.

Necrotizing enterocolitis is a potential disaster of the gastrointestinal tract where some of the bowel becomes diseased and may even lead to death of the bowel and require surgical removal. There is about a 25 percent mortality associated with necrotizing enterocolitis.

What does nutrition have to do with infection?

There's something very exciting going on right now in the development of a new medication called Lactoferrin which may prevent infection in babies that are the hospital-acquired type of infection. This material is in human milk but not in formula. We are learning that Lactoferrin may protect babies against infection and also against necrotizing enterocolitis. Lactoferrin appears to protect the baby's intestines from bacteria entering the baby's system. At the University of Louisville, we are very fortunate to be one of three institutions studying this new medication in babies.

You co-authored a textbook on neonatal nutrition for Polish health care providers. Why didn't Poland have their own textbooks on infant nutrition? The health care system in Poland has improved dramatically with the advances in capitalism. Previously, they relied on outside sources for textbooks. Now they are beginning to develop their own expertise in specific areas of infant nutrition. Because of collaborative efforts between the university in Poland, the University of Louisville Department of Pediatrics and the Humana Foundation in Louisville, they are able to develop their own textbooks and have our textbooks translated into Polish.

How does the Polish handbook compare to "Nutritional Strategies for the Very Low Birthweight Infant?"

We wrote a book specifically for Poland addressing nutritional strategies as well as a feeding manual. Both of these have been translated into Polish. The manual includes formula recipes and algorithms for them to use at the bedside. The textbook is more informational and gives them the background for the different nutritional strategies.

Exactly what is an Honoris Causa? What is its significance?

An Honoris Causa is recognition of an individual for their career accomplishments and in this case, for helping Poland neonatology. Since the early 1990s, a team from the University of Louisville has had the privilege and opportunity to visit Poland and assist them with their education and neonatal care. An Honoris Causa is very similar to a Ph.D. The Honoris Causa was a great honor for me. There were distinguished faculty from Poland and the United States in attendance at a neonatal symposium, and in addition to my wife attending the ceremony, I had many close friends and colleagues who were able to participate in this ceremony with me.