

NeonatalNews.Netsm

From the Section of Neonatology, Department of Pediatrics, Baylor College of Medicine, Houston, Texas

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Spotlight

Lisa M. Adcock, M.D.

Assistant Professor of Pediatrics-Neonatology

The decision to work with ill newborns was easy for Dr. Lisa Adcock—she fell in love with the babies. That was during her neonatology clerkship in her third year of medical school at Louisiana State University in New Orleans. However, the delivery room and the neonatal ICU might have seemed a strange place for her to end up since she was well on the road to becoming a professional chemist until her junior year of college. A biology professor challenged her to take the entrance exam for medical school, and Dr. Adcock's career path was forever changed. She came to Baylor College of Medicine for pediatric residency training in 1988, and her neonatology fellowship in 1991. She subsequently joined the Newborn Section at Baylor in 1994.

The main reasons she became a Baylor neonatologist include the partners that she gets to work with, the babies that she gets to care for, and the opportunity to remain on the cutting edge of medicine.

"No one should practice in isolation," she says. "The Newborn Section not only provides me with more than 40 partners with varied expertise—it also constitutes a group of friends who serve as mentors and always are available for me to bounce ideas (and questions) off of.

Then there are the babies (and their families)."What can be more exciting than being in the delivery room at the beginning of a new life? With 76 bed spaces in the Level 3 NICU and 64 in Level 2, "things are never boring." Working with families is a significant part of a neonatologist's job.

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The Front Line

Research: bench to bedside

Research is a core value in the mission at Baylor College of Medicine. Our physician-scientists aim to bridge the gap from basic science research to affecting outcomes of clinical diseases—bench-to-bedside research. Successful embryonic development depends on the correct orchestration and regulation of a series of genetic pathways, which result in the transformation of the single cell to the multi-organ system fetus.

Dr. Heidi Karpen is focused on characterizing the molecular mechanisms that regulate some of the earliest events in embryonic development. The main focus of the laboratory has been characterizing the genetic regulation of a fundamental signaling cascade, the Hedgehog pathway, which is critical for appropriate embryonic patterning of nearly every organ system in the developing fetus.

The overall goal of this research is to better understand mechanisms of aberrant embryonic development so that targets for intervention may be identified. These studies blend well with her clinical interests on the faculty of the Section of Neonatology at Texas Children's Hospital. These basic science studies contribute to our understanding of critical events in fetal development and may be used in the future to develop new

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Heidi E. Karpen, M.D.
Assistant Professor of Pediatrics-Neonatology

Breaking News

Select summaries of research interests

Research focus for **Xanthi Couroucli, M.D.**, is exploring the in-depth molecular mechanisms by which hyperoxia and inhaled nitric oxide (iNO) modulate the expression and molecular imprinting of CYP enzymes and their role in the acute and long-term lung and other organ pathologies, from the newborn through adult life. Her ultimate goal is to improve the health of premature and sick infants.

Chantal Lau, Ph.D., is researching issues dealing with 1) oral feeding in infants including a) understanding the development of sucking behavior in premature infants and those with oral feeding difficulties and b) developing interventions to enhance oral feeding skills of infants such as sucking, swallowing, and swallow-respiration interaction, and 2) lactation and stress including the areas of a) understanding the type(s) of stress that interferes with lactation performance as well as b) developing interventions to alleviate the effect(s) of these negative stimuli on lactation.

Michael E. Speer, M.D., is currently involved in a multicenter, multinational, random-

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Editor's Corner

Point–Counterpoint: Kernicterus

Recent recommendations from the American Academy of Pediatrics have stirred some controversy over the cost and practicality of administering routine hyperbilirubinemia tests to detect kernicterus. We offer the following discussions of both sides of the issue.

Point

An article by Suresh & Clark and an accompanying editorial in the October 2004 issue of *Pediatrics* (*Pediatrics* 2004;114(4):917-24 and 1086-1088) address the issue of cost-effectiveness for the new AAP guidelines for management of hyperbilirubinemia. The authors of the article calculate that the cost to prevent one case of kernicterus would vary from approximately \$5 million to \$10 million, depending upon the specific strategy used. They estimate the total national health care expenditure for this program between \$112 million and \$202 million annually. The authors conclude that widespread implementation of the new strategies “is likely to increase health care costs significantly with uncertain benefits” and that “it is premature to implement routine predischarge serum or transcutaneous bilirubin screening on a large scale.”

The accompanying editorial by Dr. Holtzman at Johns Hopkins University questions the strength of the evidence on which the AAP guidelines were based. He notes that none of the studies were in the highest category of evidence and that most were in the lowest or next to lowest categories. He believes that we do not know the actual incidence of kernicterus and whether or not that incidence is rising. We need more studies about the optimal management of bilirubin in healthy infants with early discharge. While theoretically appealing, he notes that there is insufficient evidence that phototherapy decreases the incidence of neurologic abnormalities in these patients. Holtzman concludes that the vast amount of money required for this project could be better spent on other health care issues for children.

by Martin I. Lorin, M.D., Professor of Pediatrics
Baylor College of Medicine

Counterpoint

Kernicterus, a neurologically devastating condition due to bilirubin toxicity, leaves a child severely disabled, and enormous emotional, financial, and social impacts on the family. Although most pediatric neurologists regularly see such children in their practice, most pediatricians today have not seen an affected child. The web page below gives you the opportunity to see the impact of this condition yourself.

www.pickonline.org/movie.html

Although the exact incidence is unknown, kernicterus continues to occur throughout the U.S. and the world. Many factors appear to contribute including: early discharge, since most newborns experience their peak serum bilirubin concentration at home, and initial follow-up visits at one week of age, after the optimal time to assess jaundice.

Kernicterus has no known treatment so prevention is the only tool currently available. Unfortunately, neonatal jaundice affects

approximately 60 percent of otherwise healthy newborns, while kernicterus is an uncommon event. If we can identify infants who are at high risk of developing severe hyperbilirubinemia and provide appropriate treatment (phototherapy or exchange transfusion), we can potentially prevent kernicterus. At this time, the best-studied method to assess the risk of subsequent hyperbilirubinemia needing treatment is to measure the bilirubin level (serum or transcutaneous) and compare it to an hour-specific nomogram. Although much more work is needed to confirm these observations, many experts think that sufficient data exist to alter clinical practice now.

The AAP guideline was developed by a group of experts (neonatologists and pediatricians) in the evaluation and management of jaundice. The *key* messages of the guideline include:

- Evaluate every infant for risk of developing severe hyperbilirubinemia before hospital discharge.
- Evaluate every infant at the time of peak serum bilirubin concentration—3 to 5 days of age.
- Ensure every breastfeeding mother is provided appropriate lactation support.

The guideline outlines a reasonable approach to the prevention of severe hyperbilirubinemia and its consequences until additional information is available. In fact, this center is participating in a multi-center study funded by the Health Resources and Services Administration to prospectively evaluate screening strategies to identify infants at risk for severe hyperbilirubinemia.

Although cost-effectiveness is an important consideration in evaluating new strategies, current data are limited. Thus, an analysis such as that done by Suresh and Clark must rely on retrospective data and numerous assumptions that may or may not be valid. More data are needed to provide an accurate assessment of the costs and effectiveness of the guideline. We agree with Dr. Holtzman that the strength of the evidence supporting the guideline is not as high as we would like. Hopefully, studies such as the one we are undertaking will provide more evidence.

As pediatricians, our primary responsibility is to the welfare of our patients. In most cases, kernicterus is a preventable disability. Although we must consider health care costs, we strongly suggest that pediatricians follow the AAP guideline in an attempt to prevent this devastating condition until further information is available.

by Ann R. Stark, M.D., Professor of Pediatrics
Director, Neonatal-Perinatal Fellowship Program
Baylor College of Medicine

and

Leonard E. Weisman, M.D., Professor of Pediatrics
Head, Section of Neonatology
Baylor College of Medicine

Reba Hill Awards 2004



Three nurses were co-recipients of the 2004 Reba Hill Award, conferred in November by the Baylor College of Medicine Section of Neonatology.

Nancy Hurst (top-left), is director of the Lactation Support Program and Mother's Own Milk Bank at Texas Children's Hospital and has worked in this capacity for the last 20 years. She also is an assistant professor at Baylor College of Medicine.

Margaret Jones, MS, RN, CNA, BC (center-left) has been Director of the Newborn Center at Texas Children's Hospital for the past 7 years.

Susan Welford Kajs, MSN, RNC, CNA, BC (below-right), is Director of Nurseries at The Methodist Hospital and has worked in this capacity for the last 23 years. She is also an adjunct clinical instructor at Texas Woman's University.

Nominations are made by Section faculty, fellows, and staff each year. Eligible are the Section's non-physician employees "whose contributions have really made a difference toward achieving the ideals and goals of Dr. Hill (1930-1994) including her compassionate commitment to education, patient care, research, and family."



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diagnostic approaches and successful treatment paradigms.

Such translation of basic science research into clinical practice is possible because of the collaborative relationships between Baylor College of Medicine and its affiliated hospitals and clinical care facilities, including Texas Children's Hospital. For more information about the medical research being conducted at Baylor's Section of Neonatology, visit our Web site.

www.neonate.net/research/

Research Highlights

Grants/Funding

Josephine Enciso, M.D., Retinoic acid regulation of vascular patterning. Child Health Research Center at the National Institutes of Health. \$17,500.

Ian Griffin, M.D., Zinc metabolism and homeostasis in children with cystic fibrosis and healthy controls. Cystic Fibrosis Foundation. \$84,425.

Heidi Karpen, M.D., The role of cholesterol in regulation of the hedgehog developmental pathway. Agricultural Research Service, U.S. Department of Agriculture. \$56,657 for 3 years.

Vinod Bhutani, M.D. (University of Pennsylvania); **Ann R. Stark, M.D. (co-investigator)**; **Michael E. Speer, M.D. (site investigator)**, Safe outcome for neonatal hyperbilirubinemia. Health Resources and Services Administration of the U.S. Department of Health and Human Services. \$125,638.

Events

Steven A. Abrams, M.D., presented *Problemas Respiratorios en al Recién Nacido* (Respiratory Problems in Newborns; Spanish-language presentation) at the Hospital del Nino in Panama City, Panama, October 2004.

James M. Adams, M.D., presented *Antenatal and Postnatal Steroids: Current Controversies* at the Baylor Perinatal Outreach Program's 28th Annual Nursing Symposium, October 2004.

Gerardo Cabrera-Meza, M.D., was awarded a citation as Distinguished Visitor and was acknowledged by the City of San Miguel de Tegucigalpa, Honduras for his support of the improvement of medical education as a world strategy to reduce infant mortality in Honduras.

Xanthi Couroucli, M.D., received a travel award from the Perinatal Research Society to attend the Society's October 2004 conference in Banff, Alberta, Canada.

Karen E. Johnson, M.D., elected Chairman of the Baylor College of Medicine Admissions Committee for the academic year 2004-2005.

Michael E. Speer, M.D., presented *Hyperalimantation, The Past and The Present* in August at the Nottingham University School of Human Development Research Seminars in the U. K.

Contact Us

The Baylor College of Medicine Section of Neonatology has staff at hospitals in Houston's Texas Medical Center and in the local community.

To request a neonatal consultation at any of our locations, call
1-877-NEONATE
(1-877-636-6283)

Texas Medical Center locations

Texas Children's Hospital

6221 Fannin Street, Houston TX 77030
Director of Nurseries: James M. Adams, MD

For neonatal transport, call the Kangaroo Crew:
In Houston: 832-824-5550
Toll-free: 1-877-770-5550

St. Luke's Episcopal Hospital

6720 Bertner Avenue, Houston TX 77030
Director of Nurseries: Michael E. Speer, MD

The Methodist Hospital

6565 Fannin Street, Houston TX 77030
Director of Nurseries: Michael E. Speer, MD

Ben Taub General Hospital

1504 Taub Loop, Houston TX 77030
Director of Nurseries: Joe Garcia-Prats, MD

Community locations

East Houston Regional Medical Center

13111 East Freeway, Houston TX 77015
Director of Nurseries: Dilcia A. McLenan, MD

Methodist Willowbrook Hospital

18220 Tomball Parkway, Houston TX 77070
Director of Nurseries: Elaine Sillos, MD

St. Luke's Community Medical Center - The Woodlands

17200 St. Luke's Way,
The Woodlands TX 77384
Director of Nurseries: Charles T. Hankins, MD

Twelve Oaks Medical Center - Sharpstown

6700 Bellaire Blvd, Houston TX 77074
Director of Nurseries: Tommy Leonard, MD

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**Baylor College of Medicine
Neonatal Fellowships**

**Neonatal-Perinatal Medicine
Fellowship Program**

accepts applications year-round

For information

- visit our Web site: www.neonate.net
- send email to:
fellowship-program@neo.bcm.tmc.edu
- mail: write to the address at the top of this page

**Neonatal Nutrition
Fellowship Program**

for Registered Dietitians with clinical experience; accepts applications year-round for two training periods (January–March and April–June).

For information

- visit our Web site: www.neonate.net

Or contact Diane Anderson, PhD, RD

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Supported in part by the Federal Maternal and Child Health Bureau (MCHB), Health Resources and Services Administration (HRSA).

Breaking News (continued from page 1)

ized, double-blind trial of MEDI-524 vs Palivizumab (Synagis) titled “A Pivotal Phase 3 Study of MEDI-524 (NUMAX), an Enhanced Potency Humanized Respiratory Syncytial Virus (RSV) Monoclonal Antibody, For The Prophylaxis of Serious RSV Disease in High-risk Children.” (Synagis is a registered trademark of MedImmune, Inc., Gaithersburg, MD).

Research of **Leonard E. Weisman, M.D.**, involves laboratory and clinical studies related to neonatal immunity and infection. Laboratory studies encompass the effects of neonatal neutrophil, immunoglobulin (parenteral, enteral, or transplacental), antibiotic, or immune modulator function on common infectious agents (eg, *Streptococcus*, *Staphylococcus*, *Enterococcus*, and *Ureaplasma* bacteria, respiratory syncytial virus, and fungi). Current clinical studies include: determining protective levels of maternal antibody against early-onset invasive streptococcal disease in neonates (multicenter); evaluating the effectiveness of anti-staphylococcal antibodies (multicenter); staphylococcal infections (multi-center); ureaplasma infections; fungal infections, 6) measures of neonatal outcome (actuarial survival) and/or cost-effectiveness.

For more information about our neonatal researchers projects visit us on the Web at

www.neonate.net/research/

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Being a member of the neonatal team at Texas Children’s Hospital has provided Dr. Adcock with the opportunity to see new medical advances come to fruition. Inhaled nitric oxide, neonatal ECMO, and, now, fetal surgery in the form of EXIT (exutero intrapartum treatment) procedures in infants with airway compromise all have occurred while she has been at Baylor.

The combined goals of teaching, patient care, and research all take time. Dr. Adcock says, “My biggest challenge is to divide my time among the different responsibilities that have been given to me. I can’t imagine working in any other setting than this one, where opportunities are so available.”