



Perinatal Gazette

Newsletter of the Regional Perinatal Center
Westchester Medical Center



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The New Maria Fareri Children's Hospital is Underway!

Anyone who has been to the Westchester Medical Center campus lately will notice significant changes are underway. Most of the buildings located at the site of the new Children's Hospital have been demolished and the concrete footings are being poured as we speak. Completion of the \$147 million, 260,000-sq. ft. facility will be at the end of 2003. Included in the project will be a state of the art NICU that will have all the amenities that parents have been asking for in addition to the most current technology. There will be accommodations for 44 babies each with their own space including a recliner for the parents. In the middle of each cluster of 4 bassinets will be a living room / parent lounge to make the entire experience more home like.

We would love to share the plans and model with anyone who is interested. Stop by or call the Foundation office, any time Monday through Friday and see Bruce, Eileen or Jan.

Bruce Komiske
Executive Director Children's Hospital Foundation
Phone (914) 493 - 8255
Fax (914) 493 - 7013

Be careful, Kernicterus is still around!

Jaundice is observed during the first week of life in approximately 60% of term infants and 80% of preterm infants. The newborn infant's metabolism of bilirubin is in transition from the fetal stage, during which the placenta is the principal route of elimination of the lipid-soluble (indirect) bilirubin, to the adult stage, during which the water-soluble (direct) conjugated form is excreted from the hepatic cell into the biliary system and then into the gastrointestinal tract. Back in the 1940's, severe jaundice was defined as a symptom, which "may be a manifestation of erythroblastosis fetalis, of septicemia, of syphilis, or of congenital obliteration of the bile ducts, which must be differentiated from physiologic icterus neonatorum" (Mitchell-Nelson Textbook of Pediatrics - 4th Ed, 1945). Kernicterus was a common complication of hyperbilirubinemia in the 1940's and 1950's associated with Rh erythroblastosis fetalis, and, occasionally, ABO hemolytic disease. Although kernicterus is a rare condition, it still occurs today, perhaps contributed by shorter hospital stays. Newborns with kernicterus can develop a severe form of athetoid cerebral palsy, hearing loss and intellectual and other handicaps.

The risk factors for severe hyperbilirubinemia include:

- Jaundice appearing in the first 24 hours after birth
- Inadequate nutrition/hydration through suboptimal breast-feeding
- Near-term newborns at 35, 36 and 37 weeks gestation (particularly if they are breastfed)
- Bruising or cephalohematomas
- Unrecognized hemolysis, such as ABO incompatibility
- Glucose-6-phosphate dehydrogenase (G6PD) deficiency
- Genetic or ethnic factors include siblings with jaundice, East-Asian or Mediterranean descent

Continues next page

INSIDE THIS ISSUE

- 1 - The New Maria Fareri Children's Hospital is underway!
Be careful, Kernicterus is still around!
- 2 - 2002 Abstract Submissions
- 3 - ECMO Arrives in the Hudson Valley
- 4 - NICU Graduate Reunion Party

Continued from page 1

To increase the likelihood of preventing kernicterus nurseries should develop a plan for identifying and managing jaundice in newborns, raising awareness among neonatal caregivers of the potential for kernicterus and its risk factors. Some points to remember according to JCAHO are: follow the AAP Practice Guidelines for Management of Hyperbilirubinemia in Healthy Term Newborns (Pediatrics 1994;94:558-65); the importance of scheduling a follow-up examination one or two days after a newborn is discharged from the hospital; to interpret all bilirubin levels according to the infant's age in hours, not days (Bhutani VK et al. Pediatrics 1999;103:6-14).

The future of management still resides on appropriate and timely diagnosis and treatment, with adequate phototherapy, and, perhaps, with the use of inhibitors of bilirubin production, as Sn-Mesoporphyrin (SnMP), to moderate or prevent the development of severe hyperbilirubinemia in newborns.

Sergio Golombek, M.D.

Assistant Professor of Pediatrics

Phone (914) 493 - 8488

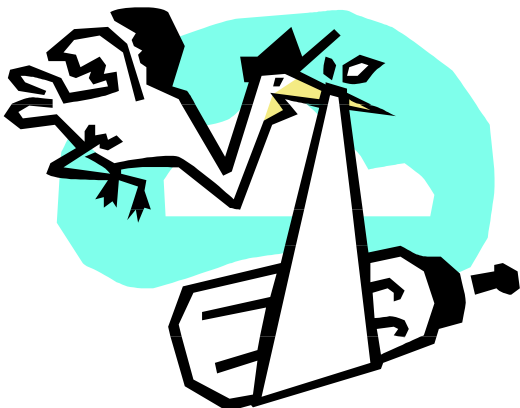
Email Sergio_golombek@nymc.edu

Congratulations!!!!!!

**To Dr. Sergio Golombek & Dr.
Karin Friederwitzer on the arrival
of their son Alexander born
Sunday, November 11, 2001**

8 lbs. 6 oz..

**Mom & Dad, Baby & Big Brother
Gaby are all doing great!**



2002 Pediatric Academic Societies Annual Meeting: Abstract Submissions

Transient uremia without renal failure following postnatal steroid use to reduce capillary leak in non-immune hydrops (N-IH)

- *Minerva Rasalan, M.D.*

Nitric Oxide accelerates normoxia – and hyperoxia – induced Apoptosis I cultured human lung cells

- *Minerva Rasalan, M.D.*

How do Neonatologists justify their Rationale for Treatment of “Sepsis”?

- *Pranav Patel, M.D.*

Postnatal Use of Betamethasone (BETA) vs. Dexamethasone (DEX) for Treatment of Evolving BPD in Extremely Low Birth Weight (ELBW) Neonates

- *Manuel DeCastro, M.D.*

An “Optimal FRC” Approach to HMD and its Effects on Chronic Lung Disease (CLD) of Infancy

- *Muhammad Zia, M.D.*

Transcriptional Regulation of Catecholamine Biosynthesis by Gut Derived Short Chain Fatty Acid (SCFA)

- *Ravi Mishra, M.D.*

The Future of the Premature Infant in the Early 1900's

- *Sergio Golombek, M.D.*

A Survey of Current Neonatal Practice for Treatment of Transient Hypothyroxinemia of Prematurity (THOP)

- *Sergio Golombek, M.D.*

RSV Prophylaxis: Better Compliance in a Home Setting vs. A Pediatrician's office results in Fewer Hospitalizations

- *Sergio Golombek, M.D.*

Steroids, Lung Mechanics and the Neonatal Brain – Has the pendulum swung too far?

- *Edmund F LaGamma, M.D.*

Unexplained Fever Helps Identify Herpes Simplex Virus-1 (HSV - 1!) in a 10 day old Neonate

- *Christine M Casale, C.P.N.P*

Structural Requirements for the Stimulatory Effect of Gut Derived Short Chain Fatty Acids (SCFA) on Neurotransmitter Gene Expression

- *Pradeep Mally, M.D.*

ECMO Arrives in the Hudson Valley and ... Is Off to a Running Start!

by Sonya Strassberg, M.D., Gad Alpan, M.D., & Ed La Gamma, M.D.

Case History: Baby Boy R was a 41 week gestational age neonate with severe respiratory distress requiring ventilation with a high-frequency oscillator, nitric oxide, pressor support, and a bicarbonate drip. He was transferred to The Regional Neonatal Center from a Level III NICU because of extreme lability and difficulty in oxygenating consistently. There was a 20% difference between pre- and post-ductal oxygen saturation and his ECHO was consistent with pulmonary hypertension (PPHN). Due to his rapid progression, instability and high oxygenation index ($[\text{FiO}_2 \times \text{MAP}/\text{paO}_2] \times 100$), a decision was made to treat him with VA (veno-arterial) ECMO. He was cannulated and was placed on the ECMO circuit for 3 days in the NICU. During his ECMO run, he stabilized his oxygenation and metabolic acidosis. He gradually improved with no further progression to organ injury. Following removal of the ECMO cannula, he remained on mechanical ventilation for 5 more days. He was discharged to home, breathing room air and without any need for subsequent medications only 16 days after the cannulae were removed. Physical exam was benign and cranial CT and EEG were normal at the time of discharge.

Rationale for a New Program: While the window of necessity is closing due to the success of nitric oxide and a variety of state-of-the-art ventilator technologies, ECMO (extra-corporeal membrane oxygenator) is used to support lung and/or heart function (employing techniques of cardiopulmonary bypass) in neonates with reversible cardiorespiratory failure. The method allows the lung to "rest" and recover, avoiding the damaging effects of barotrauma and volutrauma arising from mechanical ventilation. More than 60% of registered cases are for PPHN or Meconium Aspiration Syndrome, the balance of cases are primarily cardiac or surgical (e.g. congenital diaphragmatic hernia) and some for sepsis/pneumonia conditions. We estimate a need for ECMO in the Hudson Valley of somewhere in the range of 10-15 cases annually. We are grateful to The Westchester Medical Center for fully supporting our request to expand through the purchase of equipment and in personnel support.

Who Should be Referred? Because of its inherent risks (e.g. systemic and intracranial hemorrhage), ECMO is regarded as a treatment of "last resort" for term and near-term neonates (>2000g) with profound cardiopulmonary failure. It is reserved for newborns with reversible pulmonary disease in whom a trial of conventional or high-frequency ventilation (and possibly also inhaled nitric oxide) has failed. While precise indications for ECMO vary between centers, a common measure used is to offer ECMO to infants who meet criteria indicative of an "80% or greater risk of dying."

When Should You Transfer? This issue becomes one of the most difficult decisions facing a neonatologist in a non-ECMO center: "When to refer a baby in respiratory failure." On the one hand, one does not wish to refer too early. On the other hand, because of the volatile nature of PPHN, the risk of sudden cardiorespiratory decompensation and death is high and ECMO should preferably be initiated before the infant is moribund. Therefore, we suggest the ECMO-option be considered when a drug like nitric oxide is being entertained or used. Our *STAT Transport Team* is fully able to transport babies with nitric oxide, on a jet or conventional ventilator. They can be anywhere in the Hudson Valley's 5,000 square miles within 1 hour and depart from our campus within 30 minutes 90% of the time.

Long Term Outcome Information: Several trials have demonstrated improved survival in neonates treated with ECMO (e.g. *Lancet 1996; 348:75*). In addition, there have been quite a few prospective cohort studies in ECMO survivors on outcome and it appears fair to summarize this topic by stating that in newborns with severe respiratory failure, ECMO does not appear to increase the relative-risk of severe neurodevelopmental handicap (*Clin Pediatr 2000; 39:145, J Pediatr 1995; 127: 447*). Long-term pulmonary outcome following ECMO appears to be somewhat better than that of infants who received only mechanical ventilation. Conventionally treated babies had significantly more chronic lung disease, more reactive airway disease, and more frequent re-hospitalizations than babies treated with ECMO (*J Pediatr 1994; 125: 104*). Dr. Hassan, Director of our High-Risk Follow-up Program, will track the progress of our patients after initial hospital discharge.

The Future: We have begun this program by building on the strengths of our cardiac-pump perfusionist team, the cardiology and general surgical staffs, our combined NICU and PICU intensivists' prior experience and our talented nursing and respiratory therapy support personnel. The Westchester Medical Center is committed to supporting our competence and willingness to innovate... we like working with them as well !

ECMO Steering Committee

Lance Parton, MD	NICU Coordinator	914 493 8558	For ECMO Transfers:
Aalok Singh, MD	PICU Coordinator	914 493 8462	
Katie Moraglia, RN	Perfusionist Team Coordinator	914 493 5076	Call NICU 914 493 8585
Lester Permut, MD	Cardiovascular Surgeon	914 493 7676	
Michael Slim, MD	Pediatric General Surgery Coordinator	914 493 7620	Call PICU 914 493 8462
Jim Brody, RRT	Administration & RT Coordinator	914 493 7469	

NICU Graduate Reunion Party

On October 17, 2001, The Regional Neonatal Center held its annual Graduate Reunion Party. This "Celebration of life" honors those babies and their families who required intensive care at birth or soon after. Since its inception 19 years ago, more than 12, 000 babies have graduated from the hospital's neonatal intensive care unit, which treats many of the sickest newborns in the New York State with cutting edge new technologies.

At the party, parents and medical staff chatted about the progress of the babies. Many of these babies had spent weeks or months in the hospital and to see them smiling, playing with others and laughing is a miracle. The Graduate Reunion is a unique opportunity for parents to "show off" their baby and to see the doctors, nurses, social workers and therapists who helped to nurture these babies. For the healthcare staff it is both motivating and rewarding to see the progress and changes in these miracle babies grow into healthy children.

As of May 2002 we are beginning our 20th year. A graduate party to commemorate this is being planned for the spring, Details to follow.

Natalie Dweck, RN - Special Projects Coordinator
Phone – (914) 493-8998
Email – dweck@nymc.edu

State Perinatal Database Team &

Perinatal Gazette Editorial Board

Edmund LaGamma, M.D., Director Newborn Medicine

(914) 493-8558 (edmund_lagama@nymc.edu)

Linus Chuang, M.D., Acting Director OB/GYN

(914) 347-4150 (linus_chuang@nymc.edu)

Susan Marchwinski, R.N., C., SPDS Coordinator

(914) 493-8590 (marchwinskisa@wcmc.com)

Donna Dozor, R.N., M.S. Neonatal Data Collection

(914) 493-8309 (dozord@wcmc.com)

Nancy Satou, R.N. Maternal Data Collection & Editor

(914) 493-8346 (satoun@wcmc.com)

We are interested in providing you with a newsletter that is relevant and of interest to you. Please contact us with perinatal topics you would like to see addressed.

For a copy of our newsletter or to be placed on our mailing list contact us by phone or e-mail.

Children's Hospital at Westchester Medical Center

95 Grasslands Road

Valhalla, New York 10595

Phone: 914-493-8590

Fax: 914-493-1493

E-mail: dozord@wcmc.com satoun@wcmc.com

marchwinskisa@wcmc.com

ADDRESS CORRECTION REQUESTED

