

# RN2

## Regional Neonatal News & Notes

January, 2004

UPDATED

### Hypothermia & Hypoglycemia

After a baby arrives in the nursery and the initial stabilization has been completed close monitoring should continue. This is true whether you are waiting for a transport team to arrive or whether the newborn will be staying with you. You must continue to monitor temperature, glucose, respiratory status and vital signs.

**TEMPERATURE** monitoring is important to prevent excessive heat loss. Newborns can exchange heat with the environment in 4 ways:

**Radiation**—Heat loss from the infant to a colder object nearby (e.g. cold windows, walls).

**Conduction**—Heat loss from the infant to a surface in direct contact with the infant (e.g. x-ray plates, unwarmed scales, wet diapers).

**Convection**—Heat loss from the infant to surrounding air. The amount of heat loss depends on the air's speed and temperature. (e.g. cool room temperature, drafts from air conditions or vents, oxygen flow from blow-by, hood, bag/mask, and bag/ET tube).

**Evaporation**—Heat loss through water evaporation from the infant's skin (e.g. failure to remove wet linen in delivery room, after a bath).

Hypothermia at any time can be dangerous for a newborn. Keep in mind the above mechanisms of heat loss while you provide care and to help prevent heat loss.

- Healthy term infants with a birthweight of > 2500 grams and a stable temperature can be wrapped in blankets and placed in a crib. These infants' temperatures should be monitored prior to each feeding time or with hands on care. Sick term infants should be placed

under a radiant warmer and monitored more frequently (e.g. Q 3 hours). An abnormal temperature should be monitored hourly until it has returned to normal.

- Preterm infants weighing ~1800-2500 grams with no medical problems usually tolerate being wrapped in blankets and placed in a crib. Occasionally a hat is needed.
- Those infants weighing ~1000-1800 grams with no medical problems and doing well should be placed in an isolette. Sick preterm infants should be placed on a radiant warmer. Infants of this size with a normal, stable temperature should be monitored with hands on care. An abnormally high or low temperature should be monitored hourly until it has returned to normal.

**HYPOGLYCEMIA** is a common problem in the newborn. The definition of hypoglycemia varies from institution to institution. Hypoglycemia is often defined as plasma glucose <40-45 mg/dL in either the term or premature infant. In infants, untreated hypoglycemia can result in death or permanent neurological damage including mental retardation. Newborns can become hypoglycemic secondary to:

- ♥ Decreased glycogen stores (stored glucose)
- ♥ Stress
- ♥ Increased usage of glucose
- ♥ Hyperinsulinism

Infants who may be at risk for hypoglycemia include:

1. Infants of Diabetic Mothers (IDM)—Elevated



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blood sugar in the mother is passed by the placenta to the fetus; the fetus responds with increased insulin production. After birth, the baby no longer receives sugar from the mother yet continues to have high insulin levels. Hypoglycemia can occur and can continue for up to a week.

2. Large for Gestational Age Infants (LGA)—Some LGA babies are born to mothers with undetected gestational diabetes. LGA babies should be closely monitored for hypoglycemia.
3. Small for Gestational Age Infants (SGA)—These infants were poorly nourished *in utero* and, as such, were unable to build up necessary glycogen stores. SGA infant's metabolic rates are usually increased and they use more sugar than the appropriate for gestational aged (AGA) infant. Consequently, their limited glycogen stores are used up more quickly.
4. Premature infants—These infants have not had the time to build up necessary glycogen stores. They are usually stressed at birth and again, use up their limited glycogen stores quickly.
5. Stressed or sick infants—These infants include those with sepsis, hypothermia, cardiac disease, respiratory distress, perinatal hypoxia, shock & polycythemia. All of these infants are at risk for developing hypoglycemia.

Some infants with hypoglycemia may be asymptomatic. However, others may present with:

- ◆ Jitteriness
- ◆ Tremors
- ◆ Lethargy
- ◆ Apnea
- ◆ Hypotonia
- ◆ Poor suck/poor feeding
- ◆ High pitched or weak cry
- ◆ Seizures

Review the maternal-fetal history to determine if the infant may be at risk for hypoglycemia. All infants admitted to the nursery should be monitored for hypoglycemia but particularly those who are at an

increased risk.

A bedside blood sugar (eg. AccuChek) should be done on admission. Healthy term infants should receive early and frequent formula/breast feedings. For some infants this would be within an hour after birth. Breast fed infants with a low or borderline blood sugar may need a formula supplement. These infants should have an AccuChek done prior to each feeding. Infants may need to be fed every 2 hours until they can maintain acceptable blood sugar levels. If the "at risk" infant is NPO for some reason or cannot tolerate bottle or tube feedings, an IV of D<sub>10</sub>W should be started.

If the infant with borderline hypoglycemia does not improve (blood sugar normalize) with early and frequent feeding, an IV should be established quickly. After the IV is started, a bolus of D<sub>10</sub>W (2 mL/kg) should be given and the D<sub>10</sub>W infusion administered at 80 mL/kg/day. The blood sugar should be re-checked in 15 minutes and another D<sub>10</sub>W bolus can be given. If the hypoglycemia is persistent, the IV glucose concentration can be increased to D<sub>12.5</sub>W. If a glucose concentration of greater than D<sub>12.5</sub>W is necessary, an umbilical venous catheter (UVC) should be placed since an IV infiltrate with a D<sub>12.5</sub> glucose concentration can cause significant tissue damage. As the infant begins PO feedings, the IV can be weaned slowly if the AccuChek remains within normal limits. Bedside glucose levels should continue with each feeding and for a time after the IV fluids are stopped.

For the SGA & IUGR infants, blood sugar monitoring should continue until feedings are well established. These infants may be able to maintain a normal blood sugar initially but develop hypoglycemia later, especially if the infant eats poorly or becomes sick or stressed. Any infant



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## OUTREACH EDUCATION WEBPAGE

The WebPage continues to be a useful and popular educational opportunity. Again, I am most appreciative and THANKS TO ALL!!! The NEW WebPage is almost complete and should be ready for roll-out in early- to mid-February. The Page will have a new look, some changes, as well as some new additions. I am very excited about the new Page and hope you will be also. Please "visit" and let us know what you think. I'll be anxious to hear your thoughts and comments.

**NEW LOOK:** We have new designs and navigation tools. Each of the offerings (modules & PeaPods that are Word or PowerPoint presentations) are being converted into FrontPage formats. Not only will this make them more "Web Friendly" but will also save space on our server. This is important as we add more offerings. But our familiar Book & Apple and PeaPod are still there. Please let us know what you think. Remember, this is our 1st offering, so consider us a "work in progress." We welcome your input.

**ADDITIONS:** This will probably be the biggest difference. The baby foot icon will open an area containing selected parental teaching documents from the NC Guide to Baby Care—AKA "The Baby Book." These documents provide baby care information generally needed by the current or former NICU infant (e.g. medication information, diagnoses) but may be used by anyone. For the convenience of parents they are written on a 5th to 6th grade level. Remember, Look for the Baby Foot.

Another addition is a posting of the Out-

reach Newsletter. We will still continue to mail the Newsletter but sometimes we miss someone or a facility or we don't have a contact person at a particular facility. If we post it on the WebPage, hopefully we won't miss anyone. Look for the open mailbox.

My email address remains on the Page and provides a ready way to contact me.

The old WebPage is about to disappear—if you've saved this as a "favorite" please remove it from your list and replace it with the new address.

The **NEW WebPage address** is:  
**[www.motherbabyuniversity.com](http://www.motherbabyuniversity.com)**

As I said earlier, Tracy Ramirez, IS programmer, and myself are VERY excited about this project and look forward to hearing from you.

Currently Available:

Acid-Base Balance

Air Leaks & CT set-up

Apnea in the Newborn

Breastfeeding: Getting started

Breastfeeding the NICU Infant

CHD: Fetal Circulation & Transition

CHD: PDA

CNS: Hydrocephaly

CNS: Intraventricular Hemorrhage

CNS: Neonatal Seizures

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Gestational Diabetes: Maternal, Fetal & Neonatal Effects

GI Tract & NEC

Hyperbilirubinemia in the Newborn

ParvoVirus: Fetal Effects & Neonatal Outcomes

Preterm Labor

Persistent Pulmonary Hypertension of the Newborn

Shock in the Newborn

Thermoregulation in the Neonate

**Congratulations to the following facilities and perinatal staff for successful completion of educational offerings:**

Ashe Memorial Hospital, Jefferson, NC  
Baptist Medical Center, Birmingham, AL  
Bladen County Hospital, Elizabethtown, NC  
Brunswick Community Hospital, Supply, NC  
Cape Fear Valley Medical Center, Fayetteville, NC  
Carteret General Hospital, Morehead City, NC  
Columbus Regional Medical Center, Columbus, GA  
Duplin county Health Services, Kenansville, NC  
Durham Regional Hospital, Durham, NC  
Forsyth Medical Center, Winston-Salem, NC  
Gaston Memorial Hospital, Gastonia, NC  
Heritage Hospital, Tarboro, NC  
Lexington Memorial Hospital, Lexington, NC  
Murphy Medical Center, Murphy, NC  
McLeod Regional Medical Center, Florence, SC  
Newman Hospital West, Atlanta, GA  
Northside Hospital, Atlanta, GA  
Onslow Memorial Hospital, Jacksonville, NC  
Piedmont Hospital, Atlanta, GA  
Pitt County Memorial Hospital, Greenville, NC

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showing signs of hypoglycemia should have an immediate bedside blood sugar done and treatment initiated promptly. While it is important to send a sample to the lab for a serum glucose to verify your bedside value, **DO NOT WAIT** for the results to begin your treatment.

● Presbyterian Hospital, Charlotte, NC  
● Randolph Hospital, Asheboro, NC  
● Scotland County Hospital, Laurinburg, NC  
● Southeastern Regional Medical Center, Lumberton, NC  
● Southern Regional Medical Center, Riverdale, GA  
● The Medical Center of Aurora, Parker, CO  
● Union County Health Department, Monroe, NC  
● Wayne County Health Department, Goldsboro, NC



CONGRATULATIONS TO ALL !!!!

### UPCOMING EDUCATIONAL ACTIVITIES

● Supporting the Education Needs of New & Experienced Neonatal Nurses & Hospital Early Intervention Personnel

● William & Ida Friday Center  
● Chapel Hill, NC

● March 12, 2004 Cost: \$ 100  
● Contact: Karen Metzguer at 919-966-3476

● Differentiating Respiratory Diseases in the Newborn

● Betsy Johnson Regional Hospital  
● Dunn, NC

● February 19, 2004 Cost: Free  
● Contact: Stacey Cashwell

● Fall Update 2004: Annual Perinatal, Neonatal & Pediatric Conference

● Holiday Inn Bordeaux

● Fayetteville, NC Cost: \$55  
● Friday, Oct. 8, 2004

● Contact: Brochures will go out in May, Stacey Cashwell at 910-609-6933

Joan Lucas, RNC, BSN, NNP