




## Fostering the Development of Infants & Toddlers Born Prematurely: Part II—Important Ways that Early Interventionists can Make a Difference

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## Presentation Objectives

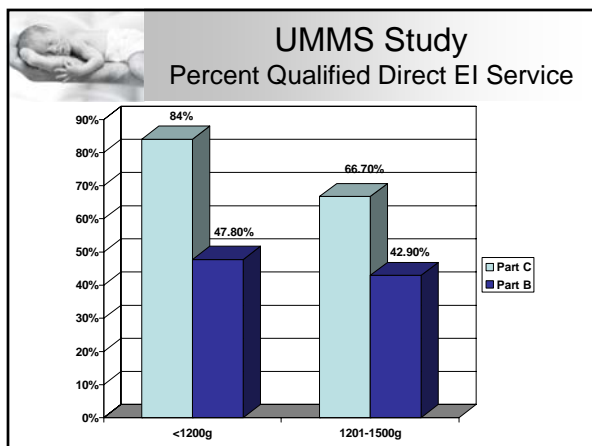

- To gain an understanding of
  - the importance of developmental monitoring and anticipatory guidance when working with infants/toddlers born prematurely and their families.
- To become familiar with
  - physiological and behavioral signals used by young infants born prematurely,
  - basic massage techniques to foster positive touch and relaxation, and
  - strategies for facilitating appropriate positioning.

## Importance of Developmental Monitoring



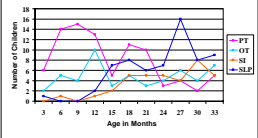
## Rationale...from the Literature

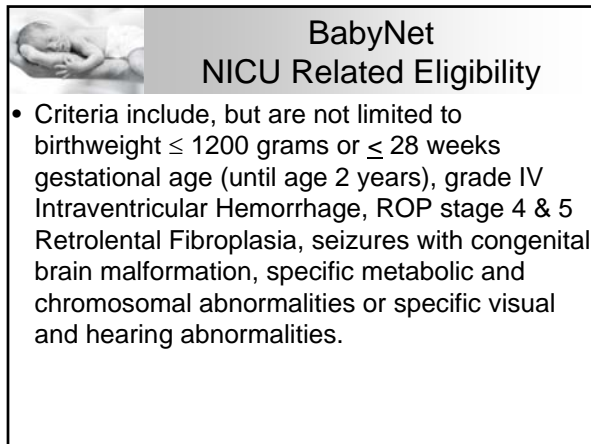
- The survival rate for premature infants has increased dramatically in the past decade (Hack, M, et al., 2000; Hack, M and Fanaroff, A, 1999).
- However, these premature infants are at risk for future developmental disabilities (Theunissen, NCM, et al., 2001; Burguet, A, et al., 2000; Hack, M, et al., 2000; Wood, NS, et al., 2000; Berger S, et al., 1998; Jackson, BW, et al., 1997).
- Although many factors go into predictions regarding morbidity, infants born earliest and at the smallest weights have the highest risk of developing disabilities.
- The rate of overall disability in infants born extremely premature is 49% and the rate of severe disability is 23% (Wood, NS, et al., 2000).

## Developmental Milestones

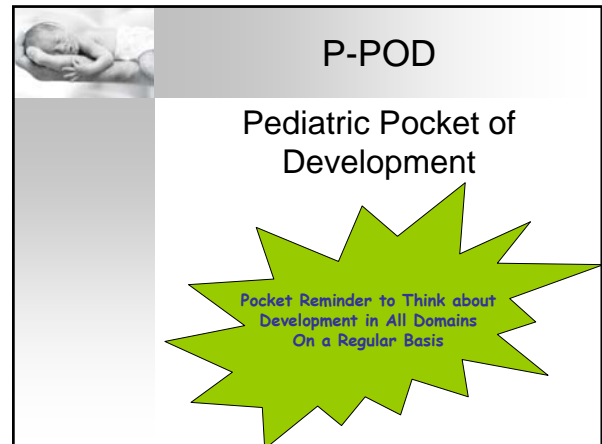
- Important to frequently screen milestones across all domains or refer to NICU Follow-Up Program.
- Evaluate for attainment of milestones AND quality of milestone.
- Develop age adjustment policy & clearly explain to families.





**BabyNet  
NICU Related Eligibility**


- Criteria include, but are not limited to birthweight  $\leq$  1200 grams or  $\leq$  28 weeks gestational age (until age 2 years), grade IV Intraventricular Hemorrhage, ROP stage 4 & 5 Retrolental Fibroplasia, seizures with congenital brain malformation, specific metabolic and chromosomal abnormalities or specific visual and hearing abnormalities.



**P-POD  
Pediatric Pocket of Development**

*Pocket Reminder to Think about Development in All Domains On a Regular Basis*

**P-POD: Pediatric Pocket of Development**  
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Age	Adaptive	Social-Emotional	Fine Motor	Cognition	Language	Gross Motor
Newborn	Nipple feeds well	Soothes-picked up	Grasp	Fixes on objects	Cries	Clears head in prone
1 mo	Alert 1 hour	Looks at faces	Hands fistled	Tracks 30°	Throaty noises	Head up in prone
2 mos	Sleeps 3-4 night hours	Social smile	Hands 50% unfistled	Tracks horizontally & vertically	Coos	Chest up in prone
4 mos	Hands to mouth	Smiles, reaches for parent	Grasps rattle	Watches own hands	Laughs	Good head control
6 mos	Eats baby food	Imitates razz	Rakes, transfers	Looks dropped spoon	Says 'baba' 'dada'	Rolls, sits tripod

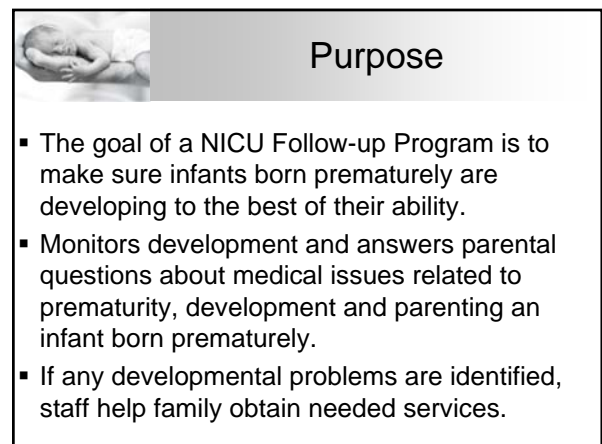
Age	Adaptive	Social-Emotional	Fine Motor	Cognition	Language	Gross Motor
9 mos	Holds, bites, chews cracker	Enjoys peek-a-boo	Inferior pincer grasp	Stirs in imitation	Responds to name	Crawls or creeps, sits
12 mos	Uses sippy cup	Gives toy on request	Stacks 2 blocks	Spontaneous scribble	Says 2 words	Walks with 1 hand held
15 mos	Takes off hat, shoes	Wants to be near adults	Puts pegs in	Looks at books	Points to wants, Says 3-6 words	Walks well
18 mos	Uses spoon	Temper tantrums	Puts 10 cubes in	Points to 4 body parts	Says 7-9 words	Runs
24 mos	Wipes nose with tissue	Claims toys 'mine'	Turns pages of book singly	Follows 2-step command	>20 words, combines 2 words	Kicks ball, steps marking time
36 mos	Uses toilet	Plays games	Stacks 9 blocks	Names 1 color	Uses prepositions	Rides tricycle

For BabyNet information call 1-800-868-0404.

**NICU Follow-Up Program**




•Eligible: Linkage Service  
•Not Eligible: Community Referral




**Purpose**

- The goal of a NICU Follow-up Program is to make sure infants born prematurely are developing to the best of their ability.
- Monitors development and answers parental questions about medical issues related to prematurity, development and parenting an infant born prematurely.
- If any developmental problems are identified, staff help family obtain needed services.




### Appropriate Referrals: NICU Follow-Up High Risk Conditions

- Birthweight <1500g
- Gestational age <32 wks
- Apgar <5 @ 5 minutes
- IUGR
- IVH > Grade II
- Congenital infection
- Congenital anomalies
- Ventriculomegaly
- Porencephaly
- Hydrocephalus
- Microcephaly
- HIE
- PVL
- Seizures
- Meningitis
- BPD
- Hearing impairment
- Vision impairment
- Abnormal neurologic exam




### Follow-Up Protocol Varies

- Unidisciplinary
  - Neonatologist, developmental pediatrician, or psychologist only
  - Referrals as needed to other specialists
- Multidisciplinary
  - Multiple specialists available to see patients
- Screening & Assessment
- Assessment




### Multidisciplinary Model at UMMS

- Neonatologists
- Developmental Pediatricians
- Psychologists
- Physical therapist
- Occupational therapist
- Speech and language pathologist
- Nurse
- Developmental Specialist/Educator
- BITP Service Coordinator




### Follow-Up Protocol Varies... At UMMS

- Most infants seen every 4 months during the first year of life and then every 6 months until three years of age.
- If development is suspect or delayed, children may be evaluated more frequently.
- If development is very delayed & all services/equipment in place, children may be evaluated less frequently.




### Anticipatory Guidance

- Definitions
  - ... a proactive developmentally based counseling technique that focuses on the needs of a child at each stage of life. (Titley, 2006)
  - ... information that helps families prepare for expected physical and behavioral changes during their child's current and approaching stage of development. (Georgetown Univ, 2003)
- Research shows parents want more guidance in basic areas of childrearing (discipline, how to encourage learning), with one study finding that more than half (53 percent) of parents reported that they could use more guidance. (Child Trends Data Bank, 2004)




### Anticipatory Guidance...

- Premie signals
- Positioning
- Baby Massage
- Development...what to expect, when to expect it & how to foster it




### Preemie Signals

...Teach Parents About Signals  
Understanding My Signals




### Types of Signals

- Approach
- Coping
- Avoidance




### Approach Signals

- smile
- mouthing
- ooh face
- gentle locking
- cooing
- speech movements
- quiet and alert
- relaxed limbs
- smooth body movements
- soft, relaxed facial expression




### Coping Signals

- leg brace
- hand on face
- hand to mouth
- suck search, sucking
- hand/foot clasp
- grasping
- fisting
- finger fold
- bracing body against crib
- going into a drowsy or light sleep state




### Avoidance Signals

- whimperlike sounds, fuss, gasp
- stretch/drown, arching
- tongue thrust
- gape face, grimace, frown
- finger splay, salute, airplane
- sitting on air
- eye floating, gaze avert
- spit up, gag, hiccough, burp, pass gas, yawn, sneeze




### Helpful Signal Strategies

- Talk before touching to prepare baby for touch.
- Give a break after taking baby out of bed and beginning to hold/feed.
- Begin with one stimulation at a time.
- Reduce stimulation when avoidance signals seen.
- Look beyond parent to environment when parent doing 'the right thing.'




### Positioning

...Teach Parents about Positioning




### Positioning

- **Prone:** Facilitates flexion, head control, oxygenation.
- **Sidelying:** Facilitates flexion, encourages hand to mouth, discourages arching, ideal for infants with GER.
- **Supine:** Accessibility in NICU.
- **Sitting:** Promotes head control, flexion, hand to mouth, social interaction.




### Baby Massage

...Teach Parents Massage




### Involve Parents... Promote Infant Massage

- **When:** Generally ready for massage when baby is able to maintain body temperature on own & can be held.
- **What:** During baby massage parent will gently but firmly stroke different parts of baby's body.
- **Why:** Baby massage lets baby experience nice touches and helps baby relax. In addition, research studies have shown that baby massage may help babies gain weight and cry less. It may also improve tone and help overall development.
- **How:** Parent can massage baby for 20 to 45 minutes per day. Parent needs to observe signals to see when baby is ready to begin the massage and for times that baby needs a break.




### Involve Parents... Helpful Massage Hints

- Use pressured strokes because light strokes might tickle.
- During a stroke, always maintain contact; let go only between different strokes.
- Provide slow, rhythmical strokes from in to out. This will help relax baby best.
- Use lotion or oil for a nice gliding stroke. Bare hands create friction and don't feel as good. Tell parents what they can use.




### Involve Parents... Massaging the Face in Supine

- Begin with two index fingers between eye brows.
- Move both fingers at the same time, in opposite directions to trace the arch of the eye brow.
- When reach temples, circle fingers three times.
- Lift right finger up and move it between eye brows then bring left finger between eye brows.
- Repeat 15-20 times, or more if baby likes it.




**Involve Parents...  
Massaging the Arms in Supine**

- Support arm by holding wrist with one hand.
- With other hand, stroke outer arm from shoulder to wrist.
- Alternate hands and stroke inner arm down to wrist.
- Repeat 15-20 times, or more if baby likes it.




**Involve Parents...  
Massaging the Wrists in Supine**

- Hold arm with one hand.
- Use the index finger and thumb of other hand to gently circle both sides of wrist.
- Make 15-20 circles, or more if baby likes it.




**Involve Parents...  
Massaging the Legs in Supine**

- Support leg by holding ankle with one hand.
- With other hand, stroke outer leg from hip to ankle.
- Alternate hands and stroke inner leg down to ankle.
- Repeat 15-20 times, or more if baby likes it.



**Involve Parents...  
Massaging the Ankles in Supine**

- Hold leg with one hand.
- Use the index finger and thumb of other hand to gently circle both sides of ankle.
- Make 15-20 circles, or more if baby likes it.



**Involve Parents...  
Massaging the Back in Prone**

- Make sure that head is to the side so that baby can breathe.
- Put left hand on buttocks and right hand on the back of neck.
- With right hand, stroke from neck to buttocks.
- Leave right hand on buttocks.
- Move left hand to neck and stroke down to buttocks.
- Repeat 15-20 times, or more if baby likes it.



**Baby Massage Pamphlet**

- Permission to duplicate & distribute as you deem appropriate.
- Obtain approval from your agency first.

**Signals**

I use signals to let you know when I am happy & ready. When I am happy and ready for a massage, I may:

- smile.
- make eye contact with you.
- be quiet and alert, or
- have a soft, relaxed face.

During the massage, it may take a few strokes before I relax. If I still don't like it after six strokes, please stop and give me a break. Then start with another body part. When I am not happy with the stroke, I may:

- frown.
- arch my back.
- squint my eyes.
- make an
- fuss.

**For more information about signals or massage, please ask my doctor, nurse, therapist or teacher. For information about BabyFit, please call 1-800-888-GAGA.**

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**Baby Massage**

**First Touches**

**Nice Touches**  
For me, from you!

**Baby Massage**

**When**

I may be ready for baby massage if I am able to maintain my body temperature on my own & can be held. If you'd like to massage me, ask my nurse, doctor, therapist or teacher if I am ready.

**What**

During baby massage you will gently but firmly stroke different parts of my body.

**Why**

Baby massage lets me experience nice touches and helps me relax. In addition, research studies have shown that baby massage may help babies gain weight and cry less. It may also improve tone and help overall development.

**How**

Massage me for 20 to 45 minutes per day. Observe my signals to see when I'm ready for you to begin my massage and for times that I need a break.

**Follow these helpful hints:**

- Use pressure strokes between light strokes might tickle me.
- During a stroke, always maintain contact with me, let go only between different strokes.
- Proceed slow, systematic strokes from in to out. This will help relax me best.
- Use lotion or oil for a nice sliding stroke. Bare hands create friction and don't feel so good. Ask my nurse what lotion or oil is best for me.

**Strokes**

**Face:** Place me on my back. Begin with two index fingers between my eye brows. Move both fingers at the same time, in opposite directions to trace the arch of my eye brows. When you reach my temples, circle your fingers three times. Lift your right finger up and move it between my eye brows. Then bring your left finger. Repeat 10-20 times.

**Arm:** Support my arm by holding my wrist with one hand. With your other hand, stroke my outer arm from my shoulder to my wrist. Alternate hands and stroke my inner arm down to my wrist. Repeat 10-20 times.

**What!** Hold my arm with one hand. Use the index finger and thumb of your other hand to gently circle both sides of my wrist. Make 10-20 circles.

**Repeat on my other arm and wrist.**

**Leg:** Support my leg by holding my ankle with one hand. With your other hand, stroke my outer leg from my hip to my ankle. Alternate hands and stroke my inner leg down to my ankle. Repeat 10-20 times.

**Arms:** Hold my leg with one hand. Use the index finger and thumb of your other hand to gently circle both sides of my ankle. Make 10-20 circles.

**Repeat on my other leg and ankle.**

**Back:** Place me on my stomach. Make sure that my head is to the side so that I can breathe. Put your left hand on my buttocks and your right hand on my buttocks and your right hand on my buttocks. Stroke from my neck to my buttocks. Move your right hand on my buttocks. Move your left hand to my neck and stroke down to my buttocks. Repeat 10-20 times.

**Ask my nurse, doctor, therapist or teacher if I am ready for baby massage.**

**Development**

- ...what to expect, when to expect it & how to foster it.

**Development...  
Your Area of Expertise!**

- Use P-POD or other instrument of choice to inform parents of upcoming milestones across all domains.
- Use Best Beginnings or other handouts as a reference for parents as appropriate.

**Trivia Winner**

**Questions**

**FINISH**

**Contact Information**

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