

# SCREENING AND REFERRAL: AVOIDING LOSS TO FOLLOW-UP

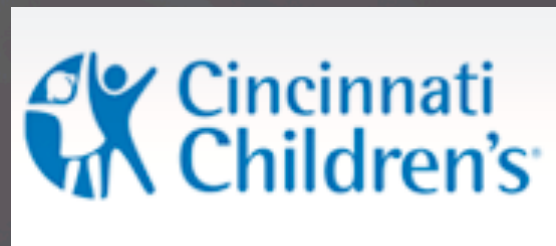
Well-Baby:

Shawn Van Steen, M.S.  
WakeMed Hospitals



NICU:

Kelly Baroch, Au.D.  
Cincinnati Children's



# WakeMed – Well Baby Nursery

- ❑ Program Coordinator (Audiologist) On-Site
- ❑ Staff with NT, AuD Students and Volunteers
- ❑ 7000 births per year (not including NICU)
- ❑ All f/u appointments are performed on site by Audiologists using AABR technology
- ❑ 1% refer at discharge requiring f/u appt
- ❑ Approximately 60 outpatient appts per year
- ❑ 0 lost to follow-up since 2002

# Program Coordinator

When infants were born in hospitals where audiologists were involved in the NHS program, they were 27% more likely to receive outpatient follow-up than infants born in hospitals without audiologist involvement

Thomson 2007





# Lost to Follow-up in the Newborn Nursery

- ❑ Newborn hearing screening has shifted the diagnosis from a parent-driven model to an institution-driven model (Kurtzer-White 2003)
- ❑ National lost to follow-up rates remain at approximately 46% (NIH)





# Team Approach - Utilize All of Your Resources

- ❑ Bedside RN's
- ❑ Primary Care Providers
- ❑ Nurse Practitioners
- ❑ Social Workers
- ❑ Child Health Audiology Consultants (CHAC)
- ❑ Family Members



# Educate Your RN's & Train Your Staff

- ❑ Educate RN's about protocol through in-services and Nursing Core Classes
- ❑ Provide extensive initial training for NT's, AuD Students and Volunteers (3 hr classroom and >40 hrs of hands on screening babies)
- ❑ Provide annual refreshers and in-services
- ❑ Be available to your staff for questions
- ❑ Keep a finger on the pulse

# Establish an Outpatient Protocol

- ❑ Schedule f/u appointment before discharge
- ❑ Approximately 2 weeks after DOB
- ❑ Audiologists speaks to parents before discharge
- ❑ Notify the Pediatrician of f/u appointment
- ❑ Educate immediate staff and support staff
- ❑ Obtain at least 2, ideally three phone numbers
- ❑ Confirm parents demographics



# Make the F/U appt easy for the Parents

- ❑ Provide them with a map of the hospital
- ❑ Provide them with outpatient instructions
- ❑ Provide them with your business card
- ❑ Provide evening appointments if possible
- ❑ Arrange transportation
- ❑ Make a 24hr confirmation call to parents
- ❑ Meet them at patient registration

# What Parents Are Saying:

Gabriel referred in both ears as a newborn and with his follow up. You referred us on to UNC Ped Audiology. We will never be able to thank you enough for that advice. They have been phenomenal! I hear from time to time about people with kids who either end up with other clinics or starting at UNC after their kids are older and feel so lucky that we got such a great start. We also hear about kids from different hospitals, especially outside NC who don't have programs in place nearly as good as North Carolina and Wakemed. Between the Early Intervention and Assistive Technologies programs, Gabriel is off to a great start. He wears bilateral hearing aids, and has since he got them at 3 months old. He was diagnosed with mild-moderate loss. His speech is delayed, but we've had great therapists and teachers to work with all along the way.

Blessings to you and your department for the work you do! It definitely makes a difference!

# What if a baby refers again at F/ U appt?

- ❑ Take the time to explain the results to parents
- ❑ Schedule the ENT / Audiology diagnostic appt before they leave your office
- ❑ Send referral with results to ENT/ Audiology office prior to diagnostic appointment
- ❑ Report results to their PCP's
- ❑ Report results to the EHDI Program



# Cincinnati Children's Hospital Medical Center NICU and The Heart Institute at CCHMC

- ❑ NICU - 59 bed level IIIC care center with approximately 800 admissions annually
- ❑ Home to the Fetal Care Center, the only fetal center in the Midwest
- ❑ The Heart Institute - is a 25 bed unit with 25% of open heart surgeries performed on newborns within first month of life
- ❑ Over half of NICU admissions receive surgical interventions with abdominal wall defect, airway reconstruction being the most frequent procedures
- ❑ Average weight at admission >2500 grams
- ❑ Average length of stay >30 days



# Survival Rate

- ❑ 75% of 500-749g infants survive
- ❑ 25% of <500g infants survive

Hernandez 2009

- ❑ As technology improves, more infants are surviving and the length of admissions in the NICU is increasing





# The Changing Faces of the NICU: The Challenges of 1-3-6





# NICU Trends: Barriers to Screening

- ❑ 75.4% of “transferred” infants screened
- ❑ 97.5% of non-transferred infants screened

Dauman et al 2009



- ❑ NICU status strongest predictor of a missed screen
- ❑ 3.2% of NICU infants missed
- ❑ 0.15% of well babies missed

Vohr et al 2002

- ❑ 99.2% of well babies screened for hearing loss
- ❑ Only 96.4% transferred/NICU babies were screened

Farrell et al 2006

# Program Coordinator

- ❑ Audiologist Onsite – Finger on the Pulse
  - ❑ “Team member” vs “Consultant”
  - ❑ Establish relationships and build trust
    - ❑ Allows for earlier access to infants for screening
  - ❑ Daily review of census and infant charts
  - ❑ Build “stop gaps” into the EMR
  - ❑ Education (staff and family)
    - ❑ Annual education for physician staff
    - ❑ Quarterly education for bedside nurses/developmental team
    - ❑ Orientation for all new bedside nurses
    - ❑ Provide education for families on an ongoing basis

# Develop The Team: Utilize All of Your NICU Resources

- ❑ Care Managers
- ❑ Bedside RNs
- ❑ APNs/Residents
- ❑ Attending Physicians
- ❑ SLPs
- ❑ OTs
- ❑ Developmental Specialists



# NICU Trends: Barriers to Diagnosis

- ❑ NICU infants six times more likely to be lost to follow-up

Vohr et al. 2002

- ❑ Medically complex children significantly older at identification

- ❑ Median 5.5 vs 3.4 months

Wiley, Choo, Meizen-Derr 2010



# NICU Trends: Barriers to Diagnosis

“If the newborn doesn’t pass the initial screening, explore the possibility of using audiologists already in the facility to do a definitive ABR before the baby leaves the hospital.”

Communicating the Need For Follow-up to Improve Outcomes of Newborn Hearing Screening, Workgroup, July 2001

# Complete Diagnostics on an Inpatient Basis

- ❑ Full diagnostic capabilities
  - ❑ ABR/OAE
  - ❑ 1000 Hz tympanometry
  - ❑ Collaboration with ENT for imaging studies, PE tube placement
  
- ❑ Continually explore possibilities for new technology in the critical care areas (ex. Wide band reflectance, ASSR)



# Expand the Team – Develop a Network!

- ❑ The Network
  - ❑ RIHP/EI
  - ❑ PCPs
  - ❑ ENT Physicians
  - ❑ High Risk Clinic
  - ❑ Inpatient units - “catch” readmissions
    - ❑ Physicians
    - ❑ Care Managers
    - ❑ APNs
    - ❑ OT/PT/Speech

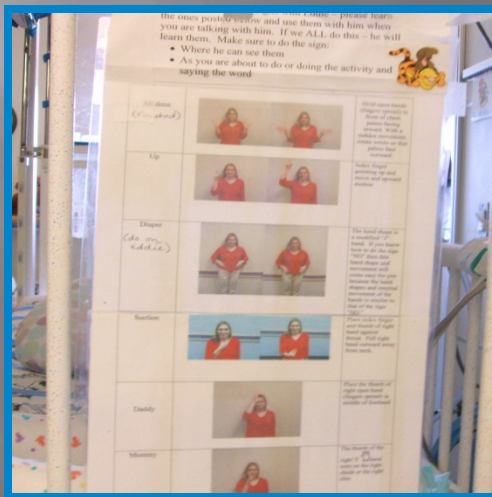
# NICU Trends: Barriers to Intervention

- ❑ Medically complex children older at EI enrollment (8.6 vs 6.5 months)
- ❑ MC children were less likely to be enrolled by 6 months of age (36% vs 49%)
- ❑ Both groups received amplification at equal rates (77% MC vs 76%)
- ❑ MC children received amplification later (9.5 months vs 7 months)

Wiley, Choo, Meizen-Derr

# Offer Intervention Strategies on an Inpatient Basis

- ❑ Sensory Care Plans
- ❑ Sign Language Program
- ❑ Hearing Aid Fitting





Throughout the Whole Process...  
Nurture and Understand the Most  
Important Team Members...

The NICU family



# Understanding NICU Families:

Be familiar with the characteristics:

- ❑ Acute stress disorder (Shaw 2006)
- ❑ Family adjustment (Doucet 2004)
- ❑ Divorce rate (McAulay 2006)
- ❑ Financial strain (McAulay 2006)

Expand your counseling skills:

- ❑ Theory of Guarded Alliance
- ❑ Motivational Interviewing
- ❑ Self Management



# The Big Picture

- ❑ **176** appointments at Children's in 30 months
- ❑ **11** surgeries in 20 months





## What Parents are Saying:

“When we left the hospital, we had every aspect of Ben’s hearing loss covered. Thank goodness it was done ahead of time because when I got home, I had no idea how crazy life was going to be! I wouldn’t have had the time or energy to set up any of it.”

# What Parents Are Saying:

What makes following through on recommendations from your child's audiologist difficult?

“It's just not always realistic in the real world. Sometimes the hearing loss is not always the top priority as life continues. We would like to be able to follow through on all the recommendations made by the professionals but sometimes it's just not physically possible. We are exhausted and then we feel guilty.”

# Outcomes: Celebrate Success

- ❑ Miss rate reduced from 30% to 0%
- ❑ Lost to Documentation Rates decreased from 42% to 20% (12% OH residence)
- ❑ Average age of hearing aid fitting decreased from 7 months adjusted age to 4 months adjusted age
- ❑ 75% of families with Deaf/HOH infant utilizing sign language program at time of discharge
- ❑ 95% of infants identified with hearing loss have a posted Sensory Care Plan prior to discharge
- ❑ 100% of instate families referred to Regional Infant Hearing Program/EI prior to discharge





**“ The enormity of the human spirit is independent of the size of the person.”**



[svansteen@wakemed.org](mailto:svansteen@wakemed.org)

[Kelly.Baroch@cchmc.org](mailto:Kelly.Baroch@cchmc.org)