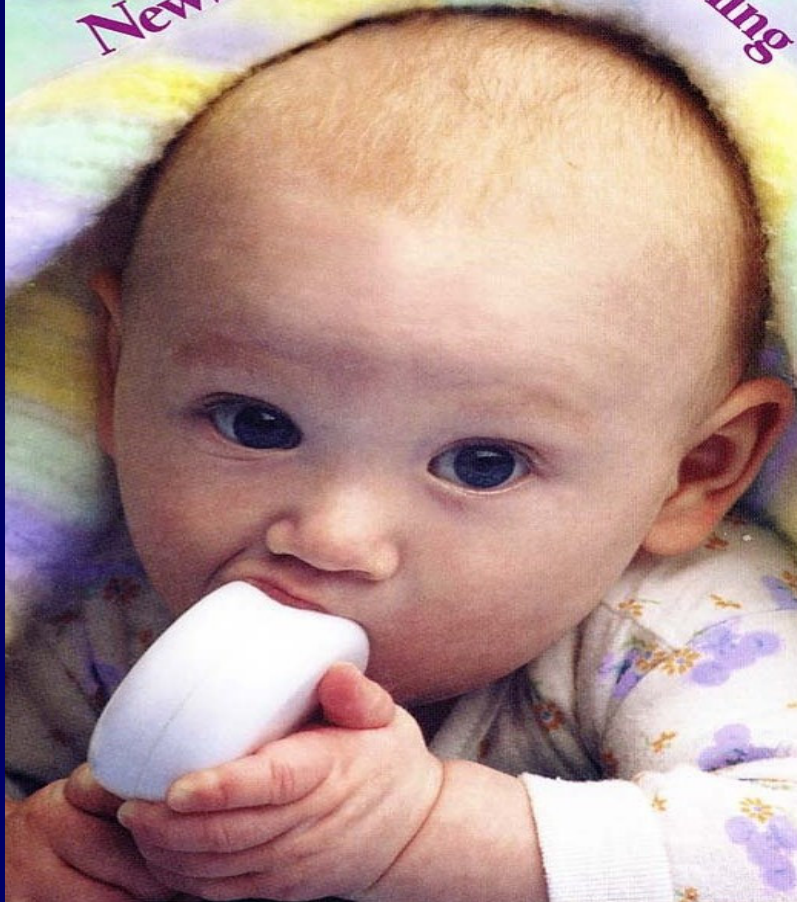


oklahoma

Newborn Hearing Screening



# Oklahoma Follow-up



Changing  
1-3-6 Months  
to  
**1-3-6 WEEKS**

# Presenters

**Patricia Burk, M.S., CCC-SLP, LSLS, Cert. AVT**  
**Coordinator, NHSP**

**Joan Burns, M.S., CCC-A**  
**Audiologist, Rogers and Washington County**

**Deborah Earley, M.S., CCC-A**  
**Audiologist, Cleveland County**

**Meredith Gatzemeyer, AuD, CCC-A**  
**Audiologist, Tulsa County Sooner Start**



# 1-3-6 Goals

National\*

Oklahoma

## Initial Hospital Screen

1 Month

1 Week

## Diagnosis of Hearing Loss

3 Months

3 Weeks

## Placement in Early Intervention

6 Months

6 Weeks



\*Source: (Center for Disease Control and Prevention)



# History and Laws

- 1982: Law Risk Registry
- 1983: Implementation
- 1997: Funding Physiologic Screening
- **2000: Law Physiologic + Risk Registry**
- 2002: Hearing Screening **ALL\*** OK hospitals!

\*birth census of 15 or more

\*\*Source: OSDH, 2006



# **State of Oklahoma Newborn Infant Hearing Screening Act**

§ 63-1-543-545

**Effective:**

**November 1, 2000**



# Responsibility – Initial Screen

- **Oklahoma State Department of Health**
- **Oklahoma Birthing Hospitals**  
**310: 540-1-3 Guidelines (a) All newborns in Oklahoma will have a Hearing Screening Procedure completed unless the parent of guardian refuses because of religious or personal objections.**



# Responsibility – Follow-up Screen

- **Oklahoma State Department of Health**
- **Providers completing follow-up screens**  
**310: 540-1-3 Guidelines (i) “Audiologists or physicians involved in completing follow-up evaluations will forward test results and recommendations to the Oklahoma State Health Department in a manner and time frame deemed appropriate by the Oklahoma State Department of Health”**





# Physiologic Screening

- 95.7% screened in US\*
- 96.8% screened in Oklahoma\*\*

\*Source: NCHAM, 2006

\*\*Source: OSDH, 2009





# Newborn Hearing Screening Summary 2005 & 2007

• Number of infants born in Oklahoma during the calendar year:	<u>2005</u> 51, 775	<u>2007</u> 54,946
• Number who received physiologic hearing screening prior to discharge:	49,001 (94.6%)	53,241 (96.8%)
• Number of infants not screened at birth:	2,774	1,704
• Number of infants who referred on screening (one or both ears):	1,398	2,637

Source: Oklahoma State Department of Health, June 2007 and February 2009



# Summary (continued)

• Number of infants who passed but had hearing risk status*:	<u>2005</u> 2,210	<u>2007</u> 2,906
• Number of infants tracked ( <i>refer, not screened, risk status</i> ):	6,382	8,226
• Number of infants with confirmed hearing loss (unilateral & bilateral):	87	108
• Number enrolled in early intervention:	76	89

\*Oklahoma hearing risk status: family history of loss; congenital infection; craniofacial anomalies; exchange transfusion; serum bilirubin level  $\geq$  15 mg/dL; infant placed in Level II or Level III nursery for more than 24 hours



# Age of Diagnosis 2007

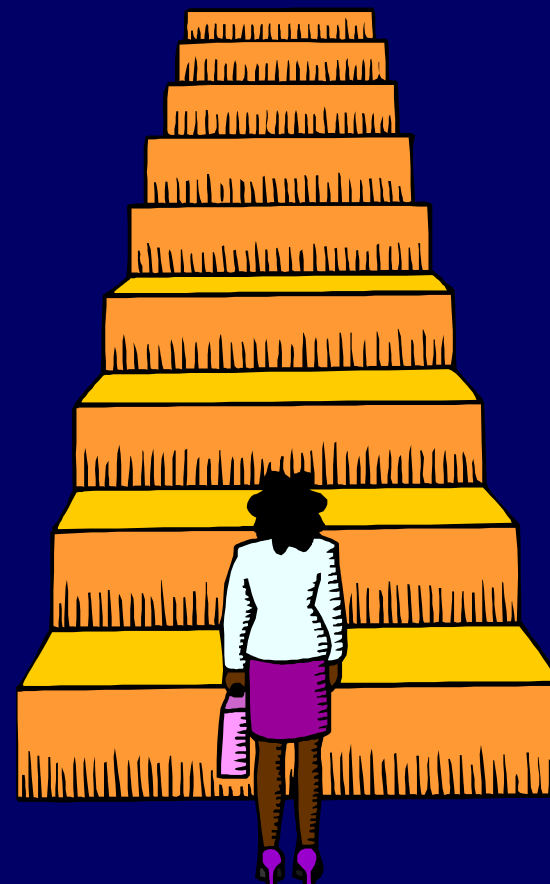
- Number of infants with a 2007 birth date with confirmed loss - unilateral & bilateral: 108  
(Includes possible late onset hearing loss)
- Average age in months at diagnosis:

< Below 1 month of age:	28	(26%)
1-3 months of age:	20	(19%)
3-6 months of age:	17	(16%)
After 6 months of age:	21	(19%)
Diagnosis Age Not Reported:	22	(20%)



# Biggest Obstacles

- Minimal parental concern
- Hospital staff indicate follow-up is not important
- Physicians tell parents to wait on follow-up
- Lack of screenings in rural areas
- Limited pediatric audiologists
- Lost to documentation



# Collaboration with Birthing Hospitals

- Provide hospitals screening equipment (AABR)
- In-services provided for hospital staff
- State law requiring screening and reporting
- List of babies sent to double check if no results were sent or confusing
- Free brochures in Spanish and English
- Hearing Results linked with Metabolic Bloodspot



# Hospital Bloodspot Form

Metabolic Screening Pull-out - (blue)

797956

SeF No. **797956** Newborn Metabolic Disorder Screening  
 Oklahoma State Department of Health-P.O. Box 24106,  
 Oklahoma City, OK 73124-0106 (405) 271-5070 ODH #450 Rev. 12/2003

**DO NOT WRITE IN THIS BOX**

**SPECIMEN INFORMATION**

1. Collection Date: MM DD YY Collection Time: : 24 Hour Clock  
 2. Transfusion Date: MM DD YY Time: : 24 Hour Clock

3. Has a previous metabolic blood test been done anywhere?  Yes  No  
 Previous OSDH Lab Number \_\_\_\_\_

4. Age of Infant at time of specimen collection:  
 Under 24 hours of age  Over 24 hours of age

5. Test requested:  
 All Tests (PKU, T4, GAL, HGB)  HGB only  
 Monitor patient for: \_\_\_\_\_

1. Infant's Last Name \_\_\_\_\_ Infant's First Name \_\_\_\_\_  
 2. Sex:  M  F 3. Date of Birth: MM DD YY 4. Birth Time: : 24 Hour Clock  
 5. Birthweight in Grams \_\_\_\_\_ 6. If Multiple Birth Indicate Birth Order: A-H 7. Infant's Medical Record or I.D. \_\_\_\_\_  
 8. Provider ID \_\_\_\_\_ 9. Infant's Provider or Physician's Name \_\_\_\_\_  
 10. Mom's Medicaid Number \_\_\_\_\_ 11. Provider's Phone Number \_\_\_\_\_

**MOM'S INFORMATION**

1. Mom's Last Name, First Name \_\_\_\_\_ 2. Mom's Age \_\_\_\_\_  
 3. Mom's Address \_\_\_\_\_ 4. Apt. # \_\_\_\_\_  
 5. Mom's City \_\_\_\_\_ 6. State \_\_\_\_\_ 7. Zip \_\_\_\_\_  
 8. Mom's Telephone or Contact \_\_\_\_\_ 9. Mom's Social Security # \_\_\_\_\_  
 10. Mom's Race/Ethnic:  1. White  2. Black  3. Hispanic  4. Asian  5. Indian  6. Other \_\_\_\_\_

**SUBMITTING HEALTH PROVIDER :**

1. ID # \_\_\_\_\_  
 2. Return to: \_\_\_\_\_

**Hearing Screening Results:**

Right Ear	Left Ear	Screen Method
<input type="checkbox"/> Pass <input type="checkbox"/> Refer	<input type="checkbox"/> Pass <input type="checkbox"/> Refer	<input type="checkbox"/> ABR <input type="checkbox"/> OAE <input type="checkbox"/> Other (Specify) _____

If not screened, reason:  
 Technical problem  No equipment  Delayed  
 Caregiver refused  Baby discharged  Other \_\_\_\_\_

**Hearing risk status—Check all that apply:**

- Blood relatives of the infant have a permanent hearing loss that began at birth or in early childhood.
- Infant is suspected of having a congenital infection (neonatal herpes, cmv, rubella, syphilis, toxoplasmosis).
- Infant has craniofacial anomalies (pinna/ear canal abnormality, cleft lip/palate, hydrocephalus).
- Infant had exchange transfusion.
- Infant has serum bilirubin level  $\geq 15$  mg/dL.
- Infant was placed in a Level II or III nursery for more than 24 hours.

**797956**

**CHART COPY**

DETACH AND PLACE IN MEDICAL RECORD  
 NEWBORN SCREENING

DETACH AND GIVE TO PARENT OR GUARDIAN  
 NEWBORN METABOLIC DISORDER SCREENING

DETACH AND GIVE TO PARENT OR GUARDIAN  
 NEWBORN HEARING SCREENING

L-6146803



# Hearing Results Section

## Hearing Screening Results Section

Newborn Metabolic Disorder Screening Form (ODH #450 Rev. 1/2005)

1. **Hearing Screening Results:**

2. <u>Right Ear</u>	<u>Left Ear</u>	<u>Screen Method</u>
<input type="checkbox"/> Pass	<input type="checkbox"/> Pass	<input type="checkbox"/> ABR <input type="checkbox"/> Other (Specify) _____
<input type="checkbox"/> Refer	<input type="checkbox"/> Refer	<input type="checkbox"/> OAE

3. If not screened, reason:

<input type="checkbox"/> Technical problem	<input type="checkbox"/> No equipment	<input type="checkbox"/> Other _____
<input type="checkbox"/> Caregiver refused	<input type="checkbox"/> Baby discharged	

4. **Hearing risk status – Check all that apply:**

5.  Blood relatives of the infant have a permanent hearing loss that began at birth or in early childhood.

Infant is suspected of having a congenital infection (neonatal herpes, cmv, rubella, syphilis, toxoplasmosis).

Infant has craniofacial anomalies (pinna/ear canal abnormality, cleft lip/palate, hydrocephalus).

Infant had exchange transfusion.

Infant has serum bilirubin level ? 15 mg/dL.

Infant was placed in a Level II or III nursery for more than 24 hours.

1. Right Ear Results
2. Left Ear Results
3. Screen Method
4. If not screened, reason
5. Hearing risk status – Check all that apply



# NHSP Follow-up

- EDHI Follow-up Coordinator
- Initial follow-up letters to Parents and Physicians within 7 days of birth
- Provide Spanish translation as requested
- Second letter and two phone calls provided to Parents at 45 days
- Help families follow-up with providers
- Reminder letters at 5 months for babies who passed but are at risk



# Follow-up Screenings

- Free follow-up screens at local county health departments: Nurses, Speech-Pathologists, Audiologists, etc.
- Follow-up AABR and OAE equipment available throughout state
- 5 Health Department Audiologists
- 5 Contract Audiologist (rural areas)
- Private audiologists



# Collaboration with Early Intervention/Part C

- Voice Response System
- PHOCIS – able to see if child has had appointment and if results available
- Contact providers before closing charts
- Help providers when having difficulties getting families to attend appointments
- Seek results for Follow-up Screenings
- Quarterly Tracking forms



# Collaboration with Follow-up Providers

- Contact Health Department providers, private audiologist, doctor's offices, etc.
- Give providers Initial/Follow-up Results
- Statewide Audiology Survey
- In-services through Hearing Aid/FM companies using State Slides
- Hearing Results form – available online



# Hearing Results form

Hearing Results  
Newborn Screening Program  
Oklahoma State Department of Health  
1000 NE 10<sup>th</sup> Street  
Oklahoma City, OK 73117-1299  
405-271-8617

Dear Clinician: *If the infant's parent/guardian did not bring a similar form that includes the infant's identifying information, use this form to report hearing screening or audiologic diagnostic results to the newborn screening program. Please return the completed form to the address above or FAX it to 405-271-4892.*

Infant's last name: \_\_\_\_\_ Infant's first name: \_\_\_\_\_ DOB: \_\_\_\_\_  
Mom's last name: \_\_\_\_\_ Mom's first name: \_\_\_\_\_ Mom's SS#: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Birth Facility: \_\_\_\_\_  
Bloodspot Form Serial Number: \_\_\_\_\_

**To the clinician evaluating hearing: Complete Box 1 if you are screening hearing; complete Box 2 if you are providing a diagnostic audiologic assessment.**

**Box 1: Hearing Screening Results**

Screening Date: \_\_\_\_\_

Results:

Right Ear:  Pass  Refer Left Ear:  Pass  Refer Screen Method:  ABR  OAE  other \_\_\_\_\_

Intervention:  Referred  Already Enrolled  SoonerStart  other \_\_\_\_\_

Comments: \_\_\_\_\_

Person screening: \_\_\_\_\_ Title: \_\_\_\_\_ Phone: \_\_\_\_\_

**Box 2: Diagnostic Audiologic Assessment Results**

Assessment Date: \_\_\_\_\_ Seen previously?  Yes  No If Yes, Date: \_\_\_\_\_

Results:

Right Ear:  Normal  Mild Loss  Moderate Loss  Severe Loss  Profound Loss  Inconclusive

Left Ear:  Normal  Mild Loss  Moderate Loss  Severe Loss  Profound Loss  Inconclusive

Type of loss:  Sensorineural  Conductive  Mixed  Undetermined

Assessments used: (Check all that apply)  ABR  Bone ABR  ASSR  TEQAE  DPOAE  BOA  VRA  
 Pure Tone  Tympanometry  other \_\_\_\_\_

Intervention:  Referred  Already enrolled  SoonerStart  other \_\_\_\_\_

Comments: \_\_\_\_\_

Recommendations: \_\_\_\_\_

Audiologist: \_\_\_\_\_ Phone \_\_\_\_\_

Additional copies available online at

<http://www.ok.gov/health/documents/Hrfollow-up.pdf>



# Collaboration with Other Providers

- Grand Rounds
- Women, Infants and Children (WIC)
- Children First Nurses
- Prenatal Parent Education Packets
- Community Initiatives
- Health Educators – Dangerous Decibels



# Case Studies

GS

- 1/4/08 - DOB at Rural hospital
- 1/5/08 - Initial Screen: Bilateral Refer
- 1/18/08 - Follow-up Screen: Bilateral Refer
- 2/14/08 - Diagnosis: Severe-Prof. SNHL AU
- 2/22/08 - EI services
- 3/27/08 - Hearing Aids
- 1/14/09 - Bilateral Cochlear Implant Surgery





# Case Studies

## MM

- 7/7/08 – DOB at Metro hospital
- 7/8/08 - Initial Screen: Bilateral Refer
- 8/4/08 - Follow-up Screen: Bilateral Refer
- 8/25/08 - Diagnosis: Profound SNHL AU
- 8/25/08 - Hearing Aids
- 8/25/08 - EI services





# Case Studies

CH

- 5/16/08 - DOB at Rural hospital
- 5/16/08 - Initial Screen: Bilateral Refer
- 5/28/08 - Follow-up Screen: Bilateral Refer
- 6/5/08 - Diagnosis: Severe-Profound SNHL
- 6/12/08 - Hearing Aids
- 6/12/08 - EI services





# Case Studies

TW

- 10/31/08 - DOB at Rural hospital
- 11/1/08 - Initial Screen: Bilateral Refer
- 11/12/08 - Diagnosis: Mild High Frequency SNHL
- 11/25/08 - Hearing Aids
- 11/25/08 - EI services



# Contact Information

**Oklahoma State Dept. of Health  
Newborn Hearing Screening Program  
1000 NE 10<sup>th</sup> Street  
Oklahoma City, OK 73117  
Phone: 405-271-6617  
Fax: 405-271-4892  
Email: [PatriciaAB@health.ok.gov](mailto:PatriciaAB@health.ok.gov)**

