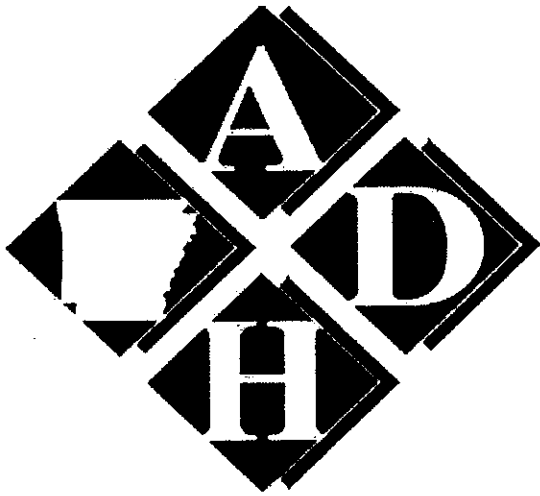


# EXHIBIT H



January 1, 2011

through

December 31, 2011

## Annual Report

### Arkansas Early Hearing Detection and Intervention

Submitted by:

Arkansas Department of Health

Infant Hearing Program

Child and Adolescent Health



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## Our Message to You

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Enabling legislation for the Infant Hearing Program (IHP), also known as the Early Hearing Detection and Intervention (EHDI) Program, is Arkansas Act 1559 of 1999. Effective since September 2000, this Act mandates newborn hearing screens at birthing hospitals. The IHP, hereafter referred to as the "Program", submits an annual report to the Universal Newborn Hearing Screening, Tracking and Intervention Advisory Board. This report contains information from Arkansas's 11th year of Universal Newborn Hearing Screening. Information in this report provides a close look at hearing screening activities in birthing hospitals throughout the State and results of follow-up screening. The data collected during 2011 will outline strengths and weaknesses of the Program, thereby directing the development and expansion of goals toward improvement.

A successful statewide Program depends on collaboration among many entities, both state and private. We thank you for your continued support of newborn hearing screening efforts in Arkansas.

# Infant Hearing Program

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Program funding is provided through three (3) sources: 1) the Health Resources and Services Administration (HRSA) Universal Newborn Hearing Screening grant, 2) the Centers for Disease Control and Prevention (CDC) Early Hearing Detection and Intervention (EHDI) Cooperative Agreement, and 3) the HRSA Title V Maternal and Child Health Block Grant. In conjunction with the national and international Early Hearing Detection and Intervention initiative, the IHP shares the vision to establish norms regarding the importance of the newborn hearing screen, follow-up audiological evaluations, and culturally appropriate early intervention.

## 1. Program Purpose:

The focus of the Program is to ensure quality developmental outcomes for infants identified with hearing loss. The Program works with hospitals, early intervention programs, parents, and stakeholders to assure the provision of hearing screening to newborns and follow-up services for those identified with hearing loss.

## 2. Program Goals:

All newborns will be screened for hearing loss before 1 month of age, preferably before hospital discharge.

All infants who screen positive will have a diagnostic audiologic evaluation before 3 months of age.

All infants identified with hearing loss will receive appropriate early intervention services before 6 months of age (medical, audiological, and early intervention).

All infants and children with late onset, progressive or acquired hearing loss will have diagnosis at the earliest possible time.

3. **Program Services:**

The Infant Hearing Program maintains a comprehensive tracking database system to assure that all newborns are screened for hearing loss before hospital discharge; that infants are tracked for timely follow-up evaluations; those identified with hearing loss are enrolled in Early Intervention Services; families have access to family-to-family support; and that children with confirmed hearing loss are linked to a medical home.

4. **State Law:**

Arkansas Act 1559 of 1999 mandates hearing screening for infants born at birthing hospitals. The Infant Hearing Program, located in the ADH's Center for Health Advancement, oversees the regulatory component of the mandate.

5. **Conclusions:**

Hospital Performance (Tables 1, 2, and 3)

- **Table 1, Table 2, and Table 3** detail the overall performance of Arkansas's birthing hospitals' (those greater than 50 births per year) newborn hearing screening performance, January - December 2011.

## Post-Discharge Testing (Table 4)

- **Table 4** provides details for 2011 on the number of hearing rescreens performed post-discharge. The total percentage of recommended rescreens performed by hospitals and other providers increased from 74.1% in 2009 to 78% in 2011. Additionally, some infants that did not pass the initial hearing screen by-passed the post-discharge screen and received diagnostic audiological evaluation. This increased the 2011 overall return rate from failed initial screening to 82%.

## Diagnostic Testing (Figures 5, 6, and 7)

- **Figures 5, 6, and 7** provide details on the number of children diagnosed with a permanent hearing loss, number of diagnostic evaluations performed and ages at time of evaluation.

### For more information:

**Phone**                    **501-280-4740**  
**Fax:**                      **501-280-4170**

**Website:** [www.healthy.arkansas.gov](http://www.healthy.arkansas.gov)

## Organizational Profile

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Within the Arkansas Department of Health, there are four Centers: the Center for Health Protection, the Center for Health Advancement, the Center for Local Public Health, and the Center for Public Health Practice. The Infant Hearing Program (IHP), Arkansas's EHDI, is located in the Center for Health Advancement, Family Health Branch, as part of the Child and Adolescent Health Section.

The Family Health Branch includes the following entities that collaborate with EHDI: Lay Midwifery reporting and licensing, Newborn Screening, and the ConnectCare Program.



## Current Program Team

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**Saiyed Tariq Ali, M.D., MPH, Program Manager** – Dr. Ali joined the Infant Hearing Program in January 2012. In addition to his hands-on experience as a physician, he has experience in the fields of clinical and public health epidemiology as well as research. He brings an expert proficiency level to the program and is skilled and knowledgeable with the needs of all age groups: pediatric to adult.

**Stacy Webb, RN, Follow-up Coordinator** – Stacy became a part of the Infant Hearing Program in 2005. Prior to this time, she served in the capacity of Nurse Associate with Federal Occupational Health. Stacy brings 26 years of nursing experience and expertise to her position as Follow-up Coordinator. She plays a pivotal role in ensuring every child born in Arkansas receives a newborn hearing screen and other services as needed.

**Nancy Dunlap, Health Program Specialist** – Nancy joined the Program in May 2009. She has over 30 years experience in State Government. She brings exceptional experience to the Program in the areas of fiscal and biennial budget preparation, creation and maintenance of databases for health care facilities, and grant application preparation, review and approval. Nancy prepares the Program's grant applications, writes reports, and monitors expenditures.

**Shirley McElroy, Training and Follow-up Specialist** – Shirley joined the Program in July 2009 and has over 30 years of experience in State Government. Shirley works with parents, hospital staff, and physicians' offices to provide technical/tracking and follow-up assistance.

**Michael McCray, MBA, M.Ed.,** – Michael joined the Program in April 2011. Michael brings over five (5) years of practical experience in an educational setting, a current knowledge base on cultural diversity,

and experience with community and health outreach. His duties include developing criteria/training for program development stages (i.e., user acceptance testing/roll-out/go live), organizing stakeholder training sessions/meetings for stakeholder input, providing data training for stakeholders, supporting program development and system testing with ADH-Information Technology Services, and evaluating the effectiveness of program data systems change.

**Joycelyn Pettus, Parent-to-Parent Consultant** – Joycelyn joined the Program in February 2010. Joycelyn works with parents, hospital staff, and physicians' offices to provide technical/tracking and follow-up assistance. She is also instrumental in preparation of hospital feedback reports. She serves as the Program's liaison to parent support groups.

**Shirley Brewer, Administrative Specialist**– Shirley has extensive experience with the Infant Hearing Program (IHP). Previously, she worked in WIC, Vital Records, and AIDS/STD before coming to Child and Adolescent Health. She has served in the capacity of secretary for the IHP since 1998.

**Joe Hyson, Administrative Specialist**–Hired in 2011, Joe's responsibilities include data entry via optical image scanning, data entry of follow-up hearing screening results, and daily letter generation for notification of parents with infants needing follow-up testing. Joe will also assist the Help Desk by responding to stakeholder questions during the Electronic Registration of Arkansas Vital Events (ERAVE)/Infant Hearing Module implementation.

## 2011 Program Highlights

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Arkansas Act 1559 of 1999 mandates newborn hearing screens at birthing hospitals. Additionally, the Act requires stakeholder reports on initial hearing screens and follow-up screening by the 15th day of the following month.

The focus of the HRSA grant is to develop a statewide newborn and infant hearing screening, evaluation and intervention program; the CDC EHDI focus is to develop standardized procedures for data management and program effectiveness.

During the calendar year, HRSA funding allowed the Program to concentrate on two important areas. The first was reducing the number of infants “lost to follow-up”, e.g. among infants who have not passed a physiologic newborn hearing screening examination prior to discharge from the newborn nursery. The second area of effort was improving the lost to documentation/lost to follow-up rate by utilizing specific interventions to achieve measurable improvement in the numbers of infants who receive appropriate and timely follow-up.

The Centers for Disease Control and Prevention (CDC)/Early Hearing Detection and Intervention (EHDI) funding allowed the Program to concentrate on implementation of the Electronic Registration of Arkansas Vital Events (ERAVE) System. The opportunity to link with the new ERAVE death/birth events system will provide a comprehensive electronic data capture and tracking system that enables infants’ primary care physicians and audiologists access for follow-up of newborns/infants needing referral and testing. The on-line system will enhance the IHP’s reporting ability, expedite hearing screening information from the birthing hospitals, result in more timely submission of newborn hearing screen data, avoid duplication of data entered at the

hospital level, and provide the ability to receive information currently not collected (e.g., maternal level of education).

The success of the Program correlates to its activities promoting quality developmental outcomes for all infants and young children identified with hearing loss.

Highlights of the 2011 Program year follow.

- **Linkage to Electronic Birth Certificate (EBC)**  
EHDI programs are required to identify, match, collect, and report data on all occurrent births within their jurisdiction that is unduplicated and individually identifiable throughout the three stages of the EHDI process (screening, diagnosis, and early intervention). Data collection determines the impact of hearing loss on children and their families as well as the quality of services they receive.

The Program continues to collaborate with the Arkansas Department of Health (ADH) Vital Records/Health Statistics and work towards implementation of the Electronic Registration of Arkansas Vital Events (ERAVE), which will include an electronic Infant Hearing Module for the submission of hearing screening data, diagnostic entry of additional testing, and physician access through a secure web-based network system. The transition to the on-line system will enhance the Program's federal reporting ability, expedite hearing screening information from the birthing hospitals, capture timely newborn hearing screen data, avoid duplication of data at the hospital level, and provide the ability to receive information currently not collected (i.e., maternal level of education). Remaining work to be done includes the Pilot Phase, Go-Live, and Roll-Out.



- **Reduce lost to follow-up after failure to pass newborn hearing screening**

Summary data reported by Arkansas's forty-three (43) Universal Newborn Hearing Screen (UNHS) hospitals revealed for the period January 2011 - December 2011, 98.6% of infants received a hearing screen before hospital discharge. Of those screened, 95.2% passed and 4.8% were referred for further testing (rescreen). The total percentage of rescreens performed by hospitals and other providers increased from 74.1% in 2009 to 78.0% in 2011.

- **Memorandums of Agreement (MOAs)**

A Memorandum of Agreement (MOA) between the Program and Arkansas's First Connections, Part C, Early Intervention Program at the Arkansas Department of Human Services continues. Two additional MOAs were formalized during this project period: 1) Arkansas Department of Health (ADH) and the Arkansas School for the Deaf (ASD) and 2) Arkansas Department of Health and the University of Arkansas for Medical Sciences (UAMS). The focus of the ASD MOA is to: 1) increase the availability of diagnostic evaluation for infants, 2) increase the number of infants receiving audiological evaluations after newborn hearing screen, and 3) facilitate appropriate intervention by 6 months of age for those identified with hearing loss. The UAMS MOA focus is to: 1) aid in reducing the loss to follow-up in infants and 2) provide an additional place for parents to take infants for newborn screening.

- **Site Visits**

The Program's Follow-up Coordinator makes site visits to birthing hospitals to offer technical assistance and updates for newborn hearing screening practices. During site visits the Follow-up Coordinator discusses the refer rate, any revision to IHP hospital protocol, the type of hearing screening equipment utilized, and number of times equipment is down for repair. Hospitals with the highest refer rates receive specific hands-on training.

- **Otoacoustic Emissions (OAE) and Automated Auditory Brainstem Response (AABR) Equipment Loaner Program**

The Program continues to enable universal newborn hearing screening hospitals to borrow equipment when their own is down for repair. The program consists of four (4) Otoacoustic Emission (OAE) instruments and four (4) Automated Auditory Brainstem Response (AABR) units. During the reporting period, the average loan time for OAE equipment was 90 days. The AABR equipment was on loan for a total of 180 days to various hospitals statewide.

- **Sponsored Workshops**

The Program's Follow-up Coordinator hosted the annual Universal Newborn Hearing Screening (UNHS) workshop for nurses working in birthing hospitals. The 2011 workshop featured sessions on hearing screening training, the cytomegalovirus (CMV), and the Joint Committee on Infant Hearing 2007 Position Statement. Additionally, the Program co-sponsored a lecture at the Guide by Your Side Stakeholder's Strategic Planning Conference in August 2011.

- **Matching Process**

EHDI and Vital Records/Health Statistics collaborated in a matching process for birth certificates and hearing screen forms. The "matching process" identifies infants having a birth certificate but for whom the EHDI program does not have information. The average matching ratio for hearing screen to birth certificate data for 2011 is 97.4%.

## Future Goals

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- Continue to be an active participant with the Arkansas Department of Health (ADH) Vital Records/Health Statistics Program in the development of the Electronic Registration of Arkansas Vital Events (ERAVE) System, which includes an electronic Infant Hearing Module.
- As recommended by the Early Hearing Detection and Intervention program at the national level, begin local transition to focus on improving the numbers of at-risk infants receiving diagnostic audiology services by three months of age.
- Participate in the National Initiative on Child Health Quality (NICHQ) Learning Collaborative. The learning collaborative, sponsored by the Division of Services for Children with Special Health Needs (DSCSHN) and NICHQ, is an innovative quality improvement method designed to enable improvement teams to share, test, and implement ideas that result in more timely, appropriate, coordinated and family-centered care. Participation by a team of four in the three, two-day learning sessions is a Health Resources and Services Administration (HRSA) requirement.
- After ERAVE roll-out, initiate needs assessment of: 1) obstacles to rescreening, particularly as they confront Arkansas families seeking follow-up services, and 2) strengths and weaknesses of the ERAVE system as it relates to the Infant Hearing Module. This assessment will include stakeholders in each stage of service provision.
- Initiate Media Campaign in Spanish-language newspapers and on Hispanic radio stations to emphasize the need for hearing screening awareness and follow-up.

- On-going promotion of the hospital post-discharge rescreen programs, encouraging hospitals with existing rescreen programs to adopt open clinic hours as opposed to restrictions associated with appointed times
- Review and update Memorandums of Agreement (MOAs) with:
  - 1) Part C Providers, 2) Arkansas School for the Deaf (ASD), and
  - 3) University of Arkansas for Medical Sciences (UAMS)
- Formalize MOA with other stakeholders (Regional Audiologists and Lay Midwives)
- On-going commitments regarding:
  - technical assistance to birthing hospitals for newborn hearing screening protocol
  - loaner program which enables Universal Newborn Hearing Screening hospitals to borrow equipment when their own is down for repair
  - stakeholder coordination, particularly through quarterly meetings and continuing ongoing collaborations with groups that support screening, identification, and intervention goals
  - guideline revisions for birthing hospitals based on the recommendations of the Joint Committee on Infant Hearing (JCIH) 2007
  - the Program's website located at [www.Healthy.Arkansas.gov](http://www.Healthy.Arkansas.gov) under Infant Hearing, Healthy Hearing, in English and Spanish, to determine benefits, e.g., monitoring usage and "hits" to the website



## Hospital Performances

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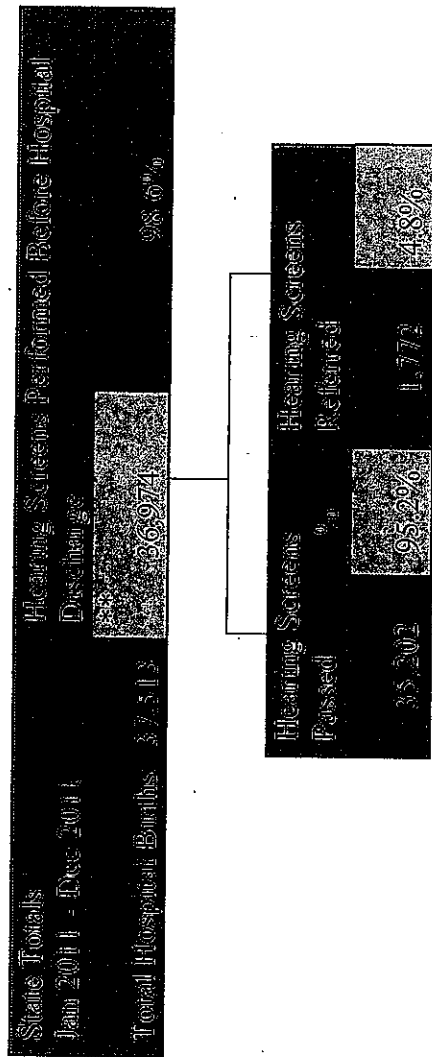
Each birthing hospital designates a staff member to serve as the point of contact for the newborn hearing screening activities at the hospital. The hospital must ensure trained screening personnel to carry out the newborn hearing screening using appropriate technology.

The hospitals disseminate brochures, provided by the Program, and screening results to the parents prior to discharge, including audiological provider locations where parents may take their newborns for follow-up testing. The child's primary care physician receives the hospital's results of the newborn hearing screen. Hospitals have the option of faxing hearing screen results to the Program's secure (HIPAA compliant) fax machine or forwarding them by mail no later than the fifteenth (15<sup>th</sup>) day of the month following the month of the screen.

Ideally, hospitals' referral rates (children who do not pass the hearing screen) should not exceed 5%, although hospitals with referral rates as high as 5-10% are acceptable according to established guidelines. Over the course of the 11 years of EHDI existence, hospital referral rates show steady improvement toward the expected rate due to improved screening techniques. Currently, 26 reporting hospitals have a screening referral rate of less than 5%, 10 have a screening referral rate of 5-10%, and 7 have a referral rate of greater than 10%. The Follow-up Coordinator continues to work with these hospitals providing in-service guidance to improve referral rates. Proposed revisions to the Infant Hearing Guidelines (2007 Joint Committee on Infant Hearing) will be submitted to the Universal Newborn Screening, Tracking, and Intervention Advisory Board in October 2012.

# Hospital Performances 2011

**Table 1. Summary data reported by Arkansas's forty-three (43) Universal Newborn Hearing Screen (UNHS)\* hospitals**



\*UNHS hospitals, as defined by Act 1559 of 1999, are those having more than 50 births per calendar year  
 \*\*ADH EHDI Limelight Database

For detailed descriptions and explanations, please refer to pages 16 – 17

# Hospital Performance 2011

Table 2. Summary table for overall performance of Arkansas's 43 UNHS hospitals

Percentage of hearing screens performed prior to hospital discharge (36,974) compared to hospital births (37,513) → 98.56%

Percentage of hearing screens performed prior to hospital discharge (36,974) compared to all Arkansas births (37,853) → 97.68%

Percentage of all initial hearing screens (37,051) compared to all Arkansas births (37,853) → 97.88%

Figure 1. Distribution of screening methods used by UNHS hospitals in 2011



Table 3. Screening methods used by UNHS hospitals 2011

UNHS Hospital Screening Method	# of hospitals	% of hospitals
Hospitals - Otoacoustic Emissions (OAE) Method	9	20.9%
Hospitals - Automated Auditory Brainstem (AABR) Method	20	46.5%
Hospitals with OAE and AABR Methods	14	32.6%
<b>Total Hospitals</b>		

# Post-Discharge Hearing Screen Analysis 2011

Figure 2. Comparison of birthing hospitals with post-discharge hearing screen programs versus those without outpatient screening programs

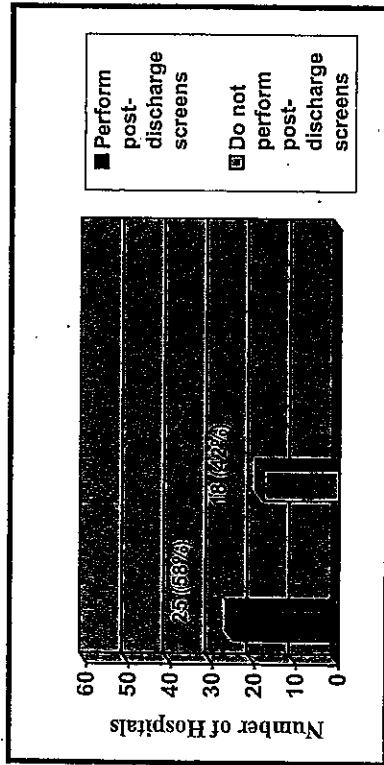


Table 4. Summary performance data for Arkansas's birthing hospitals and audiological sites that provides post-discharge hearing rescreens

# of Post-Discharge Rescreens Performed	% of Infants Returning for Post-Discharge Rescreens
1,377	78%*
# of Infants who Passed the Post-Discharge Rescreens	% of Infants who Passed the Post-Discharge Rescreens
1,233	90%
# of Infants who Did Not Pass the Post-Discharge Rescreens	% of Infants who Did Not Pass the Post-Discharge Rescreens
144	10%

\*Percentage based on number of failed hospital screens (1,772) and the number of post-discharge rescreens performed (1,377)

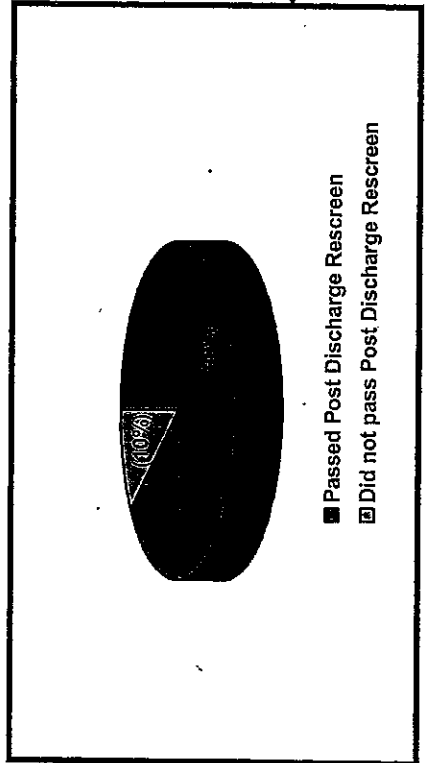
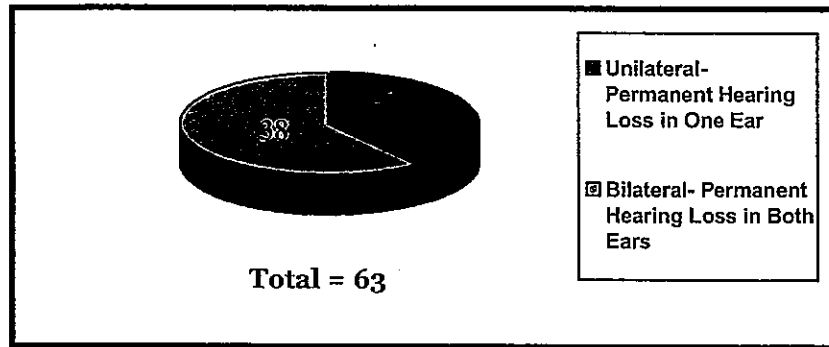


Figure 3. Percent distribution of infants who passed post-discharge rescreens compared to those infants who did not pass

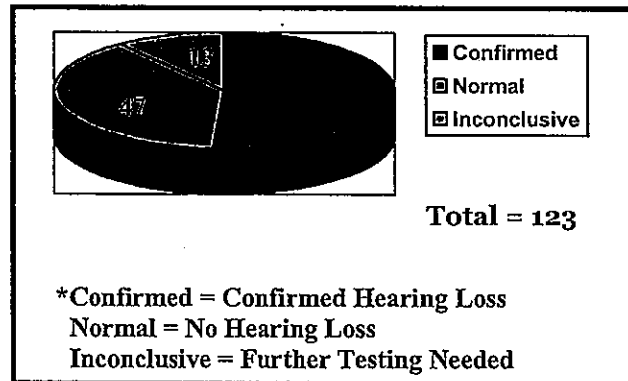
Note: Of the 1,772 infants who did not pass the initial hearing screen, 73 received a diagnostic audiology evaluation rather than a post-discharge rescreen. Thus, 1,700 infants contributed to an overall 89% return rate from initial hearing screens.

# Diagnostic Information 2011

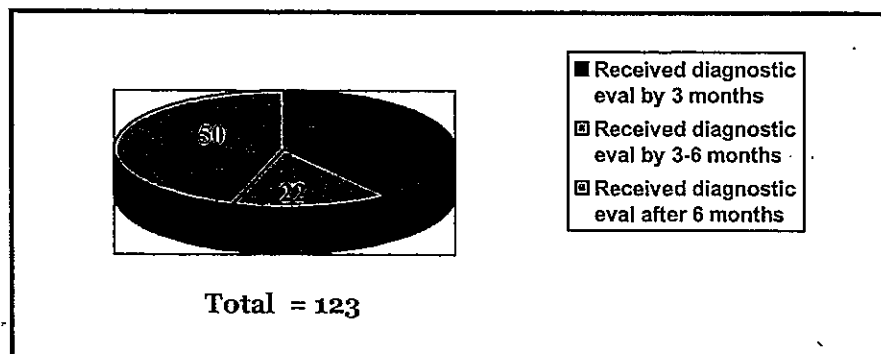
**Figure 5. Number of Infants/Children diagnosed with a unilateral (in one ear) or bilateral (in both ears) permanent hearing loss**



**Figure 6. Number of diagnostic evaluations performed and type\* of diagnostic outcomes**



**Figure 7. Numbers and ages of infants receiving diagnostic evaluations**



# Providers of Follow-up Infant Hearing Screening

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## Batesville

Batesville Surgery & CT Imaging, 501 Virginia Drive, S-A, Batesville, AR 72501; Phone: 870-698-1846

## Benton

Saline Audiology Associates, #5 Medical Park Dr., Suite 101, Benton, AR 72015; Phone: 501-778-3868

## Conway

Central Arkansas ENT Clinic, 2200 Ada Avenue, Suite 202, Conway, AR 72034; Phone: 501-327-3929 or 800-419-3929

Ear, Nose, & Throat Center of Conway, 2425 Dave Ward Drive, S-101, Conway, AR 72034; Phone: 800-304-5158 or 501-932-7600

## Crossett

Audiology Resources (Satellite Clinic)

To make appointment please call 870-862-5339 (El Dorado number) or 800-628-6967

## El Dorado

Audiology Resources, 530 West Faulkner, El Dorado, AR 71730; Phone: 870-862-5339 or 800-628-6967

South Arkansas Otolaryngology, 613 Thompson St., El Dorado, AR 71730; Phone: 870-863-6995 or 800-531-3277

## Fayetteville

Ear, Nose, & Throat Clinic, 4255 North Venetian Lane, Fayetteville, AR 72703; Phone: 479-521-1238

## Fort Smith

AR Center for ENT & Allergy, 1500 Dodson Avenue, Fort Smith, AR 72901; Phone: 479-709-7405

Center for Hearing, Ltd., 4300 Rogers Avenue, Suite 15, Fort Smith, AR 72903; Phone: 479-785-3277

Cooper Clinic, 6801 Rogers Avenue, Fort Smith, AR 72903; Phone: 479-478-3541

## Forrest City

Memphis Hearing Aid and Audiological Services, 1501 Dawson Rd., Forrest City, AR 72335  
Phone: 870-270-9491 or 901-682-1529

## Hope

Audiology Resources (Satellite Clinic)

To make appointment please call 870-862-5339 (El Dorado number) or 800-628-6967

## Hot Springs

Tina Pullin, First Step, Inc., 407 Carson St., Hot Springs, AR 71901; Phone: 501-624-6468

## Jonesboro

Otolaryngology & Facial Surgery Center, 621 E. Matthews, Jonesboro, AR 72401; Phone: 870-932-6799

## Little Rock

Arkansas Children's Hospital Audiology, #1 Children's Way, Little Rock, AR 72202; Phone: 501-364-4319

Arkansas Otolaryngology Center, 10201 Kanis Road, Little Rock, AR 72205; Phone: 501-227-5050

Little Rock Audiology Services, 500 S. University, #405, Little Rock, AR 72205; Phone: 501-664-5511

UALR Speech and Hearing Clinic, 5820 Asher Avenue, University Plaza, Suite 600, Little Rock, AR 72204  
Phone: 501-569-3155

**Magnolia**

Audiology Resources (Satellite Clinic)

To make appointment please call 870-862-5339 (El Dorado number) or 800-628-6967

**Mountain Home**

Ear, Nose & Throat Associates, 626 Burnett Drive, Mt. Home, AR 72653; Phone: 870-424-4200

**Paragould**

William Bulkley, M.D., P.A., 1000 W. Kingshighway, Suite 3, Paragould, AR 72450; Phone: 870-240-8020

**Pine Bluff**

South Arkansas Hearing Services, 1408 West 43<sup>rd</sup> Avenue, Pine Bluff, AR 71603; Phone: 870-535-3002

**Rogers**

NW Arkansas Ear, Nose & Throat Clinic, 5204 West Redbud Street, Rogers, AR 72758; Phone: 479-636-0110

**Searcy**

Scott Ballinger, M.D., 1907 E. Beebe-Capps Expressway, Searcy, AR 72143; Phone: 501-305-2251

**Springdale**

Ear, Nose, & Throat Center of the Ozarks, 601 W. Maple Avenue, Suite 213, Springdale, AR 72764; Phone: 479-750-2080

Community Clinic, 614 East Emma Avenue, Suite 300, Springdale, AR 72764; Phone: 479-751-7417

**West Memphis**

Mark Clemons, M.D., 228 W. Tyler Avenue, Suite 100, West Memphis, AR 72301; Phone: 870-732-3142

**Memphis, TN**

Baptist Memorial Hospital, Dept. of Audiology, Suite 210, 6025 Walnut Grove Road, Memphis, TN 38120  
Phone: 901-226-5682

Methodist University Hospital, Hearing and Balance Center, Audiology, 1265 Union Avenue, Memphis, TN 38104  
Phone: 901-516-7377

