



**January 1, 2010
through
December 31, 2010**

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

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 submits an annual report to the Universal Newborn Hearing Screening, Tracking and Intervention Advisory Board. This report contains information from Arkansas's 10th 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 2010 will outline strengths and weaknesses of the IHP Program, thereby directing the development and expansion of goals toward improvement.

A successful statewide IHP 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

The Infant Hearing Program (IHP) at the Arkansas Department of Health (ADH) serves as the state Early Hearing Detection and Intervention Program (EHDI). Funding of the IHP 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) 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 Infant Hearing Program is to ensure quality developmental outcomes for infants identified with hearing loss. The IHP 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 IHP, located in the ADH's Center for Health Advancement, is the program that 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 2010.

Post-Discharge Testing (**Table 4**)

- **Table 4** provides details for 2010 on the number of the hearing rescreens performed post-discharge. The total percentage of recommended rescreens performed by hospitals and other providers increased from 74.1% in 2009 to 80.14% in 2010. Additionally, some infants that did not pass the initial hearing screen by-passed the post-discharge screen and received diagnostic audiology evaluation. This increased the 2010 overall return rate from failed initial screening to 83%.

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

Organizational Profile

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, Metabolic Newborn Screening, and the ConnectCare Program.

Current Program Team

Consuela Morris, Au.D., Coordinator – Dr. Morris joined the Infant Hearing Program in November 2010. She has over 20 years of audiological service to deaf and hard of hearing individuals in Arkansas. Certified by the American Board of Audiology since 2008, she has expert proficiency level in the evaluation, diagnosis, rehabilitation and prevention of hearing disorders and is skilled and knowledgeable of the audiometric needs of all age groups: pediatric to adult.

Stacy Webb, RN, Follow-up Consultant – 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 where she performed many health assessments including audiograms. Stacy brings 20 years of nursing experience and expertise to her position as Follow-up Consultant. 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, the creation and maintenance of databases for health care facilities, as well as grant application preparation, review and approval. In conjunction with the Coordinator, 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., Public Health Educator – 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-ITS, and evaluating the effectiveness of program data systems change.

Joycelyn Pettus, Parent-to-Parent Consultant – Joycelyn joined the Program in March 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 Infant Hearing Program's liaison to parent support groups.

Joanie Ward, Administrative Specialist–Hired in 1987 specifically to work with the “baby program”, Joanie's responsibility included 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. After 28 years of service, Joanie retired from State Government on July 29, 2011. This position will be vacant for approximately six months until a replacement is hired.

Shirley Brewer, Administrative Specialist– Shirley has extensive experience with the Infant Hearing Program. Her involvement includes experience in data processing, WIC, Vital Records, AIDS/STD and presently Child and Adolescent Health. She has served in the capacity of secretary for the Infant Hearing Program since 1998.

2010 Program Highlights

The EHDI Program has been successful in meeting activities that will result in quality developmental outcomes for all infants and young children identified with hearing loss.

- **Linkage to Electronic Birth Certificate (EBC)**
The EHDI 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 state-of-the art 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). Early 2012 is the projected "Go Live" date.
- **Non-Traditional Hearing Screening Sites Pilot Project**
This project (a collaborative agreement with the University of Arkansas Medical Sciences (UAMS), College of Health Related Professions – Department of Audiology) offered parents a pediatric audiology provider for follow-up hearing screening for their child, provided a no-charge hearing screen for the newborn/infant, and provided enhanced hands-on training for audiological graduate students. Findings from Phase I indicated: 1) a lack of accurate and current follow-up phone contact information which continues to serve as a major barrier to follow-up, 2) revealed a scarcity of local area resources (audiologists) providing rescreens and

diagnostic evaluations to families needing this follow-up testing, and 3) revealed that the “non-traditional” sites did not influence participation.

- **Memorandum of Agreement (MOA) Results**

A memorandum of agreement formalizing a long-standing working relationship with the Part C Program for Arkansas housed in the Department of Human Services paved the way for the reciprocal exchange of information. The Agreement, effective January 1, 2010, formalizes the referral and follow-up for early intervention services for all infants/children (0-3 years of age) diagnosed with hearing loss.

- **Site Visits**

The IHP Follow-up Coordinator makes site visits to birthing hospitals to offer technical assistance and ensure that the facility is following newborn hearing screening protocol. 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.

- **IHP Sponsored Advertisement**

The IHP purchased a full-page advertisement in the 2010 *Happy Birthday Baby Book*, a project sponsored by the Arkansas Department of Health and the Arkansas Department of Human Services. The free booklet includes valuable information for the care of mother and baby. Approximately 15,000 expectant mothers receive the booklet annually.

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

This Program continues to enable universal newborn hearing screening hospitals to borrow equipment when their own is down for repair. The program consists of three (3) 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 60 days. The AABR equipment was on loan for a total of 480 days to various hospitals statewide

- **IHP Sponsored Conferences and Workshops**

The Program hosted the annual workshop for the Universal Newborn Hearing Screening (UNHS) nurses working in birthing hospitals. This year's workshop featured sessions on hearing screening training, cytomegalovirus (CMV), and the Joint Committee on Infant Hearing 2007 Position Statement.

- **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 2010 is 97.93%.

- **Hispanic Media Initiatives**

The Program utilized Hispanic Public Service Announcements (PSAs) to raise awareness of the need and importance of infant hearing screening and follow-up. PSAs ran at different times of the day each day for three weeks on stations in two markets with large Hispanic populations, Nashville and Springdale. The Program utilized print media, the El Latino newspaper, to reach Hispanics residing in Central Arkansas. Ads ran for three consecutive weeks including the once-a-year children's issue.

Future Goals

- 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 will include an electronic Infant Hearing Module. Components of the module include the submission of hearing screening data, diagnostic entry of additional testing, and physician access through a secure network system. Spring 2012 is the projected “Go Live” date.
- 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 National Initiative on Child Health Quality (NICHQ) Learning Collaborative to identify points in the hearing screening and intervention system where babies and families get “lost” and to identify some changes to prevent that from happening. Participation is a requirement by the Health Resources and Services Administration (HRSA).
- Initiate technical services contract with the University of Arkansas Medical Sciences, College of Health Related Professions- Department of Audiology for Phase II of a project that provides Arkansas audiologists increased training opportunities, offers parents options for obtaining hearing screening at locations closer to home, and results in development of a model to improve lost-to-follow-up rates.
- Formalize Memorandums of Agreement with the following: 1) Arkansas School for the Deaf, Outreach Support Services, 2)

Arkansas Early Head Start Program, 3) Regional Audiologists, and the 4) ADH Lay Midwifery Program.

- 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.
- Annual review and update of a Memorandum of Agreement with Part C Program (First Connections, Early Intervention Services Program) housed in the Department of Human Services regarding referral and follow-up for early intervention options for all infants/children (0-3 years of age) diagnosed with hearing loss.
- On-going commitments regarding:
 - site visits to birthing hospitals to offer technical assistance and as a quality assurance tool for newborn hearing screening protocol
 - loaner program which enables Universal Newborn Hearing Screen hospitals to borrow equipment when their own is down for repair
 - coordination with other stakeholders across the state, particularly through quarterly stakeholder meetings and continuing ongoing collaborations with groups that support EHDI screening, identification, and intervention goals
 - revision of written guidelines for birthing hospitals based on the recommendations of the Joint Committee on Infant Hearing (JCIH) 2007
 - monitoring usage of EHDI's website located at www.Healthy.Arkansas.gov under Infant Hearing, Healthy Hearing, in English and Spanish, to determine benefits resulting from website enhancements, e.g., counting "hits" to the website.

Hospital Performances

Each birthing hospital designates a person to be responsible for its newborn hearing screening program to act as the point of contact between the facility and the Arkansas Early Hearing Detection and Intervention (EHDI) program. The hospital must ensure trained screening personnel to carry out the newborn hearing screening using appropriate technology.

The hospitals disseminate brochures, provided by the EHDI program, and screening results to the parent 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 written results of the newborn hearing screen. Hospitals have the option of faxing hearing screen results to the Arkansas EHDI program's secure (HIPAA compliant) fax machine or forwarding them by mail no later than the fifteenth (15th) 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 10 years of EHDI existence, hospital referral rates show steady improvement toward the expected rate due to improved screening techniques. Currently, 61.36% of reporting hospitals have a screening referral rate of less than 5%, 27.27 % have a screening referral rate of 5-10%, and 11.36% have a referral rate of greater than 10% for 2010.

Hospital Performances 2010

Table 1. Summary data reported by Arkansas's forty-four (44) Universal Newborn Hearing Screen (UNHS)* hospitals

| State Totals Jan 2010 - Dec 2010 | Hearing Screens Performed Before Hospital Discharge | | | |
|-------------------------------------|---|--------|--|--------|
| | | | | % |
| Total Hospital Births: 37,223 | ** | 36,673 | | 98.52% |

| Hearing Screens Passed | | Hearing Screens Referred | |
|------------------------|--------|--------------------------|-------|
| | % | | % |
| 35,057 | 95.59% | 1,616 | 4.41% |

**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 15 – 16

Hospital Performance 2010

Table 2. Summary table for overall performance of Arkansas's 44 UNHS hospitals

Percentage of hearing screens performed prior to hospital discharge (36,673) compared to hospital births (37,223) —————→ 98.52%

Percentage of hearing screens performed prior to hospital discharge (36,673) compared to all Arkansas births (37,533) —————→ 97.71%

Percentage of all initial hearing screens (36,779) compared to all Arkansas births (37,533) —————→ 97.99%

Figure 1 Percent distribution of screening methods used by UNHS hospitals 2010

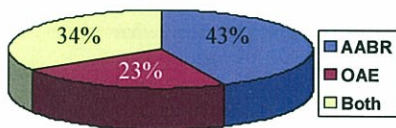


Table 3. Screening methods used by UNHS hospitals 2010

| UNHS Hospital Screening Method | # of hospitals | % of hospitals |
|--|----------------|----------------|
| Hospitals - Otoacoustic Emissions (OAE) Method | 10 | 23% |
| Hospitals - Automated Auditory Brainstem (AABR) Method | 19 | 43% |
| Hospitals with OAE and AABR Methods | 15 | 34% |
| Total Hospitals | 44 | 100% |

Post-Discharge Hearing Screen Analysis 2010

Hospitals with Post Discharge Hearing Screening Programs 25

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

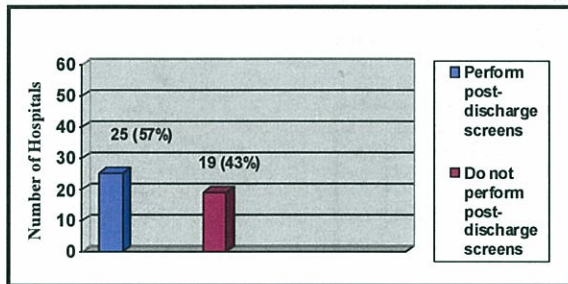
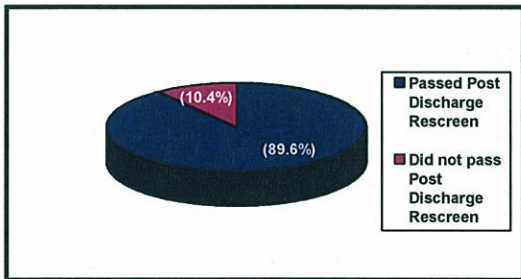


Table 4. Summary performance data for Arkansas's birthing hospitals and audiological sites that provides post-discharge hearing rescreeens

| | | | |
|--|-------|--|---------|
| # of Post-Discharge Rescreens Performed | 1,295 | % of Infants Returning for Post-Discharge Rescreens | 80.14%* |
| # of Infants who Passed the Post-Discharge Rescreens | 1,160 | % of Infants who Passed the Post-Discharge Rescreens | 89.6% |
| # of Infants who Did Not Pass the Post-Discharge Rescreens | 135 | % of Infants who Did Not Pass the Post-Discharge Rescreens | 10.4% |

*Percentage based on number of failed hospital screens (1,616) and the number of post-discharge rescreeens performed (1,295)



* Note: Of the 1,622 infants who did not pass the initial hearing screen, 55 received a diagnostic audiology evaluation rather than a post-discharge rescreeen. This contributed to an overall 83% return rate from initial hearing screen.

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

Diagnostic Information 2010

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

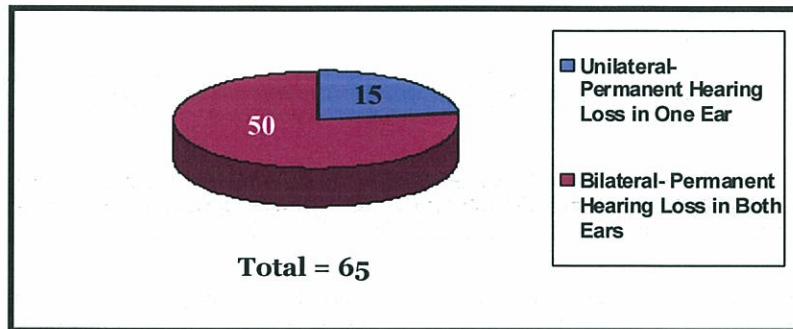


Figure 6 Number of diagnostic evaluations performed and type* of diagnostic outcomes

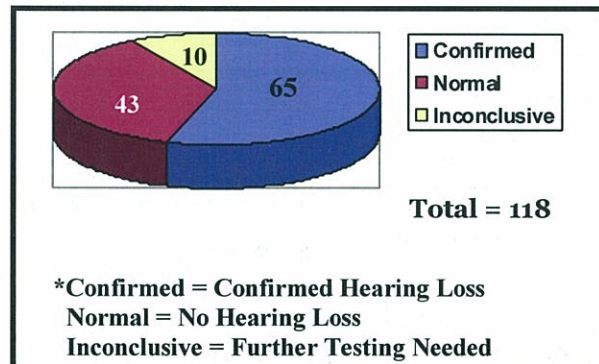
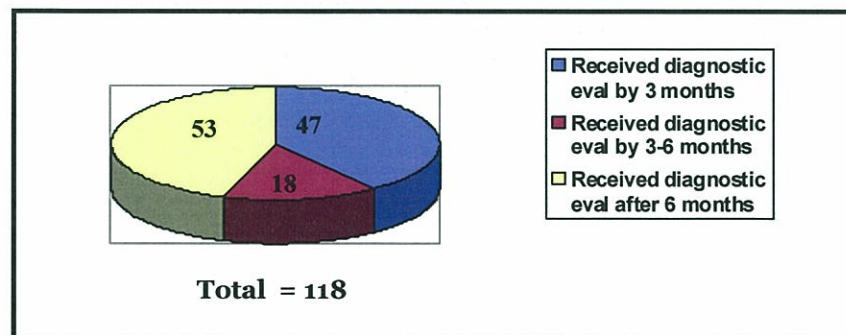


Figure 7 Numbers and ages of infants receiving diagnostic evaluations



Providers of Follow-up Infant Hearing Screening

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 43rd 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