MISSOURI NEWBORN HEARING SCREENING PROGRAM

GUIDELINES FOR HOSPITAL-BASED NEWBORN HEARING SCREENING PROGRAMS

Guidance critical to the successful implementation of hospital newborn hearing screening programs is provided in the following documents:

Joint Committee on Infant Hearing (JCIH). Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. *PEDIATRICS Vol. 120 No. 4 October 2007, pp. 898-921.*
Available at: http://www.jcih.org/
(Referred to in these guidelines as JCIH.)

Revised Statutes Missouri (RSMo). Chapter 191, Section 191.925. Screening for hearing loss, infants, when--procedures used--exemptions--information provided, by whom--no liability, when.
Available at: http://www.moga.mo.gov/statutes/c100-199/1910000925.htm
(Referred to in these guidelines as RSMo 191.)

Missouri Code of State Regulations (CSR), Division 40, Chapter 9. Rules of the Department of Health and Senior Services, Division of Maternal, Child and Family Health, Universal Newborn Hearing Screening Program.
Available at: http://health.mo.gov/living/families/genetics/newbornhearing/lawsregs.php
(Referred to in these guidelines as CSR 40.)

The Missouri Department of Health and Senior Services (DHSS) recommends that Missouri hospitals review the above documents for the purpose of planning, implementing, and maintaining successful newborn hearing screening programs. This guideline is a supplement to the above documents and provides additional information that is specific to Missouri. DHSS recognizes that procedure can vary significantly from hospital to hospital depending on each hospital's resources and established procedures. These guidelines are meant to aid hospitals in efforts to obtain newborn hearing screening benchmarks described under "Quality Control and Monitoring," on page 5 of this document.

HOSPITAL PROGRAM MANAGEMENT AND WRITTEN POLICIES/PROCEDURES

Hospitals should designate a staff member to act as the hospital newborn hearing screening program manager (PM) (CSR 40). The PM is responsible for reviewing and updating policies and procedures, communicating with the Missouri Department of Health and Senior Services (DHSS), reviewing hospital statistics on a monthly basis, and training and retraining screening staff.

Hospitals should develop written policies and procedures for the newborn hearing screening program. Items to be included in the policies and procedures can be found in

the Missouri Code of State Regulations – 19 CSR 40-9.020 – and are described in these guidelines (CSR 40).

It is the responsibility of the hospital program manager to track all babies who do not pass their initial hearing screening to make sure they receive audiologic follow-up. In order to reschedule, the program manager is also responsible for contacting the parent and pediatrician if the follow-up appointment is not kept. If a second appointment is not kept, then the hospital is responsible for notifying DHSS and the primary care physician. (JCIH)

EQUIPMENT

Missouri hospitals should utilize devices that measure otoacoustic emissions (OAE) or the auditory brainstem response (ABR). A description of the two methodologies can be found in the JCIH Year 2007 position statement. Equipment considerations include the following:

- All hospitals utilizing non-audiologists to conduct day-to-day screenings should use equipment that provides an automated pass or refer result (JCIH and CSR 40). A list of such equipment is found on the website of the National Center for Hearing Assessment and Management (NCHAM) at: http://www.infanthearing.org/.
- Many factors should be examined when choosing appropriate equipment. These factors include: the number of births per day; the number of well-baby versus neonatal intensive care unit (NICU) births; the skills of screening personnel; the frequency of screening for designated screening staff; the cost of hearing screening equipment and the equipment's required disposable supplies.
- Hospitals that have level 2 or higher NICUs should make ABR screening available to newborns that are at risk for neural hearing loss (JCIH).
- The PM should review the JCIH Year 2007 position statement prior to purchasing equipment. It is also recommended that hospitals consult with at least two of the three following resources before purchasing equipment:

Gordon N. Stowe Assoc. Sales	Natus Medical Sales and Service	DHSS Audiologist Consultant: Kris Grbac
636-379-6435	**800-303-0306**	**417-836-6677**

SCREENING LOCATION

Hearing screenings should take place in the quietest room possible.

SCREENING STAFF

Each hospital should evaluate its own resources to determine which staff member(s) will be responsible for conducting screenings. DHSS recommends that hospitals take measures to ensure that the screening staff has the opportunity and responsibility to conduct hearing screenings frequently as opposed to occasionally. Whenever possible, and especially in hospitals with over 1,500 births per year, the use of technicians for

hearing screenings should be considered. A hearing screening technician is considered a staff member whose only responsibility is to conduct hearing screenings and complete required paperwork and reporting for each screening. The advantage of utilizing a technician is that it provides the technician the opportunity to conduct enough hearing screenings to become highly efficient. Screening efficiency results in lower refer rates and less newborns becoming lost to follow-up. (A newborn can become lost to follow-up when they do not pass a hearing screening in the hospital, but never receive follow-up screening or diagnostic examination.) When a technician is not possible, staff such as a nurse, lab technician, or unit secretary can conduct the screening.

Staff responsible for conducting hearing screenings should be trained by an experienced hearing screener. An audiologist should participate in planning the training (JCIH). If an audiologist is not available at the hospital level, the hospital should consult with the DHSS Missouri Newborn Hearing Screening Program (MNHSP). Training should include the supervised screening of as many newborns as possible during a single training session and should never be completed upon the screening of only one newborn.

Staff responsible for conducting hearing screening should be credentialed annually by the PM. For annual training purposes, staff that are responsible for a large variety of duties during shifts (e.g. nurses), should be relieved of patient care duties for one shift per year and directed to conduct hearing screenings during that time. The object of this training activity is to provide screening practice on a number of consecutive newborns. For small hospitals with lower numbers of births per day, the PM should attempt to make arrangements for training with hospitals that have higher numbers of births per day.

Hearing screeners should be trained on the following skills: inserting the probe, knowing when to cease attempts to pass a newborn, identifying appropriate time to conduct screening, operating equipment, completing the required result form, assessing infant state and environmental factors during screening, and relaying information to parents. Particular emphasis should be given to communicating the importance of follow-up to parents of newborns that do not pass.

SCREENING PROTOCOL

Hearing screenings should be carried out under the guidance of a written set of rules or protocols (CSR 40).

The following should be included in written protocols/procedures:

- Newborns that are 24 hours old and in an agitated state should not be screened. Screening staff should return to such newborns later in the day, preferably after feeding.
- Newborns that are younger than 24 hours and do not pass should be screened the next day. If early discharge is imminent, the newborn should be screened as close to discharge as possible.

- Parents of newborns who receive a refer result after the age of 24 hours should receive a clear and written plan that ensures the appropriate follow-up services are made known to the parents.
- Each hospital should use one of the following protocols for those newborns who are referred for follow-up:

    - Repeat screening at the hospital of birth in 1 to 2 weeks.
    - Repeat screening at a specific site other than the hospital of birth in 1 to 2 weeks.
    - Refer to a diagnostic audiology clinic (JCIH).

- The family should be provided the following information in writing: date of rescreening, time of appointment, and name and address of where the rescreening will occur. The family should be provided with a phone number they can use to obtain more information or reschedule appointments.
- Newborns born by C-section are apt to have more fluid in the ear for longer periods. It is appropriate to conduct a third day screening when the newborn born via C-section has not passed on two previous days.
- When conducting repeat screenings after discharge, both ears should always be rescreened or evaluated (JCIH).
- Newborns that refer on an ABR screening must receive an ABR rescreen. An OAE screening should never follow a referred ABR screening (JCIH).

PROVIDING INFORMATION (JCIH, RSMo 191, CSR 40, and NCHAM)
A plan for providing information should include:

- How to provide information about the hearing screening to parents before or at time of screening.

    - See RSMo 191.925 (7) for specific information to be included.
    - See http://health.mo.gov/newbornhearing/publications.php and http://health.mo.gov/warehouse/e-literature.html for "Your Baby's First Hearing Test" brochure available at no charge from DHSS.

- How to provide results of hearing screening to parents.

    - Written verification of results regardless of status is required. Parents whose newborns do not pass the screening should receive verbal information from a knowledgeable source in addition to written information.
    - See http://health.mo.gov/newbornhearing/publications.php and http://health.mo.gov/warehouse/e-literature.html for "Your Baby Needs Another Hearing Test" brochure available at no charge from DHSS.

- How to record results of hearing screening in medical record.

- How to provide results of hearing screening to physician/medical home.

RECORD KEEPING

To ensure that each newborn receives a hearing screening prior to discharge, hospitals should utilize a system to compare nursery census to those newborns who either need or have completed a hearing screening. Comparison should be made using either a paper system or electronic medical records.

A daily log can be used in the following manner:

- The daily log should be prepared at the beginning of each day and include the names of all newborns eligible for hearing screening that day. Names should be determined by utilizing some form of hospital or nursery census.
- The PM should determine the information necessary to the daily log, but should include the newborn's name, date of birth, screening date, and screening result.
- Information on the daily log can be used to calculate quality monitor measures. Measures may include the screener name or initials, a code or indication that the required result form has been completed, and a code or indication that the screening result has been placed in the medical record.
- The staff member conducting hearing screenings should be responsible for completing the daily log.
- When the daily log is initiated for the day, the previous day's log should be consulted to ensure that any newborn not passing the previous day or not having a hearing screening the previous day is placed on the current day's log.

REPORTING

Hospitals should report screening results within 7 days of the screening date (CSR 40). The preferred reporting method is use of the hearing portion of the "Missouri Initial Newborn Screening" form. The form should be filled in completely with screening date, screening result, newborn's demographic information, and the submitting hospital's name and address.

A system should be in place to ensure that each newborn's hearing screening form is placed in a designated location, completed and sent to DHSS. It is recommended that hospitals have written procedures addressing the management of forms. Hospitals should evaluate their own procedures for managing the initial screening forms and utilize available resources to design procedures that ensure the hearing forms are handled effectively and efficiently.

Reporting can be accomplished in the following manner:

- Determine who completes the demographic information on the initial newborn screening form.
- Assign that person to remove the hearing portion of the form AFTER demographic information has been entered.
- Place hearing portion of forms in a designated location where hearing screener can retrieve on a daily basis.

- Complete initial newborn screening forms each day for the newborns screened. If a newborn did not pass and will be screened the next day, place the blank form in a designated place for completion the next day.
- Place completed forms in a designated location (a file folder, a drawer, etc.) to await mailing to DHSS. Mail bundles of forms to DHSS weekly, at the minimum.

When impossible to report a hearing screening result on the hearing portion of the newborn screening form, the "Hearing Only" result form can be used. The form is available online at: http://health.mo.gov/newbornhearing/guidelines.php or can be ordered by calling 1-800-877-6246.

QUALITY CONTROL AND MONITORING

Hospitals should conduct regular reviews of screening statistics for the purpose of quality monitoring. At a minimum, the following quality indicators should be monitored:

- Percent of newborns screened – number screened/number born
  - Benchmark – 95% or greater
- Percent referred – number referred/number screened
  - Benchmark – 4% or less
- Percent lost – number lost/number referred
  - Benchmark – 10% or less

Quality indicators should be monitored approximately once monthly. Hospitals with a smaller number of births may want to consider longer intervals between monitoring. Additional benchmarks are described in JCIH 2007.

Hospitals that consistently screen less than 95% of newborns should evaluate if newborns are being missed or if there is a reporting problem. DHSS provides lists of missed newborns on an ongoing basis to the PM. Names should be compared to the hospital screening log in order to determine if newborns did not have a screening or if a screening was completed but not reported.

If newborns are truly being missed, hospitals should re-evaluate procedures that ensure each newborn receives a hearing screening. If newborns are being screened, but not reported, hospitals should evaluate procedures for ensuring forms are completed and submitted to DHSS. Assistance with identifying missed newborns is available through DHSS Missouri Newborn Hearing Screening Program Follow-up Coordinators at 1-800-877-6246.

Hospitals that consistently refer greater than 4% of newborns should seek technical consultation with an audiologist. For hospitals that do not have access to on-site audiology, DHSS provides audiological technical consultation via a contractual arrangement with Missouri State University (MSU). Consultation can be requested by calling Ms. Kris Grbac at 1-417-836-6677.

For hospitals that conduct on-site rescreening, the refer rate can be calculated after final/outpatient rescreening. (See Table 1 for calculation.) If refer rate is 4% or less after outpatient rescreens, no further action is necessary. However, hospitals should realize the importance of continued efforts to ensure that newborns that do not pass as an inpatient are scheduled for repeat screenings. If the refer rate is greater than 4% after the final screen, hospitals should seek technical consultation with an audiologist. DHSS provides technical consultation via a contractual arrangement with Missouri State University. Consultation can be requested by calling 1-417-836-6677.

Table 1 – Figuring Refer Rate

Number Screened	100	
Number Referred	20	
Calculation	20/100	Refer Rate = 20%
Number Passed on Rescreen	10	
Calculation	20 (referred as inpatient) -10 (passed rescreen) 10 10/100	Refer Rate after outpatient screens = 10%

THE HOSPITAL'S ROLE IN ENSURING THAT FOLLOW-UP SERVICES ARE OBTAINED BY FAMILIES

Revised Statute Missouri 191.928 requires DHSS to operate a monitoring and surveillance system of newborns that do not pass a hearing screening at birth for the purpose of confirming the presence or absence of hearing loss, and referring those with hearing loss for early intervention services. To this end, DHSS created a data management system in the Missouri Health Strategic Architecture and Information Cooperative (MOHSAIC). DHSS uses the information in MOHSAIC to contact families of newborns who do not pass the hearing screening and provide reminders about services needed. DHSS also uses the information in MOHSAIC to track the diagnosis of hearing loss and the provision of intervention services.

Hospitals ensure appropriate services to newborns by providing timely, accurate information to DHSS and by educating families on the importance of obtaining timely evaluation and early intervention. Hospitals should provide specific instructions to families on how to obtain these services. Hospitals should also be sure that physicians caring for newborns are educated about the importance of follow-up for newborns that do not pass the hearing screening.

Hospitals can further assist the DHSS in ensuring that follow-up services are provided by:

- Asking parents of newborns that need follow-up for their:
    - Current phone number.
    - Alternate phone number.
    - Name and contact information of physician that will be caring for newborn.

- Scheduling rescreening time/place prior to discharge. Inform family in writing. An example of written confirmation can be viewed in Appendix 1. To use the "Hearing Screening Referral" form:
    - Fax completed "Hearing Rescreen Referral" form found below in Appendix 1 and on the back of the DHSS brochure, "Your Baby Needs Another Hearing Test" to DHSS.
    - Give copy of completed form to family.

- If scheduling rescreening appointment prior to discharge is not possible, hospital should give families specific instructions on how to schedule the appointment. If a local rescreening resource is not known to hospital, consult the "Audiologic Service for Missouri Newborns" found on the DHSS website at: http://health.mo.gov/newbornhearing/publications.php or contact DHSS at: 1-800-877-6246.

Hospital summary statistics for any specific time period are available upon request. Please make requests to audiology consulting agency - Missouri State University.
Contact person for audiology:

Kris Grbac
Office phone: 417-836-6677
Cell phone: 417-838-7697
Email: krisgrbac@missouristate.edu

Appendix 1

HEARING RESCREEN REFERRAL

An appointment has been made for your baby's next hearing test.

_____

Baby's Name (include last name at birth and last name that will appear on birth certificate, if different)

_____

Baby's Date of Birth

_____

Place of Test and Phone Number

_____

Date and Time of Appointment

_____

Your (Mom/Dad/Guardian) Name and Phone number

_____

2nd Phone Number where you can be reached

_____

Name of your Baby's Doctor

*You will receive a reminder phone call one business day before your child's appointment.

HOSPITAL: Fax this completed form to DHSS at **1-573-751-6185** then give to parent.
DHSS will schedule reminder call.

_____

Birth Hospital

_____

Name and Phone Number of Contact Person at Hospital