

Outsourcing Hospital-Based Newborn Hearing Screening: Key Questions and Considerations

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Abstract

This article reviews the essential components of a high quality newborn hearing screening program and examines important questions and considerations for hospitals considering outsourcing of newborn hearing screening. Specific issues include hiring, training, and evaluation of personnel; special considerations for the NICU; implications of a screening model that requires families to “opt-in;” implications for choice of technology; instrumentation and screening protocols; tracking and surveillance for infants who do not pass the initial screening; billing and collection practices; and the impact of outsourcing on a hospital’s institutional mission.

Acronyms: EHDi = Early Hearing Detection and Intervention; HIPAA = Health Insurance Portability and Accountability Act; HL = hearing loss; JCIH = Joint Committee on Infant Hearing; NCHAM = National Center for Hearing Assessment and Management; NICHQ = National Institute for Children’s Health Quality; NICU = neonatal intensive care unit; S-ABR = screening auditory brainstem response; S-OAE = screening otoacoustic emissions

For nearly 20 years, newborn hearing screening has been a standard of care throughout the United States. All 50 states and U.S. Territories provide newborn hearing screening and most have passed legislation mandating hearing screening. As a result, more than 97% of all newborns in the United States are now screened for hearing loss (Centers for Disease Control and Prevention, 2013). Historically most hospitals have assumed direct responsibility for newborn hearing screening but there is recent evidence of growth in the number of hospitals choosing to hire a contractor to provide this service. A survey conducted by the National Center for Hearing Assessment and Management (NCHAM) in November 2015, found that 25 out of 59 U.S. States and Territories (42%) reported an increase in the number of hospitals outsourcing newborn hearing screening over the past three years (NCHAM, 2015). The purpose of this article is to review the components of a quality newborn hearing screening program and to discuss important questions and considerations related to outsourcing. We will focus on: (a) prerequisites of a successful newborn hearing-screening program regardless of who performs the service, and (b) key questions and considerations for hospitals considering an outsourcing model.

Hospital-based newborn hearing screening is a complex and multifaceted endeavor. Essential components of a well run, quality program include coordination, oversight, accountability, sustainability, and protocols that reflect best practices; this is true not only for the initial screening but for tracking and follow-up that occur for infants who do not pass and/or require monitoring. Institutions must stay abreast of current guidelines for best practice and

comply with established state and national benchmarks. This generally requires a designated program manager to monitor and update policies, procedures, and protocols and to implement a competency-based training program to assure screening staff are well trained. Ongoing monitoring of performance is essential in assuring program effectiveness and efficiency. Also required is coordination of schedules to ensure full-time coverage and accountability for nursery admissions. Other responsibilities include monitoring of equipment and supplies, meeting calibration and maintenance requirements specific to each equipment manufacturer, and procedures to address equipment problems when they arise. Coordination and oversight also include monitoring of quality indicators such as pass/fail rates, missed screens, and corrective action if quality indicators decline.

In addition to these technical and administrative components, a quality program should promote buy-in from key stakeholders and support staff within the institution involved in newborn care. This includes communication with neonatologists, pediatricians, audiologists, nursing staff, discharge coordinators, clinical educators, hospital administrators, midwives, chief nursing officers, chief executive officers, information technology personnel, and risk managers. Also important is ongoing internal advocacy and awareness with hospital administrators and other stakeholders to sustain the institutional commitment and ensure the necessary human and institutional resources.

Newborn hearing screening also requires the implementation of numerous policies, procedures, and protocols designed to fit each hospital’s unique footprint.

Protocols include the timing of screenings based on the average length of stay; the number of inpatient screening attempts; outpatient screening protocols; choice of screening technology and modality which includes screening otoacoustic emissions (S-OAE), screening auditory brainstem response (S-ABR), or both; stimulus levels; recording parameters that determine pass/fail criteria; and when applicable, compatibility of instrumentation with state tracking and data management systems. Hospitals must stay current with statutory rules, regulations, and guidelines that impact protocols, and partner with state early hearing detection and intervention (EHDI) programs to ensure accurate, comprehensive, and timely reporting of screening outcomes. In addition, standardization regarding the content and method of communication with families must be considered before, during, and after the screening process especially in lieu of recent changes resulting in more programs moving to bedside screening in an effort to provide a family-friendly birthing experience. Procedures for documentation and dissemination of results internally and to physicians, families, and other stakeholders are hospital-specific but must be in place. For all infants who do not pass, there must be detailed provisions for tracking and follow-up. The National Institute for Children's Health Quality (NICHQ) recommendations (Russ, Hannah, DesGeorges, & Forsman, 2010), which have proven to be effective in this regard, include scheduling of outpatient appointments, multiple contact numbers for the family, reminder calls for appointments, and communication of findings and recommendations to the primary care provider. Also essential is compliance with institutional guidelines including the Health Insurance Portability and Accountability Act (HIPAA) and universal precautions as well as compliance with risk management and other relevant legal requirements.

For infants requiring special care in the neonatal intensive care unit (NICU) there are a number of special considerations. The NICU is a complex screening environment that requires effective communication and coordination with NICU staff and audiologists. Key components include close communication with NICU staff to determine when infants are medically stable for screening and documentation of risk factors. The method of communication with families and delivery of results is a critical consideration due to the many health complexities families are likely facing. Clear and explicit culturally sensitive instructions and education must be provided regarding referral of infants who do not pass, and next steps should be outlined for those who passed but have risk factors for late onset hearing loss. If an audiology program exists within the hospital, clear lines of communication must be established between the nurseries and the audiologists with procedures designed to ensure a smooth handoff (e.g., scheduling appointments, coordination of services, removing barriers that prevent seamless referrals). Protocols to ensure careful accounting and tracking of transfers must also be in place. Successful

hearing screening in the NICU requires effective and trusting inter-professional relationships among NICU staff, neonatologists, and the audiologists who provide technical and programmatic oversight.

Finally, a collaborative and coordinated effort with families, physicians, and the state EHDI program is essential for ensuring timely and appropriate referrals, minimizing loss to follow-up, and providing a safety net to keep babies in the system. A strong partnership with the state EHDI program is essential to synchronize activities and minimize duplication of follow-up efforts; and sharing of information must be done in compliance with statutes, rules, and guidelines, including consent to involve other agencies.

Outsourcing Newborn Hearing Screening

Outsourcing is a practice used by companies and institutions to reduce costs by transferring work to outside suppliers rather than completing it internally (Investopedia, n.d.). In the U.S. there are many models for outsourcing newborn hearing screening including local or regional contractors, community partnerships, corporate providers, and smaller companies. The concept of outsourcing is often well received by hospital administrators and nursing staff. Potential advantages include personnel and equipment provided and maintained by the contractor as part of a service delivery model described by some as a "turnkey" operation that relieves the hospital of all responsibilities associated with newborn hearing screening. The contractor handles hiring, training, scheduling, and monitoring of screeners as well as reporting outcomes to the state EHDI program at no charge to the hospital. Some providers have developed attractive educational materials in multiple languages.

There are, however, a number of key questions if outsourcing is being considered. As noted earlier there are dozens of essential components of a quality newborn hearing screening program. Hospitals contemplating an outsourcing model must ensure that each of these components is provided at the highest level of quality and compliance. In addition, several considerations unique to a contracted model must be carefully evaluated such as hiring of personnel; special considerations for the NICU; "opting in" vs. "opting out;" choice of technology, instrumentation, and screening protocols; essential functions related to tracking and surveillance; partnering with the state EHDI program; billing and collection practices; and the impact of outsourcing on a hospital's institutional mission. Each of these considerations will be examined separately.

Personnel

The selection of screening personnel is critically important in any setting. If newborn hearing screening is to be provided by a contractor, the hospital will need to be fully comfortable with the selection and training of personnel.

This raises several important questions. Will the training be competency-based and will there be a re-certification process? How will performance be monitored and what responsibilities are assumed? And how will each of these issues be addressed within the well-baby nursery and NICU. Communication with families is especially critical. How will the contractor interact with the family and explain findings and recommendations? How will effective communication and collaboration with hospital staff be established? Each of these critical questions must be carefully and thoroughly considered.

Special Considerations NICU

A successful screening program in the NICU will potentially yield the highest number of infants with sensory/neural hearing loss to be found in any screening environment. Indeed, the prevalence of permanent hearing loss for infants requiring special care can be 30 times higher than those with uncomplicated birth histories (Hille, 2007). The NICU is also the setting most likely to yield infants who are eventually diagnosed with auditory neuropathy spectrum disorder (Berg, Spitzer, Towers, Bartosiewicz, & Diamond, 2005). It is imperative, therefore, that screening/referral in the NICU be handled optimally. A number of unique and special issues exist in the NICU, however, that complicate the screening process. The NICU is a highly complex screening environment. Effective communication, coordination, and teamwork are essential. Babies are continuously being transferred in and out, and as they are transferred to another hospital, the time window for screening is often narrow. Some NICUs are moving directly to diagnostic ABRs performed by an audiologist for infants who do not pass. Would this be possible in an outsourced model and what are the implications?

Opting-in vs. Opting-out

In most hospitals, newborn hearing screening is a standard of care, meaning that screening occurs prior to discharge unless the family declines. EHDI programs across the nation worked for years to achieve this outcome and many consider it to be a major public health accomplishment. A hospital's decision to hire a contractor to perform newborn hearing screening creates an opt-in versus an opt-out model. That is, instead of newborn hearing screening being provided without separate consent, families are asked during the birth admission, typically at bedside, if they are interested in having this service provided. This raises several important questions. How would screening be presented to families and how would refusals be managed? What stakeholders will be contacted when a family declines (e.g., pediatrician, state EHDI program)? What is the risk to the hospital for babies not screened? Will declines increase because of potential burdens such as additional charges, immigration status, or other concerns families may have?

Choice of Hearing Technology/Instrumentation/Protocols

Many contractors will have preferred equipment and protocols. Larger corporate providers may be committed to using only the instruments they manufacture or those provided by companies with whom they have negotiated a volume discount. Although these arrangements are certainly understandable from a business standpoint, the hospital's choices may be limited for instrumentation, selection of protocols such as a two-step screening with S-OAE followed by S-ABR, or changes in instrumentation as new technology becomes available.

Tracking and Surveillance

Loss-to-follow-up and loss-to-documentation for infants who do not pass the initial hospital-based screening is a major concern throughout the nation (Gaffney, Green, & Gaffney, 2010). Furthermore, some infants pass the screening but have risk factors for later-onset hearing loss. If newborn hearing screening is outsourced, what specific services will the contractor provide and how will they be provided? How will the hospital monitor the accuracy and timeliness of documentation? This is important for internal/legal purposes and to ensure compliance with state EHDI reporting requirements. Many hospitals conduct outpatient rescreening. How will this be handled and how will the hospital ensure optimal tracking and surveillance?

Partnership with the State EHDI Program

There are a number of reasons why a strong alliance, partnership, and ongoing working relationship between the contractor and the state EHDI program is important. Partnering with the state EHDI program helps not only to coordinate follow-up efforts and ensure compliance with state reporting requirements, it also promotes optimal outcomes for babies and families. Alignment with state screening guidelines, best practice recommendations, available resources for families and providers as well as attendance at state stakeholder meetings are essential functions. If newborn hearing screening is outsourced who will monitor these activities and services and how will they be coordinated with the state EHDI program?

Billing and Collection

When the hospital provides newborn hearing screening, the charges are usually bundled with other laboratory tests and services and included in the periodic review of inpatient costs with the payer. If newborn hearing screening is outsourced, families are typically billed separately for newborn hearing screening. This raises an important question. How much will the contractor charge and what happens if there's an unpaid balance? We have observed that a typical charge is around \$250, but we have seen anecdotal reports of newborn hearing screening charges in excess of \$500. Many contractors state that they do not engage in aggressive collection efforts, but if the family is

uncomfortable expressing concern about their charges, they can be faced with a significant financial burden. Incidentally, based on anecdotal parent reports, some contractors do indeed pursue assertive balanced-billing collection. It should also be noted that some states require screening as part of the birth admission, thus precluding a separate bill.

There is another aspect of billing for newborn hearing screening that the authors find perplexing and somewhat paradoxical. Most hospitals do not think of newborn hearing screening as a profitable endeavor and indeed many have expressed concern about the cost of consumables and the staff time required for screening. Yet the same hospitals may be approached by for-profit contractors willing to compete for their business. The explanation for this appears to be related to the billing process and what is allowable for hospitals vs. contractors. Contractors employ their own personnel and own the equipment; this allows them to bill for both a professional fee and a technical component. In contrast, hospitals are only allowed to bill for the technical component. This results in higher reimbursement for contractors for both private insurance and Medicaid.

External Evaluation of the Contractor

Hospitals considering outsourcing must also determine how their contracted services would be monitored and evaluated. Although the contractor may assume responsibility for day-to-day operations, the hospital has ultimate responsibility for ensuring that each infant is appropriately screened and, when indicated, referred for outpatient rescreening or diagnostic assessment. If the hospital elects to outsource the screening program it must determine who will perform the external monitoring and evaluation, what the review will consist of, how often the review will be provided, and the time/costs associated with this activity. If the expertise needed to provide rigorous ongoing review does not exist within the hospital organization, an outside professional well-versed in newborn hearing screening (e.g., a pediatric audiologist) will be needed.

Internal Communication

Some hospitals, especially those in academic medical centers and children's hospitals, have a longstanding investment in early hearing detection and intervention and will prefer to manage the screening program internally at all levels. But apart from the specific activities related to hearing screening, it is important to be mindful of potential concerns elsewhere in the institution related to outsourcing. If outsourcing is being considered, in addition to hospital administrators and nursing staff, it is critically important to include all institutional stakeholders in the discussion. This includes audiologists, pediatricians, otolaryngologists, and other medical providers such as those involved with metabolic screening or other laboratory testing.

Summary

Newborn hearing screening is a complex and multifaceted endeavor with many technical and inter-professional components within and external to the institution (see Appendix). The potential advantages and disadvantages of hiring an outside contractor to provide this service will be determined, in part, by the status of a program prior to outsourcing. If the institutional commitment and resources are in place, many hospitals value the ownership of the newborn screening program and the direct control this enables over selection of protocols and procedures, instrumentation, communication with families, and determination of billing and collection procedures. They also prefer the ability to treat newborn hearing screening as an institutional standard of care that does not require families to opt-in through bedside consent. But not all hospitals are willing, or in some cases, able to make the necessary investment of time and resources. And it must be acknowledged that healthcare is changing, with a growing number of hospitals joining health care systems aimed at achieving cost savings and greater uniformity among system partners.

The authors are neither for nor against outsourcing newborn hearing screening, but we feel strongly that it is not a decision to be taken lightly. Over a period of 15 years our nation progressed from screening fewer than 4% of newborns for hearing loss to more than 96% (White, 2015). This is a remarkable achievement worthy of celebration, but it is important to remember that the percentage of infants screened is a *quantitative* metric. Careful consideration of the issues that define the *quality* of newborn hearing screening is vitally important and must be examined rigorously with a commitment to the highest standards of patient care, not only for the screening itself but for each component of this critical first-step in the EHDI process.

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Appendix

Important Questions and Considerations for Hospitals Considering Outsourcing Newborn Hearing Screening

A comprehensive newborn hearing screening (NBHS) program must:

- Ensure coordination, oversight, accountability, sustainability
- Employ policies, procedures, and protocols based on established best practices for screening, tracking, and follow-up (e.g., Joint Committee on Infant Hearing 2007 Position Statement, National Initiatives for Children's Healthcare Quality [NICHQ])
- Apply established benchmarks for quality improvement/quality assurance (QI/QA)
- Employ well-qualified and well-trained screening staff with appropriate continuing education
- Have buy-in from nursery support staff, administrators, stakeholders
- Have good working relationships with providers, audiologists, other stakeholders
- Be closely linked and conducted in accordance with the state EHDI program
- Employ a designated program coordinator/manager to:
 - Monitor and update policies, procedures, and protocols
 - Implement competency-based training to all screening staff
 - Coordinate schedules to ensure full time coverage
 - Ensure accountability for all nursery admissions
 - Monitor equipment, supplies, and maintenance
 - Respond to equipment problems if/when they arise
 - Monitor quality indicators (refer rates, missed rate)
 - Generate and disseminate program reports
 - Serve as a liaison between the hospital and the state EHDI program
 - Monitor compliance with state guidelines and reporting

Key questions for initial hospital-based screening:

- o What screening protocols would be used for well-baby and neonatal intensive care unit (NICU) screening?
- o What is the proposed timing of screenings?
- o How many inpatient screenings will be attempted?
- o Are both ears required to pass during the same screening session?
- o What are protocols for babies with unilateral hearing loss (HL) or external ear anomalies?
- o What screening technology/protocols are proposed?
 - Modality (screening otoacoustic emissions [S-OAE], screening auditory brainstem response [S-ABR], both)?
 - Stimulus level, test parameters, pass/fail criteria
 - Compatibility with state tracking and data management program
- o Special considerations for NICU and high risk infants
 - How would babies be determined eligible (medically stable) for screening?
 - Would chart reviews be conducted to determine risks for late onset HL?
 - Can you be confident of well-coordinated working relationships with NICU staff, neonatologists, and audiologists?
 - Would a pediatric audiologist provide oversight of the NICU screening program?

Documentation of screening results:

- o Are there state and/or facility requirements regarding how, what, and where results are documented (e.g., electronic medical/health record; discharge summary) and if so, how will they be monitored?

Communicating screening results:

- o Who will inform parents/caregivers and answer their questions?
- o How will information be conveyed? (written, oral, both, state brochure)?
- o How will the hospital ensure that information is delivered

accurately and with cultural sensitivity?

For infants who require out-patient rescreening and follow-up:

- o Will outpatient rescreens be provided and if so when/where?
- o What specific procedures will be followed when a baby fails the inpatient screen and needs to be seen for rescreening (e.g., NICHQ recommendations are to schedule rescreening appointment, phone numbers, reminder calls, fax to primary care physician, etc.)
- o What specific procedures will be followed when a baby fails the outpatient screen (e.g., immediate scheduling of follow-up audiology appointments)
- o How will those infants be tracked?

Compliance with institutional guidelines:

- o How will training/compliance be handled for institutional requirements related to HIPAA, universal precautions, medical record access?
- o How will equipment manufacturer's recommendations be implemented and monitored?
- o What are the implications of outsourcing for liability and risk management?

Other Important Considerations:

Opting-In vs. Opting-Out:

- In most hospitals NBHS is a standard of care; this means all infants are screened prior to discharge unless the family declines.
- If NBHS is outsourced, families are asked by the contractor if they want their baby screened for hearing loss.
- How would the screening option be presented to families and how would refusals be managed?
- What is the risk to the hospital for babies not screened?
- Will declines increase because of concerns regarding additional charges, immigration status, etc.?

Choice of hearing technology/instrumentation and protocols:

- Many contractors have preferred equipment/protocols. Will you have choices for screening technology, equipment, and protocols (e.g., two-step OAE+ABR protocol)?

Tracking and Surveillance:

- Loss-to-follow-up and loss-to-documentation are major concerns throughout the nation. Also, some infants pass the screening but have risk factors for later-onset HL.
- If NBHS is outsourced, what specific services related to tracking and surveillance will the contractor provide and how will they be provided?
- How will the hospital ensure that tracking and surveillance are optimal?

Partnership with the state EHDI program:

- A strong partnership, alliance, and ongoing working relationship with the state EHDI program is important. Aligning with state screening guidelines, best practice recommendations, available resources for families and providers, as well as participating in state and regional stakeholder meetings are vitally important activities.
- If the NBHS program is outsourced, how will they be coordinated with the state EHDI program and by whom?

Billing and collection:

- Families will receive a separate bill for NBHS. How much will the contractor charge and what happens if there's an unpaid balance?

Communication within the hospital if outsourcing is under consideration:

- If outsourcing is being considered should it be thoroughly reviewed and discussed with all institutional stakeholders?
 - Audiologists
 - Pediatricians
 - Otolaryngologists
 - Nurses
 - Hospital Administrators
 - Other service providers (e.g., those involved with metabolic screening)