

Early Childhood Hearing Screening & Follow-up

Implementing a Successful Otoacoustic Emissions (OAE)
Hearing Screening Program



An Audiologist's
& Facilitator's Training
and Technical
Assistance Guide



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Part 1

Overview: Supporting the Development of Periodic OAE Screening



The Early Childhood Hearing Outreach (ECHO) Initiative at the National Center for Hearing Assessment and Management is funded by the Office of Head Start through an interagency agreement with the Maternal and Child Health Bureau. The ECHO Initiative serves as the National Resource Center on Early Hearing Detection and Intervention for HeadStart/Early Head Start. The aim of the ECHO Initiative is to provide practical information and instructional resources necessary for successfully implementing periodic OAE hearing screening and follow-up practices with infants and toddlers. The expansion of OAE screening among Early Head Start providers across the country has resulted in the broader community of early childhood education and health care providers exploring the benefits of providing periodic hearing screening in a variety of settings. As a result, children with permanent hearing loss are being identified within participating organizations at a rate of approximately 1-2 per thousand in addition to the number of infants previously identified through hospital-based newborn hearing screening efforts.

Although the information and resources available at kidshearing.org were developed initially for Early Head Start programs, they are equally relevant to home visitation, early intervention and health care organizations serving infants and toddlers. The instructional resources have been designed to help lay individuals learn how to conduct OAE screening and engage in appropriate follow-up practices in a variety of settings. Resources include video tutorial modules, protocol guides, screening and follow-up forms, sample letters to communicate the OAE screening outcomes to parents and other professionals and a tracking tool to ensure follow-up.

As a pediatric audiologist or an individual facilitating training and technical assistance, you can play a supportive role in directing early childhood service providers toward the appropriate instructional and implementation resources, answering questions as they arise, and providing expert input into decision making at key steps in the process. The ***Planning Checklist for OAE Screening*** is a starting point for organizations to use as they initiate and implement an OAE screening process. Organizations will benefit from your input as they work through each of the items included on the checklist. The purpose of this guide is to help you understand the role you can play with organizations in three key areas:

- Planning the OAE screening effort
- Learning and skill building for OAE screening
- Follow-up technical assistance



Overview: Background on Head Start/Early Head Start as a Lead Organization Adopting OAE Screening Practices

It is helpful for audiologists and other facilitators to have a basic understanding of how Head Start functions because local programs are consistently seeking technical assistance in adopting OAE screening practices. Head Start is a federally funded health and education program for economically disadvantaged children with a long-standing commitment to hearing screening. Head Start encompasses several different types of early childhood programs including:



- Early Head Start (EHS) serving children 0 – 3 years of age.
- Migrant/Seasonal Head Start serving children 0 - 5 years of age.
- American Indian/Alaska Native Head Start serving children 3 - 5 and sometimes 0 - 3 years of age.
- Regular Head Start serving children 3 - 5 years of age.

Although the number and type of Head Start programs will vary across states, all states have EHS programs. Some provide center-based services, some provide home-based services and some offer both. Regardless of setting, Head Start Performance Standards require that all children receive a hearing screening within the first 45 days of enrollment (note that hearing screening must occur within 30 days of enrollment in Migrant/Seasonal Head Start). The Performance Standards do not specify a method for accomplishing hearing screening; instead, every program has a local Health Services Advisory Committee which provides guidance on how hearing screening will be conducted. As a result, hearing screening practices may vary considerably from one program to the next. Historically, those serving infants and toddlers have used subjective hearing screening methods such as hand clapping, bell ringing, parent questionnaires, or notes from health records as documentation of screening. Helping programs to adopt objective OAE screening practices represents a significant step forward in enabling programs to reliably screen children 0 - 3 years of age for permanent hearing loss.

As you engage with Head Start programs, you may find it valuable to contact the **Head Start State Collaboration Office** in your state. This Office helps to establish interagency collaborations between Head Start and other programs or agencies. It can be very helpful to talk with the State Collaboration Office to explore ways in which information sharing and other collaborative activities can occur. Establishing a relationship is particularly important if there is an interest in creating a data-sharing mechanism between a state's Early Hearing Detection and Intervention (EHDI) program and Head Start programs. Increasingly, state EHDI programs are developing data



sharing agreements with Head Start programs that are conducting OAE screening in an effort to establish more comprehensive state databases of children with hearing loss and to ensure that those children and their families are connected with the resources they need.

The State Collaboration Office can also provide valuable information on current Head Start activities and contact information for local programs. It may further play a valuable role in providing guidance to Head Start programs on securing funding for OAE equipment and initiating an OAE screening program. It is important to note that the purchase of OAE equipment is considered an “allowable expense” within Head Start budgets.

The following resources will help you further acquaint yourself with the many aspects of Early, Migrant/Seasonal and American Indian/Alaska Native Head Start services.

<http://www.acf.hhs.gov/programs/ohs/index.html>

<http://eclkc.ohs.acf.hhs.gov/hslc>

http://eclkc.ohs.acf.hhs.gov/hslc/states/collaboration/HSSCO/state_collaboration.html

The following website will assist you in identifying Head Start programs in your state:

<http://eclkc.ohs.acf.hhs.gov/hslc/HeadStartOffices>

The focus of the ECHO Initiative is on supporting Head Start programs serving children 0 – 3 years of age, primarily those in EHS. Since 2001, the ECHO Initiative has been working in collaboration with local audiologists and State EHDI programs to provide hearing screening training and technical assistance to Early Head Start providers as well as a range of other early childhood organizations serving infants and toddlers. The expansion of OAE screening practices within the national Head Start community has shown that screening young children for permanent hearing loss is feasible and the demonstrated success of the effort has created a growing interest within the broader community of early childhood education and health care providers to adopt quality hearing screening practices. Home visitation and early intervention programs are increasingly becoming interested in initiating OAE screening practices as are some health care centers serving young children.



Part 2

Direct Assistance to Early Childhood Education and Health Care Providers Implementing OAE Screening Practices



As you prepare to assist an early childhood education or health care organization in adopting OAE screening practices with the infants and toddlers they serve, acquaint yourself with the resources at kidshearing.org and, in particular, the documents at www.kidshearing.org/resources/trainer-tools. These will be especially informative related to the training and technical assistance role you can play. Print the **Planning Checklist for OAE Screening** and use it as an overall guide for helping an organization plan and implement OAE screening practices.

Your participation will be helpful in three key areas:

- 1) Planning (with a particular focus on helping organizations select appropriate equipment and understand the OAE screening and follow-up protocol)
- 2) Learning and Skill Building (facilitating hands-on practice experiences)
- 3) Technical assistance (addressing questions and concerns after screening efforts have been initiated)

The remainder of this Guide outlines ways in which you can assist early childhood organizations and service providers in these areas. Be sure to direct the learners to the **Implementation Tools** found at www.kidshearing.org/learn-to-implement.



Direct Assistance: Planning

As early childhood service providers plan for how to initiate and maintain their OAE screening practices, your knowledge and expertise can be helpful at each step in the process. Direct staff to www.kidshearing.org/learn-to-implement to view Video Tutorial Modules 1 - 4.

The most important areas for assistance in planning are:

- a) Answering questions that arise after staff view the introductory information in Video Tutorial Modules 1 - 4
- b) Selecting appropriate OAE equipment, and
- c) Understanding the OAE screening and follow-up protocol.



Selecting Appropriate OAE Equipment

Most OAE equipment was originally designed to screen newborns; not all models work equally well when screening young children. It is critical that organizations receive assistance in selecting equipment that will work with the population to be served in the intended settings. To assist staff in selecting appropriate OAE equipment, be sure to direct them to www.kidshearing.org/resources/select-oea.

Help providers evaluate equipment based on the following criteria:

- a) Works well with toddlers who are upright and active as well as with infants who are in a prone position and may be sleeping. The equipment needs to work well with young children who are in a variety of positions, including upright and mobile. An external probe should be attached to the screening unit by a cord 4 – 5 feet long and the probe should stay seated firmly in a child's ear canal even when there is head movement.
- b) Works well even when some noise is present. The equipment should work relatively quickly even when there is some internal or external noise present.
- c) User-friendly with basic functions. The equipment should be user friendly with easy-to-interpret display screens. The equipment needs only basic screening and reporting functions. Keep in mind that features that an audiologist may find desirable for diagnostic purposes are neither helpful nor appropriate for lay screeners. Lay screeners need the easiest, most automated, self-explanatory OAE equipment available. These models also tend to be less expensive, permitting organizations to use their valuable resources for purchasing disposable probe tips/covers, screening toys and other related items.



- d) Availability of foam probe tips/covers. Foam probe covers are often the easiest for lay screeners to use because they are “one size fits most” and they create a good seal in the ear canal. This can speed up both the learning and the actual screening process.
- e) Discounts for purchasing multiple screening units. If organizations are considering purchasing multiple pieces of equipment, they may be able to negotiate a lower per-unit cost. Staff may wish to use a particular model to see if they are satisfied with performance before purchasing additional units.

Lay screeners rarely have experience interacting with equipment sales representatives, so it can be very helpful if partner audiologists or experienced screening facilitators assist with this communication. Request specific models and basic features and also inquire about short-term equipment loans where a particular model or two can be tried out by screeners in “real life” settings before a purchase is made. Also, although most equipment comes with printers, many screeners find that it is easier and more accurate to document simple ear-specific pass/refer results on the ECHO screening forms and it may therefore be a better use of funds to request that additional probe tips/covers be substituted in lieu of the printer.

Be sure to review with staff the equipment selection resources at www.kidshearing.org/resources/select-oae including:

- equipment selection criteria
- equipment comparisons
- equipment reviews

Caution organizations that equipment models that have not already been shown to be effective with infants and toddlers must be carefully evaluated before purchasing.

Understanding the Screening & Follow-up Protocol

As organizations get acquainted with OAE screening, they need an initial understanding of the follow-up process for children who do not pass. An overview of the protocol is provided in Video Tutorial Module 3 and the accompanying print resources. A more detailed review of the recommended protocol is provided in Module 10. (Note: There are different modules that describe the appropriate protocol for educational settings versus health care settings where middle ear evaluation can typically be done in conjunction with the OAE screening.) Help administrators and staff understand the protocol so that they can make decisions about:

- How many individuals will be conducting the OAE screening
- In what settings screening will take place
- How many pieces of equipment will be needed
- How outcomes will be documented and how children needing follow-up will be tracked (note the OAE Screening Form, the Diagnostic Follow-up Form and the Tracking Tools available at www.kidshearing.org).



Direct Assistance: Learning and Skill Building

Review the contents listed in kidshearing.org/resources/trainer-tools. You and each of the learners should have print copies of the following downloadable handouts:

- ***Video Tutorial Companion Handbook***
(print a copy for yourself, too)
- ***Planning Checklist for OAE Screening***
- ***Skills Checklist for OAE Screening***
- ***OAE Screening Form***
- ***Protocol Guide***
- ***Information for Teachers***

If you are able to be present while learners view each of the Video Tutorial Modules, they will benefit from your additional explanations and commentary. If your time is limited, however, learners may proceed independently up through Video Tutorial Module 8, engaging in the corresponding exercises.

Once staff have completed Module 8, it will be important for you to conduct a learning/training meeting with them to debrief their independent learning activities and to complete the training process. A key aspect of this learning meeting will be overseeing the learners as they initiate actual hands-on screenings with children. It is best if each screener can have an opportunity to screen at least 4 children. It is often optimal to have several pieces of equipment available for the training meeting, so remember to request additional loaner units from equipment vendors if needed.) Be sure to schedule this meeting at a time when a sufficient number of children will be available and when screening activities will not conflict with children's snack time, nap time, or with other important routines.

Also prior to the meeting, determine who will participate and how the Video Tutorial Modules 9 – 11 can be viewed together as a group (with LCD projection or gathered around one or more computer monitors, etc).

Finally, the first section of the ***Skills Checklist for OAE Screening*** includes steps for preparing to screen children and a supplies list. Encourage staff to make necessary preparations in advance based on the items found on the checklist.





Outline of the Hands-On Learning/Training Meeting

1. Debrief the main points covered in Video Tutorial Modules 1 - 8. Use the **Video Companion Handbook** as a reference to debrief the main points of the content.

Debriefing strategies include:

- Ask learners to describe and clarify main points
- Provide partial descriptions and prompt learners to complete them
- Present a potential scenario and ask participants for solutions

Demonstrate OAE screening as you screen one of the learners. Have the learners direct you through the steps of the screening process using the **Skills Checklist for OAE Screening** as a guide for the demonstration. Next, repeat the demonstration with a learner conducting the screening on another adult.

2. Repeat a screening demonstration, this time reviewing the main points emphasized in the **Practice Exercises** accompanying Video Tutorial Module #7 including the effects of movement and noise (internal and external) on the screening process. Reinforce the Four Keys to Successful Screening:

- Good probe fit
- Minimize movement
- Minimize internal noise
- Minimize external noise

View Video Tutorial Module 9, **Strategies for Successful Screening**. Debrief and discuss various screening strategies, toys and distractors that will facilitate the cooperation of children and an overall environment conducive to screening.

3. Review the **OAE Screening Form**. Review how to document the results of the initial OAE screening session for each child on an OAE Screening Form. (Subsequent documentation for those not passing the practice screening will be covered after the practice screening session.)
4. Gather and organize all supplies using the **Skills Checklist for OAE Screening**.
5. Conduct practice screenings. Note that the screenings that are completed during this practice may be used to fulfill actual screening requirements provided that:
 - a) appropriate follow-up will be completed with all children not passing
 - b) all screening results are documented accurately

Be sure to start by screening children who are the most likely to be easy to screen (i.e. slightly older children or those identified by other adults as cooperative). Emphasize that this practice is an opportunity to learn by experimenting with screening strategies, using a variety of toys and distractors, under varied conditions, while receiving helpful supervision and input. (As the trainer, be careful not to do the screenings FOR those who are learning. If you



need to demonstrate improved probe fit, for example, do this, then have the learner perform the screening independently.)

6. Debrief the screening experience. Once each learner has had a chance to screen children (optimally at least 4 children per learner), meet to discuss:
 - a) What worked well/what was challenging?
 - b) What strategies worked for engaging children?
 - c) How did the equipment respond under different circumstances? What error messages occurred and what did learners do in response to them?
 - d) How did learners use the Four Keys to Successful Screening?
 - e) Are there other questions or concerns that need to be addressed before screening again?

7. View Video Tutorial Modules 10 and 11 and debrief.
 - a) Discuss:
 - Under what conditions is the screening process of each ear considered “complete”? (Answer: when the ear passes OR a complete audiological evaluation has been conducted and you have the results)
 - What is the organization’s role when a child is referred for a middle ear evaluation? What should happen next?
 - How can parent follow-up be supported and encouraged at each step in the protocol?

 - b) Walk through the **OAE Screening Form** and review how the form follows the recommended protocol. Continue with the **Diagnostic Follow-Up Form**, also illustrating how the form reflects the remaining steps of the protocol for children referred for middle ear evaluation and/or further follow-up.

 - c) Point out the resources at **kidshearing.org** that are available to help screeners with follow-up, including:
 - Letters for parents
 - Referral letters
 - Scripts for sharing results with parents
 - **Protocol Guide & Middle Ear Management Process** (Note: This Guide is intended to help screeners know what the next step is for a child on a case-by-base basis. Remind learners to refer to this each time they need to follow a child through the steps of the protocol.)
 - Tracking Tool (Discuss how staff plan to use the Tool provided at kidshearing.org, or another tracking tool, emphasizing that a screening effort will only be as good as the organization’s ability to successfully track and follow-up with children when they do not pass the OAE screening.)



Direct Assistance: Technical Assistance

After learners have had a chance to screen independently for a week or two, it will be helpful to meet with them again (ideally in person or by phone, if necessary) to answer questions and discuss concerns that may have arisen.

Organizations initiating OAE screening will often need follow-up technical assistance related to achieving appropriate pass/refer rates, compliance with protocol, and other areas such as:



Screening Protocol and Practices

- Strategies for home-based screening. Screening successfully in a home may require some unique strategies and screeners may need further instruction on how to “take control” (turning down volume on a TV, enlisting parents or other adults who may be present in keeping other children quiet) to create an appropriate screening environment. Alternately, screening in home-based programs may be planned in conjunction with socialization activities that families attend in public locations.
- Strategies for working with difficult-to-screen children. Screeners may need to discuss and be reminded of alternate strategies that can be used with the small number of children who are resistant to having a probe placed in their ear. In unusual circumstances, this might require directly helping to screen a child or setting up an appointment where a behavioral hearing assessment can be done.
- Reviewing the OAE screening and follow-up protocol. Screening staff may need to be reminded that children referred for middle ear consultation/treatment always need another OAE screening once medical clearance is given. Staff should not erroneously assume that health care providers will complete the hearing screening process once the referral is made. A middle ear consultation is just an intermediary step in the OAE screening process. Thus, an OAE Rescreen is necessary and if the child does not pass it, referral for a complete audiological evaluation should be made
- Clarifying the conditions under which a child has completed the OAE screening process. There are only two conditions that indicate a completed process: a) the child passes the OAE screening on both ears at some step in the screening process; or, b) the child receives a complete audiological evaluation and the organization receives the results. Until one of these conditions is met, the child's screening is considered incomplete or “in process.”
- Supporting organizations when they experience staff turnover – possibly by providing additional training.



Child Tracking and Screening Process Monitoring/Evaluation

- Reviewing the tracking process being used. Because a multi-step follow-up process is needed for children not passing the initial OAE screening, it is important to encourage screening staff to review their documentation and tracking strategies, including how they identify and track children whose screening process is incomplete.
- Reviewing screening results and prompting follow-up on cases that are in process. Help staff to engage in record review to reduce loss-to-followup.
- Monitoring screening outcomes. Review the overall OAE pass/refer rates with program staff to make sure they are within the expected range. A refer rate that is higher than expected is typically an indicator that further training is needed.

Community Outreach and Interaction with Physicians and Audiologists

- Helping to establish relationships with local audiologists and medical providers. Encourage organizations to meet with medical providers and audiologists who will receive the majority of referrals to involve them in the OAE screening process and to make mutually agreeable decisions about how referrals (and information shared as a result of referrals) will be handled.
- Expediting a referral when a medical professional is not responding in a timely way. State or other publicly funded programs may be able to offer diagnostic or treatment services without first obtaining a physician's referral. Help organizations use all available options to connect children with the services.
- Clarifying the Medical Home concept. Head Start staff may erroneously assume that most health care providers have the capacity to provide hearing screening to infants and young children. Help screening staff to understand that most health care providers serving as a Medical Home do not have that capacity and will welcome the information about the child provided by the OAE screening.

Equipment Concerns

- Answering questions about equipment functioning, supplies, and maintenance. Early childhood programs often need additional information related to ordering equipment supplies (especially probe tips), and the appropriate source to contact for equipment maintenance, calibration and repairs. They may also need assistance in purchasing additional screening units.

Individual Case Consultation

- Interpreting screening, medical or audiological evaluation results and determining "next steps." Consider ways to support organizations in understanding medical or audiological reports that may be written in technical language that does not communicate clearly to screening staff what needs to happen next.