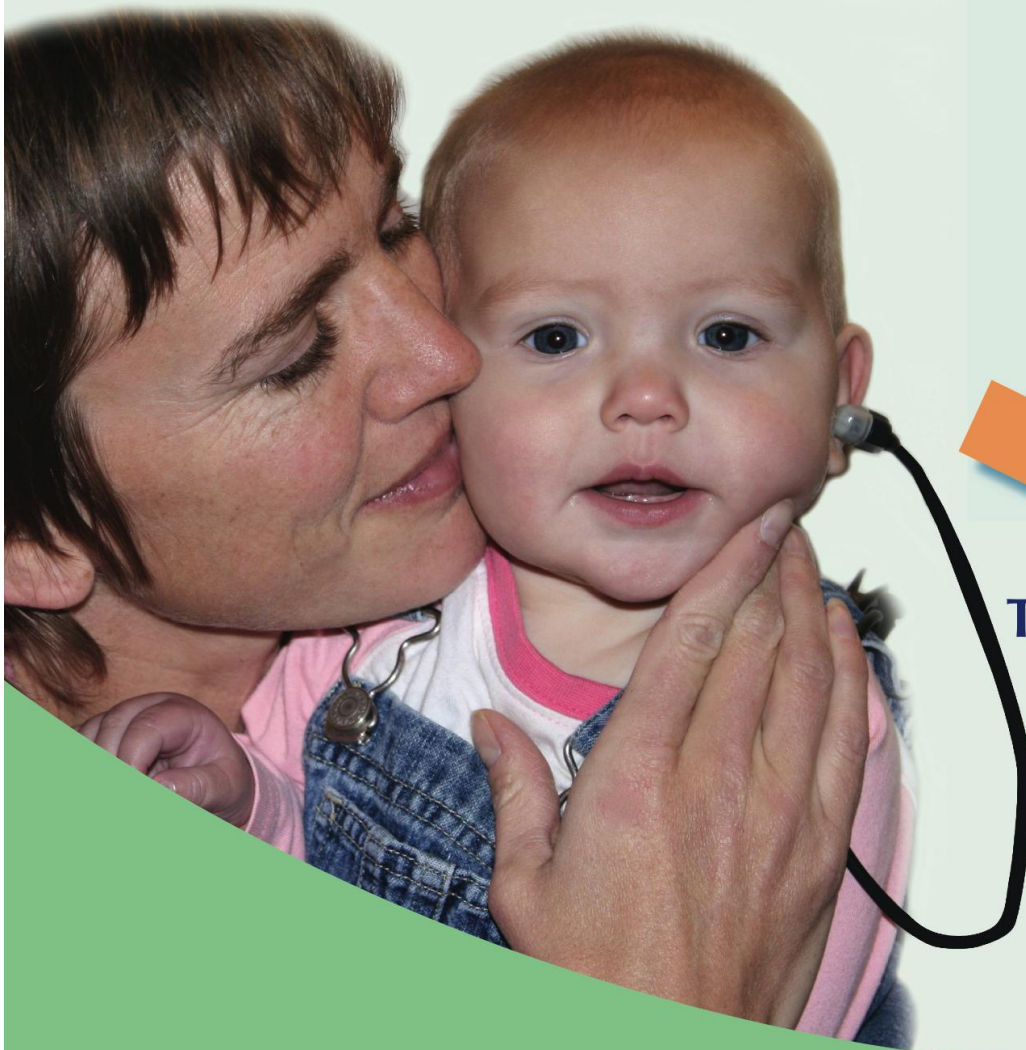


Early Identification of Hearing Loss

Implementing periodic Otoacoustic Emissions (OAE)
hearing screening with infants and
toddlers in early childhood settings



An Audiologist's
Training and Technical
Assistance Guide



Table of Contents

The Role of Audiologists in Helping Programs	
Implement OAE Screening	3
Getting Acquainted with Early Head Start & Others	4
Preliminary Planning	6
Planning the OAE Training Workshop	8
Conducting the Training Workshop	13
Monitoring for Quality After Training	35
Providing Follow-up Technical Assistance	36
Appendix	
Training Workshop Planning and Preparation Checklist	40
Workshop Materials Checklist	41
Training Workshop Day – Set-up Checklist	42
Information for Teachers	43
Training Workshop Agenda	44
OAE Screening Skills Acquisition Checklist	45
Test Your Knowledge about OAE Hearing Screening	46
Training Workshop Evaluation	48

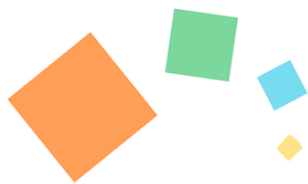
This training guide is a companion to the Instructional Guide and Training Video entitled,
“Early Identification of Hearing Loss: Conducting periodic Otoacoustic Emissions (OAE)
hearing screening with infants and toddlers in early childhood settings”

Materials developed by:

William Eiserman, PhD Lenore Shisler, MS Jan Buhrmann, PhD Jeff Hoffman, MS, CCC-A

Funded in part by the Administration for Children and Families, Office of Head Start and the Maternal and Child Health
Bureau under Grant No. 6H61 MC 0006-02-02 and 90YD=0203/01
to the National Center for Hearing Assessment and Management at Utah State University.

Copyright 2011
National Center for Hearing Assessment and Management
Utah State University, Logan, UT 84322
KidsHearing.org



The Role of Audiologists in Helping Early Childhood Programs Implement OAE Screening

Many early childhood programs such as Early Head Start, home visitation, and early intervention programs serving children 0 - 3 years of age are seeking the assistance of audiologists to help them update their hearing screening practices through the use of Otoacoustic Emissions (OAE) technology. This Guide was developed to provide audiologists with the tools necessary for assisting early childhood programs in developing OAE screening and follow-up practices. It is part of an instructional package entitled ***Early Identification of Hearing Loss: Conducting periodic Otoacoustic Emissions (OAE) hearing screening with infants and toddlers in early childhood settings.*** All elements of the training package are available at KidsHearing.org, including this Guide (www.KidsHearing.org/AudiologistManual), along with an array of resources to support programs and those assisting them.

Background

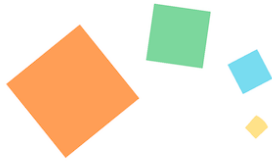
The Early Childhood Hearing Outreach (ECHO) Initiative at the National Center for Hearing Assessment and Management is funded by the Office of Head Start through an interagency agreement with the Maternal and Child Health Bureau. The ECHO Initiative serves as the National Resource Center on Early Hearing Detection and Intervention for Early Head Start programs. The aim of the ECHO Initiative is to provide practical information and resources necessary for implementing OAE hearing screening and follow-up practices with infants and toddlers. While developed first for Early Head Start programs, all of the information presented here is equally relevant to home visitation and early intervention programs as well as to health care providers serving infants and toddlers. The expansion of OAE screening practices for children birth to three years of age served by Early Head Start programs across the country has raised an interest within the broader community of early childhood education and health-related service providers who are increasingly adopting OAE screening as well.

Role of Audiologists

It is critical that early childhood programs interested in implementing OAE screening for children 0 – 3 years of age develop a working relationship with a pediatric audiologist who will help plan the screening program, provide training and technical assistance, address questions as they arise, and promptly evaluate children not passing the screening (or refer them to other audiologists who can). Some audiologists also play a supervisory role in monitoring screening and follow-up activities that contribute significantly to the long-term quality of the screening program.

Information in this Guide will help audiologists collaborate successfully with programs in:

- 1) Planning an OAE screening program
- 2) Training early childhood staff in OAE screening and follow-up practices
- 3) Providing follow-up technical assistance and monitoring screening program quality



Getting Acquainted with Early Head Start and Others

Head Start is a federally funded health and education program for economically disadvantaged children and encompasses several different types of early childhood programs including:

- Early Head Start 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.

The focus of the ECHO Initiative is on supporting Head Start programs serving children 0 – 3 years of age, primarily those in Early Head Start. Although the number and type of Head Start programs will vary across states, all states have Early Head Start programs.

Programs serving the 0 - 3 population vary with respect to the settings in which services are offered. Some will provide center-based services, some will provide home-based services and some will offer both. Regardless of the setting in which services are offered, Head Start Performance Standards require that all children receive a hearing screening shortly after enrollment -- 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 Standard does not specify a method for accomplishing hearing screening; instead, every program has a 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.

Traditionally, those serving the birth to three population have used subjective hearing screening methods such as hand clapping, bell ringing, parent questionnaires, or notes from health records as documentation of screening. Some rely on newborn hearing screening results, even though considerable time may have passed since the screening was conducted. Health-care records indicating that ears have been “checked” are commonly misinterpreted as a “hearing screening” outcome. In reality, most health care providers do not have access to physiologic hearing screening equipment that can screen inner ear functioning nor are they able to conduct an audiologic evaluation. Helping programs adopt OAE screening practices represents a significant step forward in allowing programs to reliably screen children 0 - 3 years of age for permanent hearing loss.

Resources that are a part of the Head Start system that may be helpful include:

The Head Start Regional Office. As a federal program, Head Start is divided into 12 regions. These Regions are responsible for meeting the general (non-technical) training and support needs of all programs within their regions, for overseeing programs, and for ensuring compliance with performance standards. Health and Disability Specialists can support efforts to improve hearing screening and follow-up practices with Head Start programs. Find out who the Health and Disability Specialists are and arrange a time to jointly discuss activities you are undertaking to implement OAE hearing screening practices.

The Head Start State Collaboration Office. Each state also has a Head Start State Collaboration Office that helps establish interagency collaborations between Head Start and other programs or agencies in the state. It can be very helpful to meet with the State Collaboration office to explore ways in which information sharing and

other collaborative activities can occur within the state. Establishing a relationship with the Collaboration Office is particularly important if there is an interest in creating a data-sharing mechanism between the State Early Hearing Detection and Intervention (EHDI) program and Head Start programs. The State Collaboration Office can also provide valuable information on current Head Start activities and contact information for programs within the state.

Both of these offices can play a valuable role in providing guidance to the Head Start program 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” with 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>

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

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

Since 2001, the ECHO Initiative has been providing training and technical assistance to Early Head Start and other programs serving children birth to three in collaboration with the above offices as well as local audiologists and state EHDI programs. Children with permanent hearing loss are being identified as a result of OAE screening practices within participating programs at a rate of approximately 1-2 per thousand (after newborn hearing screening). Increasingly, state EHDI programs are developing data sharing agreements with Head Start programs conducting OAE screening in an effort to establish a more complete database of children with hearing loss in the state and to ensure that those children and their families are connected with the resources they need.

The expansion of OAE screening practices within the national Head Start community has raised an interest within the broader community of early childhood education and health-related providers of services. Home visitation and early intervention programs are increasingly adopting OAE screening practices as are some health care providers serving infants and toddlers.



Preliminary Planning

OAE Hearing Screening Implementation Checklist

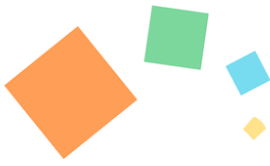
Early childhood programs undertaking Otoacoustic Emissions (OAE) hearing screening for children 0 - 3 years of age are strongly encouraged to do so with the involvement of a pediatric audiologist who can provide training, technical support and consultation in program planning. Audiologists can also play a supervisory role in monitoring screening and follow-up activities that significantly contribute to the long-term quality of the screening program. If you do not have access to an audiologist to partner with, it may be helpful to contact your state's newborn hearing screening or [Early Hearing Detection and Intervention \(EHDI\) Program](#) to find out if there are audiologists in your area who have expertise with children and can assist you in your efforts. Additional partners may include individuals/entities implementing other state screening efforts and local health care providers who may also play a role in training, technical assistance and information sharing.

Early childhood program staff, the consulting audiologist and persons who will be providing technical support should print this Checklist and work through each item together. (All materials and resources referenced below are available at <http://www.infanthearing.org/earlychildhood/library.html>. Some are available in [Spanish](#).)

- ☐ 1. Watch a 25-minute [Introduction to the ECHO Initiative video](#) to understand the elements involved in getting trained and ready to implement an effective OAE hearing screening program.
- ☐ 2. Decide on the specific screening and follow-up protocol to be followed. (See [Instructional Guide](#), [Snapshot of OAE Screening Protocol](#), and [OAE Screening Form](#).) Determine how often children will be screened as a matter of standard practice (at a minimum, annually) and whether some children will be screened at more frequent intervals based on risk factors.
- ☐ 3. Select and purchase OAE equipment demonstrated to work effectively for screening children 0 - 3 years of age. (See [Elements to Consider When Purchasing OAE Equipment](#), [OAE Equipment Comparisons](#) and [OAE Equipment Reviews](#).) Current cost of OAE equipment is approximately \$3400 - \$4000. Also purchase an adequate supply of disposable probe tips. If funding for equipment is needed, identify charitable organizations from whom funds might be requested and use the [Sample Grant Application](#) to solicit funds.
- ☐ 4. Use the following resources to invite participation and prepare all individuals who will ultimately contribute to screening program success including children, parents, teachers, and health care providers:
 - [Listen Up sing-along video](#) prepares children, parents and teachers for OAE screening.
 - [Information for Teachers](#) helps teachers to know how they can support OAE screening.
 - [Information for Parents](#) explains OAE screening to parents.
 - [Information for Health Care Providers](#) introduces your OAE screening program to health care providers who may be receiving referrals.
- ☐ 5. Identify who will perform the OAE screening, and when and where the training will be conducted using the [Training Preparation Checklist](#). The [Training and Technical Assistance Manual for Audiologists](#) provides useful information to the consulting audiologist on how to set up and structure the training.

- ☐ 6. Train all individuals responsible for screening and follow-up using the 4-part [Training Video](#) followed by supervised hands-on practice screening other adults and then children. The [Instructional Guide](#) can be printed and provided to each participant.
- ☐ 7. Designate where the OAE equipment will be stored and who will be responsible for equipment care, maintenance, ordering supplies, coordinating use of equipment, etc.
- ☐ 8. Determine what documentation of screening results will be provided to parents, health care providers and audiologists when children refer from screening and need further evaluation. A sample [referral letter for parents](#) and [referral letter to health care providers](#) can be adapted to meet your needs.
- ☐ 9. Review the [Diagnostic Follow-up Form](#) and determine how the referral process will be managed for children who do not pass the OAE Screening and need follow-up diagnostic consultation from a health care provider and/or audiologist. Establish a two-way referral system whereby you transmit information on children not passing the screening to health care providers AND obtain results of subsequent diagnoses and treatments. You will then need to rescreen children and potentially facilitate referral to an audiologist or other specialist.
- ☐ 10. Determine how each individual child's screening results, and any subsequent diagnostic or treatment information, can be thoroughly documented in your tracking system. (See [Tracking and Monitoring Tools](#).)
- ☐ 11. Monitor pass/refer rates, adherence with protocol and timelines, and follow-up on referrals. The audiologist should be prepared to provide additional technical assistance and support when needed. See the [Screening Skills Checklist](#) and [Monitoring for Program Quality Guidelines](#).
- ☐ 12. Report to your [State EHDI Program](#) any child identified with a permanent hearing loss. Your EHDI program may have additional resources to help your program and/or the child's family. (See also the [Checklist for Supporting Families](#) and read an article on [Including Children with Hearing Loss in Early Childhood Programs](#).)

Find answers to other frequently asked questions at:
<http://www.kidshearing.org/frequentquestions>



Planning the OAE Training Workshop

The training process outlined in this Guide consists of a set of activities to be carried out over the course of approximately six hours and held at an early childhood program where children, birth to three years of age, are available to be screened as a part of the training process.

As you plan a training workshop, determine whether you will need to enlist a “training team” comprised of other experienced screeners (who do not necessarily need to be audiologists, but can be educators in the hearing health community, etc.) to assist you during the hands-on portion of the training workshop. Generally speaking, one experienced screener will be needed to supervise every group of approximately four learners.

Checklists for planning a training workshop and workshop materials appear in the appendix of this manual. The following elements should be considered in planning a training workshop:

- Identify a program site to host the training workshop
- Schedule the training workshop
- Schedule and plan specific workshop activities, including breakfast and lunch.
- Confirm the availability of audio-visual and hearing screening equipment
- Prepare host site teachers and other staff
- Get acquainted with key host program procedures
- Obtain materials needed for the training

Identify a program site to host the training workshop

In selecting a location for the training workshop, the most important element is that it must be conducted in an early childhood center where children of a variety of ages, 0 - 3, will be attendance and available to have their hearing screened. A central element of the training workshop is the actual “hands-on” screening practice. It is important that each trainee be given the opportunity to screen no fewer than five children. While it is possible to conduct a training workshop where parents have been asked to bring children in for screenings, it is preferable to conduct trainings at center-based programs where a predictable number of children are present each day.

Note: Programs hosting a training workshop will receive the benefit of having a significant number of their children screened during the workshop. The screening outcomes on each child will be documented as a part of screening practice activities and can be use to satisfy screening requirements. This should be emphasized to programs as a benefit to hosting the training workshop. As a part of that, make arrangements for any child who does not pass the screening during the training to be followed through all remaining screening and diagnostic steps of the protocol.

Select a location that:

- Is accessible to all potential participants, including individuals with disabilities.
- Has access to restrooms.
- Permits refreshments and lunch to be served on site.
- Can provide a quiet, distraction-free environment (a conference room, empty classroom, etc.) offering:
 - Electrical outlets in case equipment needs to be plugged in during the demonstration and practice screening periods.
 - An LCD projector, speakers, laptop computer from which the video can be played and a screen on which this will be projected.
 - High-speed internet access from your presentation laptop computer during the training so you can show participants kidshearing.org and the resources that are available there for maintaining their screening practices.
 - Sufficient space, tables and seating (moveable) for the number of participants who will be in attendance. It is important to have an environment that is comfortable and conducive to open discussion, including seating at tables that can be arranged in a semi-circle or U-shape to allow participants to interact with one another and to view the presenters and video while also having a table on which to write. The table arrangement should also permit a place for people to cluster in groups of up to four learners to work with screening equipment.
 - During the “hands on” screening practice portion of the training, children can remain in their classroom where a modest amount of talking and play noise is taking place. It is helpful for the classroom teacher help keep the sound level to a minimum.

Schedule and plan specific workshop activities, including breakfast and lunch

The training workshop is designed to take approximately 6 hours, including a 15-minute gathering period at the beginning during which people will have breakfast snacks and drinks and a 45-minute lunch period. It is recommended that you plan for light breakfast and lunch food to be offered at the location of the training so that the meeting is kept on schedule. Plan to have food and drinks delivered or available at least 15 minutes prior to the scheduled time in case you are ahead of schedule.

Be sure to check the children’s schedule at the host site so that children will be available to be screened when needed and so that screening does not interfere with their snack and lunch schedules.

Obtain hearing screening equipment

Sufficient OAE screening equipment is needed so that no more than four participants share a screening unit during the training. It is also helpful to have one unit for demonstration purposes. Equipment distributors may be able to provide additional loaner units during the training and may be able to assist with the training. It is extremely helpful if all participants are learning to use a single brand of OAE equipment. If you need to train participants who are using different brands of OAE equipment, consider holding separate trainings. Within a given training workshop, one experienced screener/audiologist should be assigned to each piece of equipment so that each group of up to four learners will have adequate supervision during the “hands-on” portion of the workshop.

It is also very important to ensure that the equipment is fully charged on the day or evening prior to training.

Prepare teachers, staff, parents and other participants

Share resources with appropriate participants that are downloadable at:

<http://www.kidshearing.org/gainskills>

Since training workshops will be conducted in early childhood centers and will involve actual screening of children as a part of the training process, it is a good idea for classroom teachers, staff, parents and other participants to be prepared for the training process.

Participants need to know in advance that the OAE procedure:

- Involves a tiny sound transmitter/microphone being placed in the child's ear from which the child will hear a clicking or musical tone.
- Does not require the child to respond to the sounds in any way, except to be quiet.
- Will be painless for the child.
- Will take about 3 - 5 minutes per child.
- Must be done in a relatively quiet environment, but silence is not required.
- May be done while the child is sleeping.

Teachers and parents may facilitate the screening process by:

- Preparing the children for screening by playing a little game in which the children pretend to listen to the sound of a bird or other animal coming from a small toy, or even the teacher or parent's hand. (The game should NOT involve actually placing anything in the child's ear canal.) A fun sing-along video to prepare teachers, parents and young children for OAE screening is found at <http://www.kidshearing.org/ListenUpSong>

It is better if the teacher and parent avoid introducing the screening activity by stating anything like, "You are going to have your hearing tested," or saying "It won't hurt," which is likely to make children feel nervous. It is much better to tell children that they will each have a chance to "play a listening game." Having rewards such as stickers available after the screening can also be a good idea.

- Recommending an especially cooperative child as the first to be screened, one who can model cooperative behavior during screening for other children.
- Designating a specific area in the room where screening will take place and where something special is set up for the children that will encourage them to sit quietly in this place.
- Occupying the children's hands and attention during the screening process, helping to hold the child, and finding ways to soothe them if they are distressed during the procedure. Having quiet toys available for the children, especially novel ones, can be very effective.

On the day of the training, be sure to visit each classroom prior to starting the training, to meet the teachers, parents that might be present, and other staff, plan when and where the screening of children will occur and elicit any questions or ideas the staff might have about the training process for the day.

Prepare workshop participants by:

- Providing them with general information on the agenda, hours of the workshop, and that a light breakfast and lunch will be provided
- Providing maps/ instructions describing how to find the training location.
- Advising them that they will be doing “hands-on” screening of children and need to dress comfortably to be able to interact with children, sit on the floor, etc.

Collect and assemble training materials and make other preparations

The following materials/preparations will be needed for a training workshop:

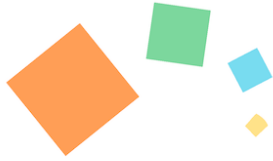
1. Screening Equipment – Arrange to have one piece of OAE equipment present at the training for each group of up to 4 participants per group (and be sure to have sufficient adult and pediatric probe tips to be used during training). Remember to charge all screening units prior to the training workshop day.
2. Extra probe tips – There should be enough adult and pediatric probe tips on hand so that all trainees can screen each other and so that all children available during the training may be screened.
3. Zip-lock bags – These are used to store used probe tips and to ensure that tips are removed safely out of children’s reach (tips are small enough that children could swallow them!)
4. Sanitary wipes – These are used for cleaning hands after screening each child.
5. Name tags – These are needed unless a very small group of 5 or fewer individuals are being trained.
6. Toys – Silent toys, such as puppets, books, stickers, etc., are helpful in keeping a child occupied during the screening. If possible, provide a new silent toy to go with each piece of equipment.
7. AV Equipment - Laptop computer, speakers, LCD Projector, Screen are used to play the training video.
8. High Speed Internet Access – This is needed for showing participants resources available at [kidshearing.org](http://www.kidshearing.org) and for presenting the online tracking tools available at: <http://www.kidshearing.org/TrackingTools>.
9. Training DVD – One copy of the 4-part Training Video is needed for the training workshop. This can also be streamed at: <http://www.kidshearing.org/TrainingVideo>.
10. Training Script – The training script is found in the next section of this Guide. The script includes all of the content delivered on the video (in the event that the video malfunctions). The script also includes debriefing questions to be covered after each of the four parts of the training video.
11. OAE Hearing Screening Forms - Have at least one screening form for each child who will be screened during the training workshop and one “practice” form for every participant. Download at: <http://www.kidshearing.org/OAEScreeningForm>.

The following Handouts are needed for each workshop participant:

1. Training Workshop Agenda
2. Instructional Guide for Screeners – This includes all written materials needed by the participants and includes all key points included in the DVD training video for review purposes. This is available, free of charge in hardcopy form and includes the DVD, or it can be downloaded at:
<http://www.kidshearing.org/screenersguide>.
3. Screening Skills Checklist – This handout is used to guide screeners through the screening process step by step and to evaluate each participant's screening practices. Download at:
<http://www.kidshearing.org/ScreeningSkillsChecklist>.
4. Workshop Evaluation Forms – Test Your Knowledge About OAE Hearing Screening and Training Workshop Evaluation forms can be used to assess each participant's knowledge about OAE screening and allow them to rate the training experience. Download at
<http://www.kidshearing.org/trainingevaluationtools>.

Hard Copies of materials are available by contacting the ECHO Initiative at:

ECHO.NCHAM@usu.edu



Conducting the Training Workshop

The following section includes the agenda of the training along with a detailed description of each activity included in the training process.

7:15 – 8:00 Pre-Workshop Preparation: Training Team members set up at workshop location.

Workshop Agenda

8:00 – 8:15	Sign-in, breakfast snack and get settled
8:15 – 8:45	Activity 1: Get Started
8:45 – 9:30	Activity 2: Introduce OAE Hearing Screening
9:30 – 9:45	Break
9:45 – 10:15	Activity 3: Practice Hearing Screening
10:15 – 10:30	Activity 4: Introduce OAE Hearing Screening Protocol and Documentation Forms
10:30 – 12:00	Activity 5: Conduct Hearing Screenings with Children
12:00 – 12:30	Lunch
12:30 – 1:00	Activity 6: Review Equipment Care and Maintenance and Helpful Hints for Screening
1:00 – 1:30	Activity 7: Establish a Hearing Screening Data Collection and Tracking Process
1:30 – 1:45	Activity 8: Learn about Additional Resources at Kidshearing.org
1:45 – 2:00	Activity 8: Evaluate the Training



Pre-Workshop Preparation

1. Training Team members set up at workshop location 7:15 – 8:00

See the *Workshop Resources* section, for a checklist of set-up activities.

2. Participants Arrive 8:00 – 8:15

- Sign-in
- Breakfast snack
- Get settled



Activity 1

Get Started

8:15 – 8:45

Handouts:

Agenda

Instructional Guide



1. **Provide participants with a brief overview** the rationale for periodic, objective hearing screening for children 0 - 3 years of age. The points below can be summarized as a preliminary orientation to participation in the project:

Incidence and implications of hearing loss

- Hearing loss is the most common birth defect in the U.S. and it can also occur at any subsequent time in a child's life. In addition, childhood ear infections can also result in temporary hearing loss
- Unidentified and untreated, hearing loss negatively affects a child's language development, educational achievement, and literacy levels.

Advances in early hearing detection and intervention

- Recent technological advances have made it practical to conduct physiological hearing screening of infants and young children; most babies in the U.S. are now being screened at birth in hospital-based newborn hearing screening programs. A screening procedure called Otoacoustic Emissions (OAE) is now commonly used to screen babies only a few hours old. This same technology can also help identify young children who have permanent or temporary hearing losses.
- Early Hearing Detection and Intervention (EHDI) programs have been established in each state to assist hospitals in their hearing screening efforts and to see that children identified through screening receive timely and appropriate audiological assessment and services.

Implications for continuous screening in Head Start programs

- Head Start has a long-standing requirement that all children served receive a hearing screening within 45 days of entry into the program.
- The technological advances and experiences from hospital-based newborn screening efforts can be expanded into early childhood settings to update screening practices. Periodic screening throughout childhood is critical to assess hearing health.
- Otoacoustic emissions (OAE) is an appropriate physiologic screening tool to use with infants, toddlers, and young children because it is reliable, easy for non-audiologists to use, painless, and does not require a behavioral response from the child.

Overview of the ECHO Initiative

- 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. Since 2001, the ECHO Initiative has served as the National Resource Center on Early Hearing Detection and Intervention for Early Head Start programs. The aim of the ECHO Initiative is to provide practical information and resources necessary for implementing OAE hearing screening and follow-up practices with infants and toddlers. While developed first for Early Head Start programs, all of the information presented here is equally relevant to home visitation and early intervention programs as well as to health care providers serving infants and toddlers. The expansion of OAE screening practices for children birth to three years of age served by Early Head Start programs across the country has raised an interest within the broader community of early childhood education and health-related service providers who are increasingly adopting OAE screening as well.
 - Programs that have implemented OAE screening and follow-up practices are identifying children at a rate of 1-2 per thousand with permanent hearing loss and many others with treatable hearing health conditions such as otitis media and wax blockages.
 - The training materials that will be used today, along with the OAE hearing screening and follow-up protocol and accompanying forms, are being used by hundreds of Early Head Start programs across the country.
2. **Introduce the Trainer(s).** Provide a brief description of each member's area of expertise, the role they play on the training team and the role they will play during the training. Briefly introduce the EHDI system, its role and its potential relationship to the Head Start's hearing screening activities..
 3. **Elicit introductions of each participant.** Ask each participant to offer their name, their title, and the role they play in the program.
 4. **Elicit information about current screening practices.** Although this information will have been gathered in preparation for the training, take a moment to ask the participants the following questions:
 - a) What hearing screening methods are you currently using and how have you felt about it up until now?
 - b) Who will actually be doing the hearing screening and who is participating in the training as an administrator who will not actually be doing "hands on" screening of children?
 - c) What is your familiarity with OAE screening?

Build participant confidence that they are like the other diverse participants who have already experienced success in updating their screening practices through the use of OAE technology. Remind participants that this is an informal training process, that the small-group nature of the

workshop is intended to make sure that each person leaves with the confidence they need to get started doing OAE screenings.

5. Overview the day. Take a minute to provide an overview of the:

- Objectives of the day and agenda: Provide all participant with basic information about the OAE hearing screening process, “hands-on” experience using the equipment first with adults (adults screening one another) and then with young children, an appropriate screening protocol to follow for children birth to 3 years of age, resources for tracking children through the screening follow-up process, and tools for monitoring the quality of the OAE screening program. See Agenda in the appendix.
- Materials and equipment. Acquaint participants with the Instructional Guide and screening forms that will be used. Explain that all information that will be covered during the workshop is included in these materials. Participants will often be asked to share equipment, with up to 4 individuals per unit.
- Facility and host site policies. Acquaint the participants with where restrooms are, vending machines, and make any other logistical announcements related to compliance with host site policies, etc.



Activity 2

Introduce OAE Hearing Screening

8:45 – 9:30



Handout: Screening Skills Acquisition Checklist

<http://www.kidshearing.org/ScreeningSkillsChecklist>

1. Prepare participants to watch Part 1 of the training video using the following prompt:

Today you'll see a lot of information presented on a video. Don't worry about remembering it all. The same information is included in your copy of the Instructional Guide. In addition, this same video is included on a DVD in your Guide so you'll be able to review all the concepts as you need to.

This first segment of the video explains:

- *Why we are screening*
- *How we will be screening*
- *Overview of the auditory system and OAE Screening*
- *The OAE Screening process*
- *The screener's role*

The most important things for you to focus on will be:

- *How the OAE screening procedure can help to identify children who need further hearing assessment, and*
- *Your role as a screener in that process.*

2. Show Part 1 of the training video, *Getting a Hearing Head Start: Updating Early Childhood Hearing Screening Practices*.

(Note that the information in the video appears in the Instructional Guide.)



Pause at the end of Part 1 when prompted.



3. Review important concepts. Spend a minute or two reviewing important concepts and answering any questions participants may have about this segment. Avoid getting into very detailed explanations about the auditory system—remember that participants are learning to be screeners and therefore need to understand only general concepts of how the hearing system and OAE screening work. Help participants focus on basic concepts, using the prompts provided below to elicit their responses:

Let's review a few key points from the video:

- *The three main parts of the ear that normally transmit sound to the brain are. . ? (The outer ear. . . the middle ear. . .and the. . .inner ear or “cochlea.”)*
- *In a healthy ear, where the inner ear is functioning normally, the cochlea sends the sound signal to the brain and it simultaneously. . .? (emits an echo that can be measured by sensitive equipment.)*
- *If there is excessive wax or debris in the child's ear canal, blocking the sound going in to the cochlea or the emission coming back out, the screening result will be. . .? (“Refer” because no measurable OAE is present.)*
- *If the middle ear is filled with fluid--often associated with middle ear infection-- the screening result will be. . .? (“Refer” because no measurable OAE is present.)*
- *If the cochlea isn't functioning properly, the screening result will be. . . (“Refer” because no measurable OAE is present.)*

4. Prepare participants to watch the Part 2 of the training video using the following prompts:

During Part 2 of the video, you are going to see a variety of types of hearing screening equipment demonstrated. The important concepts to learn are that:

- *Even though there are various types of portable OAE screening equipment on the market, they share common elements.*
- *No matter which type of equipment you will be using, the screening process is very similar.*
- *Screening can be broken down into a simple step-by step process.*

Do not worry about assembling your equipment until we turn the video off. At that time, we will go through the entire process of operating your equipment as we practice using it on each other.

Divide participants into screening teams of up to 4 individuals in preparation for later practice and invite them to open their carrying cases so they can view the equipment. Designate one member of the ECHO Team to be the coach for each team.

5. Show Part 2 of the training video, Getting a Hearing Head Start: Updating Early Childhood Hearing Screening Practices. (Note that the information in the video also appears in the **Instructional Guide**.)



Pause at the end of Part 2 when prompted.



6. Demonstrate OAE Screening

Using a member of the Training Team who typically passes on OAE screening (if possible); ask the person to sit in the demonstration chair.

Ask the participants to walk you through the sequence of screening steps, one step at a time, as you demonstrate, being sure to correct any mistakes they make in their guidance to you. Participants can refer to the handout, Screening Skills Checklist.

- a) Prepare the environment--have a place for the child to sit, a place to put the equipment and supplies, toys, and a place to write the results. Emphasize the importance of preparing this in advance, noting that the time children will wait for you to get organized is minimal.
- b) Visual inspection of the ear and ear canal--note what you are looking for.
- c) Select probe “tip” or “cover”--select the largest tip for the ear as that is likely to create a better seal--this will NOT increase discomfort for the child--note that selecting probe tips is something that screeners will learn to do over time. Even experienced audiologists sometimes have to try a couple of different tips before they get the right one for a given child.
- d) Place the probe tip firmly on the probe--if using a foam tip, demonstrate that the tip should be compressed to form a mushroom shape before insertion in the ear canal.
- e) Insert the probe in the ear canal--emphasizing the importance of a snug fit that enables you to remove your hand from the probe once it is in the ear and that the goal is to seal the ear with the probe tip.
- f) Start the screening process by pushing the appropriate buttons.
- g) Describe the result and, if possible, show participants the display screen.

Repeat the demonstration on the other ear. For the second ear, ask two participants to volunteer; one to screen and one to guide the screening process. Have the “guide” instruct the screener in each step of the screening process, with other participants providing input and direction. Process the activity and answer any questions that arise.

Point out that: *You can use the same probe tip on both ears of a single individual but you should NEVER use the same probe tips ACROSS more than one individual for disease control purposes.*

Break

9:30 – 9:45



Activity 3

Practice Hearing Screening

9:45 – 10:15

Handout: Screening Skills Acquisition Checklist

<http://www.kidshearing.org/ScreeningSkillsChecklist>



During this section of the training, participants will have their first opportunity to learn to use the screening equipment by screening each other's ears. Complete this activity by doing the following:

1. Overview the screening process, which includes four primary elements:

- a) Preparing the screening environment.
- b) Assembling/preparing the equipment and materials.
- c) Performing the screening (including visual inspection and the OAE screening).
- d) Documenting screening results (will be covered in Activity 4).

2. Engage training assistants (if you have them) in assisting the participants and discuss ground rules for this activity:

Instruct the participants to form small groups with up to 4 participants in each group. Each group should have one piece of OAE equipment. Establish ground rules for the guided practice activity.

- a. Importance of following instructions of the lead presenter.
- b. Purpose of the activity is to gain experience with the equipment and to demonstrate some of the more common error messages.
- c. Save questions and experiences to the processing time at the end of each section of guided practice.

Engage the training assistants in guiding each team to follow the group instructions that will be given, focusing their activities on the particular task, and identifying comments and questions to be shared with the larger group during the processing at the end of each practice session

3. Walk the participants through the Screening Skills Checklist, asking them not to proceed to the next step until you tell them to:

- a) Identify one person who will be screened and one who will do the screening
- b) Set-up
- c) Start Screening
- d) Complete Screening.
- e) Child Management
- f) Documentation

Repeat on other ear without you walking them through the steps. They can refer to the **Screening Skills Checklist** to help guide them. Then switch roles and have the person who was screened perform the screening. Complete this process until all members have performed several screenings and have also had a chance to experience having their own ears screened. You will probably want to reassure participants in advance that the OAE screening tool is optimal for screening children, but is not optimal for screening adults so they should not be alarmed if their ears do not pass.

4. Debrief

Elicit comments and questions from each practice team and their coach. The following are commonly asked questions during the first practice experience and potential responses:

- **Why might some adults refer during an OAE screening?** While OAE technology is the best tool available for screening the hearing of children 0 -3 years of age, it is not the optimal screening procedure for adults. It's not uncommon for adults to refer on an OAE screening for a variety of reasons--most of which would not warrant follow-up diagnostic evaluation.
- **What do the various error messages on the screen mean?** The error messages are usually telling you something about the probe fit and/or the amount of noise that is interfering with the screening process, but the messages are not always completely specific or accurate. Therefore, when you get an error message, the important thing is to try again, making sure you are using the largest probe tip possible, that the probe is clear of wax or other debris and connected firmly with the screening unit, and that you have the probe inserted snugly so that it remains securely in the ear canal after you release it.
- **Why can't you hold the probe in the ear?** Attempting to hold the probe is not a successful screening strategy because it can easily cause the probe tip to press against the ear canal wall, thus interfering with the screening.
- **How do you know what size of probe tip/cover to select?** It is impossible to select the right probe tip 100% of the time. Occasionally even very experienced audiologists will try multiple tips on a given child in order to get the optimal fit. Selecting the right size probe tip is something you will learn with experience.
- **Won't selecting a probe tip/cover that is too large hurt the child?** No, in fact, the opposite is true. The inner portion of the ear canal is the part that is the most sensitive, so if a probe tip is too small, and the probe is therefore inserted too deeply, that is more likely to cause discomfort than using a larger tip would.
- **Won't you hurt the person being screened if you pull on the fleshy outer portion of the ear as you examine the ear and place the probe tip?** Most people are more timid than they need to be at first. Pulling back or stretching the fleshy portion of the ear typically does not cause pain in a healthy ear and it helps to open up the ear canal to accept the probe. And, when you examine an ear confidently, the child will be less likely to resist the process.
- **If you get a "refer" or "fail" result, what should you do?** Try again! Assuming the child continues to cooperate, it is always a good idea to examine the probe tip for debris (changing to

a different probe tip size if the fit seems too loose), reinsert it, and try screening again immediately, since a “refer” can result from poor probe fit, extraneous noise, or excessive child movement. Always double check your “refer” or “fail” results by obtaining them one or two additional times during the screening session if possible.

- **If you get a “pass” result, is there a chance that this is not valid?** A pass is the most reliable result you will get from an OAE screen. Once you receive a pass, you do not need to rescreen.

5. Additional demonstrations

The next series of demonstrations can be done quickly to illustrate some of the problems that can be encountered and that need to be prevented while screening. Each demonstration can be done with just one member of each screening team conducting the screening or, if time permits, they can be repeated with each member of the screening team.

Poor probe fit

Complete each of the steps up to through probe insertion and start the test. Just as the test starts to progress, instruct the screener to gently wiggle the probe so that it is now loose in the ear canal. Observe the results and discuss any error messages that appear on the screening unit.

External noise

Complete each of the screening steps. As the screening is progressing, ask all of the participants, except the ones being screened, to talk simultaneously at a level above normal conversational level. Observe the results displayed on the screening unit indicative of external noise interference.

Internal noise

Complete each of the screening steps. As the screening is progressing, ask only those being screened to move their heads around while they speak slightly above a normal conversational level. Observe the results displayed on the screening unit indicative of internal noise interference.

Child management

Complete each of the screening steps. As the screening is progressing, ask those being screened to attempt to remove the probe from their ear by reaching for it if their hands are free or by moving their heads around if they are not being adequately entertained by a toy or some other activity provided by the screener (or another helper). Instruct the screeners (or helpers) to occupy the hands and to capture the attention of the individual being screened so that they are less inclined to remove the probe or to move their heads.

6. Debriefing

Debrief each of the above demonstration activities by discussing strategies for preventing each of the potential problems and by noticing the effect each has on the screening process. These problems slow down the screening process or may completely prevent the screening from being completed.

Strategies for preventing all of the above problems include :

- Good probe fit resulting from appropriate probe selection and insertion as well as clipping the probe cord to the child's clothing.
- Not attempting to hold the probe in the ear because this tends to either loosen the seal or press the probe up against the ear canal resulting in an occluded probe error. Once inserted, the screener should let go of the probe. If a good fit is achieved, the probe should stay seated in the ear canal.
- Keeping the environment, the child, and the individuals around the child as quiet as possible, within normal limits, while maintaining the attention and cooperation of the child.
- Entertaining and comforting the child being screened by having familiar people hold and/or interact with the child, by using interesting visual or tactile toys/objects and by positioning the child in a manner that limits head movement and access to the probe without unnaturally restricting the child in a way that would cause distress.



Activity 4

10:15 – 10:30

Introduce OAE Hearing Screening Protocol and Documentation Forms

Handout:

Instructional Guide, pages 20-23, Screening and Diagnostic Forms



1. Prepare participants to watch Part 3 of the training video using the following prompt:

In this next segment of the video you'll be introduced to the hearing screening protocol. Don't worry about trying to remember every detail of the protocol--the forms you will be using to document screening outcomes will lead you through that process for each child. The important things to pay attention to in this segment are that:

- *You need to conduct more than one screening session with some children who do not pass during the first OAE screening attempt.*
- *You need to screen or rescreen children who have been treated/cleared by their health care provider.*
- *There are simple things you can do to increase your effectiveness as a screener and minimize the number of children who need to be rescreened or referred.*

2. Show Part 3 of the training video, **Getting a Hearing Head Start: Updating Early Childhood Hearing Screening Practices.**

(Note that the information in the video also appears in the **Instructional Guide**.)



Pause at the end of Part 3 when prompted.



3. Refer participants to page 20 in the **Instructional Guide** and discuss the sequencing and timing of steps as well as the anticipated refer rates at each step in the process:

100% of your children will receive an initial OAE screening on both ears. We expect that about 75% of children will pass and will not need any further follow-up; however about 25% will not pass on one or both ears and will need a second OAE screening within 2 weeks. About 8% of the total number of children screened will not pass the second OAE screening and will need to be referred to a health care provider for a middle ear evaluation. Once any middle ear problems have been resolved and medical clearance has been given, you will then screen this small number of children again. We expect that less than 1% will not pass the OAE screening at this point and will be referred to a pediatric audiologist for a complete audiological evaluation. Although a small subset of children will indeed need follow-up referral and further OAE screening, it is a "do-able" protocol that actually helps children get the medical and audiological attention they need.

3. Walk participants through filling out an OAE Hearing Screening Form documenting the results of their own recent hearing screening. You may want to have participants turn to pages 22-23 in their **Instructional Guide** as you discuss each item on the Screening Form.

- a) Center ID—This is used if you are collecting data across program sites.
- b) Child's Name—Fill in the name of the individual screened.
- c) Initial Screen or a Rescreen—Check one of two boxes: For an Initial screen, fill out additional demographics related to the date of birth, ethnicity, and gender as well as whether the child was known to have been screened at birth and, if so, the results.
- d) Screener Name and Title-- Fill in the name and title of the person conducting the screening.
- e) Location of screening—Check the box to indicate whether screening is conducted in a home, Head Start Center, or “other” location.
- f) Screening Results/Left Ear and Right Ear
 - Visual Inspection: If Refer, note screening date and make appointment with Primary Care Provider; if Pass, continue with OAE screening.
 - 1st OAE: If Can't Test or Refer, screen again within a 2-week period; if Pass, screening is complete, no further action needed.
 - 2nd OAE: If Can't Test or Refer, refer to a health care provider; if Pass, screening is complete, no further action needed.

(Note: Using discretion, programs may refer child to the Primary Care Provider after the 1st screening. For example, if parents have concerns about the child's ability to hear, if the family will be moving in the near future, if the Head Start program will be closing shortly, and/or if it will not be possible to complete the screening in a timely way, programs may choose to refer the child before completing two screening sessions.
- g) Children Referred for Medical Follow-up MUST be rescreened after clearance from their Primary Care Provider. If the child does not have a middle ear condition or has a wax blockage that the doctor removes at the appointment, the child should have the next OAE screening immediately. If the child was treated for ear infection, it is best to wait one week after treatment is completed to allow excess fluid in the middle ear time to dissipate before conducting the next OAE screening. If the child does not pass screening after medical clearance, make an appointment for a complete audiological evaluation with a Pediatric Audiologist.
- h) Approximate total time required for screening—Estimate the number of minutes required to complete the visual inspection, the OAE screening for each ear, and to document screening results.

3. Discuss the Diagnostic Follow-up Form. A Diagnostic Follow-up Form will need to be completed on a smaller number of children (probably no more than 10%) who are referred from screening for medical or audiological care. (Note that instructions for the Follow-up Form can be found in the **Instructional Guide**.) When a child refers from screening, it is a good time for the Head Start program to ensure that the child has a Medical Home with a health care provider who can oversee the child's ongoing care. To obtain this follow-up information, the Head Start program may choose to:

- Send a blank copy of the Follow-up Form with the child to the referral appointment and request that the provider fill it out and return it to the program, or
- Call the provider after the appointment to find out the results and document them on the Form.

In any case, it is very important that the screening program obtain and document the results of every referral along with “next steps” the primary care provider or audiologist recommends. Reinforce to participants that as their consulting Audiologist you will be glad to assist them in understanding/interpreting referral results and what needs to happen next to provide the child with timely and appropriate care.

4. Review important concepts. Spend a minute or two reviewing important concepts and answering any questions participants may have about the protocol. Help participants focus on basic concepts, using the prompts provided below:

Let's review a few key points from the video:

- *If a child does not pass the OAE screening during a screening session, what needs to happen next? (Referral to a health care provider.)*
- *If a child is referred to a health care provider, why do you need to rescreen after treatment/medical clearance? (Most health care providers do not have the proper equipment to assess cochlear function.)*
- *If a child is treated for middle ear infection, why should you wait before conducting a rescreen? (Allow time for middle ear fluid to dissipate.)*
- *What are the three keys to conducting effective screening? (Good probe fit, minimizing external noise in the environment, minimizing internal noise caused by the child's movement.)*



Activity 5

10:30 – 12:00

Conduct Hearing Screenings with Children



Handout: OAE Screening Forms (one for each child to be screened)

1. **Assemble participant teams** and prepare them for the screening activity.
2. **Provide teams with necessary materials** (Screening Forms, probe tips, sanitary wipes, toys, zip-lock bags). Reiterate the purpose of each of the materials.
3. **Discuss the logistics of how the screening will be conducted** eliciting input from the host site representatives on where each team should set up their screening “stations,” how children will be brought to the screening stations, and what child identification numbering system should be used on Screening Forms, if any.
4. **Instruct teams to complete a Screening Form on each child who is screened** (or on any child they attempt to screen).
5. **Elicit and answer any questions from participants** before dispersing to conduct screenings.
6. **Inform participants of the time at which the group will** reassemble in the training room to debrief the experience and have lunch.
6. **Debrief the hearing screening experience** with participants after they reassemble. Ask participants:

What worked well?

What was challenging?

What did they learn about setting up the screening environment?

What child management challenges did they encounter, what worked, what didn't work?

What error messages did they get and how did they respond to them?

What probe covers were used?

What other strategies were used to complete screenings?

Lunch

12:00 – 12:30



Activity 6

Review Equipment Care and Helpful Hints

12:30 – 1:00

1. Prepare participants to watch Part 4 of the training video using the following prompt:

In this final segment of the video, we'll cover some important elements related to care of your screening equipment and helpful hints that will make screening easier. Points to pay particular attention to include:

- *How to maintain the probe, which is the most fragile part of the equipment.*
- *The importance of running regular calibration checks on your equipment (if applicable to the type of screening equipment being used.)*
- *The need to have screening equipment recalibrated on a yearly basis.*
- *Helpful hints for being an effective screener; ideas for screening the small number of children who are difficult to screen.*

2. Show Part 4 of the training video, **Getting a Hearing Head Start: Updating Early Childhood Hearing Screening Practices.**



(Note that the information in the video also appears in the **Instructional Guide**.)

The first portion of Part 4 demonstrates a manual calibration check that is needed for some equipment; if the equipment being used in your training does not require regular manual calibration checks, you may fast forward through this portion of Part 4.

Stop at the end of Part 4, which is the conclusion of the training video.



3. Review specific equipment care information, provided by the manufacturer, for the equipment used in this particular training. There are a number of equipment-specific issues that could not be addressed adequately in the training video, so use this opportunity to discuss and demonstrate:

- How to clean and maintain the probe (some probes must be cleaned with a cleaning wire when they become clogged; others have small filters or nozzles that can be changed.)
- How to run a calibration check on the equipment at least weekly. Note that not all equipment models require weekly manual calibration checks. Check the manual for the equipment being used to see if this is required. If so, demonstrate the process and have the participants follow along running a calibration check on their own equipment. Describe the message they should see if the equipment is functioning properly and the message that may appear if the equipment is not functioning properly.

- When and how to have the equipment calibrated by the manufacturer. Provide details of the costs associated with calibration and what programs need to do to receive this maintenance service.
- How to order additional probe tips. Direct participants to the product information that describes how and where additional tips can be purchased. Remind participants NOT to wait until the last minute before ordering additional tips.
- Other issues relevant to the specific model of screening equipment being used such as whether any adjustment needs to be made when screening children with PE tubes.

4. **Raise and respond to commonly-asked questions about screening,** including:

- **Should children who have Pressure Equalization (PE) tubes be screened?** OAE hearing screening may and should be performed on children who have PE tubes. PE tubes are often inserted through the eardrum of children who have chronic middle ear infections or other problems affecting the middle ear system. PE tubes ventilate the middle ear space, allow fluid to drain out, and help to equalize the pressure in front of and behind the eardrum. Children whose PE tubes are functioning properly and are not occluded will generally pass the OAE screening. An OAE screening "refer" result may indicate that a PE tube is not functioning properly and that the child needs to be referred to a health care provider for a middle-ear evaluation. Some equipment models need to be adjusted when screening a child with PE tubes. Check the equipment manual for this information.
- **How often should screenings be conducted?** Each Head Start program is required to ensure that all children receive a hearing screening within 45 days of enrollment and at least annually. Depending on their capacity, programs may opt to screen more frequently. In any case, all programs should be encouraged to constantly be aware of children's hearing health and to screen an individual child whenever a parent indicates concern over hearing or language development, there is a history of childhood hearing loss in the family, a tendency toward repeated ear infections, or if the child experiences head trauma or an extended illness involving high fever. Programs need to think of the OAE equipment as a valuable tool they can use at their own discretion to screen for hearing health.

5. **Encourage participants to enlarge their “screening repertoire”** when they return to their home sites by trying different screening strategies, including:

- Creating a “kit” of age-appropriate, visually interesting toys that are kept with the screening equipment.
- Screening during naptime.
- Screening in different environments. Some children will respond best if they are in an environment where they are not being distracted by their peers. Other children enjoy watching the screening process and “taking turns” having their ears screened. When screening in a home environment, screeners may need to be able to “take charge” and enlist parents in turning down the sound of a TV, turning off a radio and/or keeping other children quiet or entertained in another room.
- Techniques for eliciting cooperation from difficult-to-screen children are described in the **Instructional Guide**.



Activity 7

Establish a Hearing Screening Data Collection and Tracking Process

1:00 – 1:30



Internet Connection Needed

Handout:

OAE Screening Form (page 22, *Instructional Guide*)

<http://www.kidshearing.org/OAEScreeningForm>

Diagnostic Follow-up Form (page 23, *Instructional Guide*)

<http://www.kidshearing.org/DiagnosticFollowupForm>

1. **Provide each participant with copies of the OAE Screening and Diagnostic Follow-up Forms based on the numbers of children, 0 – 3 years of age they anticipate screening at their program.** Programs will need at least one screening form for each child enrolled, with extras for children who will be rescreened after referral for medical care (approximately 10%). They will also need a similar number of Diagnostic Follow-up Forms for documenting the findings and treatments associated with referrals.
2. **Elicit information from each participant about their plans for starting hearing screening.** Find out when they will begin and when to check in with them on their progress.
3. **Discuss how the screening and follow-up information will be used in their current database tracking systems.**
4. **Introduce the on-line tracking system available, free of charge, at [kidshearing.org](http://www.kidshearing.org).**
5. **Watch parts 1 and 2 of the Tracking Tool Tutorial**

<http://www.kidshearing.org/TrackingTools>



Review the written instructions included in the Tracking Tool Instructions Handout.

(Note: while the Tracking Tools can be valuable to all screeners, if time is limited, this tutorial can be reviewed after the training and perhaps only by those individuals responsible for overall management of the screening program. If this option is used, arrange a time to discuss questions and procedures once the tutorial has been viewed.)

- 6. Discuss the importance of prompt follow-up and what mechanisms can be used to ensure that children not passing the OAE screening are referred to health care providers AND that subsequent diagnostic and treatment information is obtained back from health care providers.** This is critical so that rescreening can be done in a timely way. It is important to remind participants that all children referred to health care providers as a result of not passing the OAE screening **MUST BE RESCREENED** after medical clearance. If children still do not pass the OAE screening, they will need to be referred to a pediatric audiologist for a complete evaluation. Talk about how these processes can be tracked and referrals expedited.



Activity 8

1:30 – 1:45

Learn about Additional Resources at KidsHearing.org

Internet Connection Needed

1. Go to www.kidshearing.org. Click on Early Head Start. Show the participants the resources under each tab beneath the “Steps to an OAE Screening Program.” Highlight that all materials received in the training are downloadable from the website and explore the additional resources available.





Activity 9

Evaluate the training

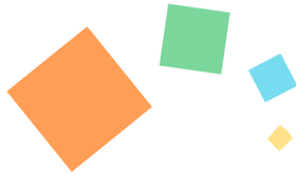
1:45 – 2:00

Handout: Training Workshop Evaluation

Kidshearing.org/trainingevaluationtools

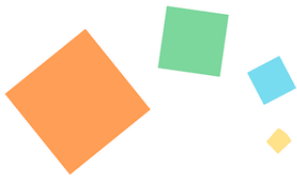


- 1. Discuss how the consulting audiologist and other members of the training team can support subsequent hearing screening and follow-up processes, including:**
 - Screening Practices
 - Referral Practices
 - Community Outreach
 - Equipment Concerns
 - Individual Case Consultation
 - Administrative Duties
 - Monitoring for quality (pass/refer rates, adherence with protocol etc.)
- 2. Elicit final questions and feedback about how effective the training experience was for participants.**
- 3. Have each participant complete the OAE Knowledge Test. Review the answers once completed.**
- 4. Have each participant complete the Training Workshop Evaluation.**



Monitoring Program Quality After the Training

The goals of screening young children for hearing loss are met when children with hearing health needs are identified through efficient screening practices and when subsequent diagnoses and treatments are provided in a timely way. An important aspect of program management includes implementing a strategy for collecting and synthesizing screening data and periodically reviewing outcomes. Guidance on monitoring quality of OAE screening practices is found at: <http://www.kidshearing.org/monitorquality>



Providing Follow-up Technical Assistance

Within four weeks of conducting a training workshop, contact participants to inquire about the following:

1. Have screening activities been initiated? If so, how is it going? If not, what barriers are being encountered and what assistance might be helpful?
2. Has the program established a mechanism for documenting and tracking screening outcomes using their program's database tracking system or the free online Tracking Tool?
3. Has the program undertaken any activities to inform local physicians/pediatricians about the OAE screening process? Do they need assistance in doing so?
4. What questions (if any) do screeners have about the screening and documentation process?
5. Is the program:
 - a. Conducting OAE screening as the first and primary screening method?
 - b. Conducting OAEs on all children birth to three years of age and documenting all results (Pass, Refer and Can't Test) and adhering to the protocol?
 - c. Understanding the importance of promptly conducting additional screening when necessary?
 - d. Understanding the importance of rescreening children after referral to/clearance from health care providers, and the time frame within which rescreening should occur?
 - e. Aware of who to contact should they need assistance?
 - f. Getting acquainted with the state EHDI resources and exploring data sharing possibilities?
6. Arrange for follow-up technical assistance to be provided. Technical assistance may be provided via telephone, e-mail, video conferencing or face-to-face meetings.

Common Technical Assistance Topics

Programs initiating OAE screening will often need follow-up technical assistance related to achieving appropriate pass/refer rates, compliance with protocol, and other areas covered under Monitoring Screening Program Quality (see appendix). In addition, programs may need assistance with the following:

Screening Protocol and Practices

- Strategies for home-based screening practices. Screening successfully in a home may require some unique strategies and screeners may need further instruction on how to “take control” (turning volume down on a TV, enlisting parents or adults who may be present in keeping other children quiet) to create an appropriate screening environment.
- Strategies for working with difficult-to-screen children. Programs often 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. Assistance can take the form of advice or “helpful hints.” In unusual circumstances, this might require directly helping the program screen a child or setting up an appointment where a behavioral assessment can be done.
- Reviewing the OAE screening and follow-up protocol. Programs often need to be reminded that when children are referred for middle ear consultation, they always need another OAE screening once medical clearance is given. It is common to assume that health care providers can complete the screening process once the referral is made. However, a middle ear consultation is just an intermediary step in the OAE screening process that must come back to those responsible for conducting the OAE screenings. If the child does not pass the OAE screening after the middle ear consultation, the child is referred for a complete audiological evaluation.
- Clarifying the conditions under which a given 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 one of the various possible steps in the screening process; or, b) the child receives a complete audiological evaluation and the program receives the results. Until one of these conditions is met, the child’s screening is considered incomplete or “in process”.

Tracking and Follow-up Concerns

- Reviewing the tracking process being used. Given the relative complexity of the OAE screening protocol, it can be helpful to review how the OAE screening follow-up steps are being documented and tracked and to make sure that any child whose screening process is incomplete is readily identified for follow-up steps.

Community Outreach and Interaction with Physicians and Audiologists

- Helping to establish relationships with local audiologists and medical providers. Encourage programs to meet with medical providers and audiologists who will receive the majority of their referrals to involve them in the “project” and to make mutually agreeable decisions about how referrals (and information sharing 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 programs use available options to connect children with the services they need.
- Clarifying the Medical Home concept when Head Start grantees may erroneously assume that health care providers have the capacity to provide hearing screening to infants and young children. Help participants to understand that most care providers serving as a Medical Home will welcome additional information provided by the OAE screening.

Equipment Concerns

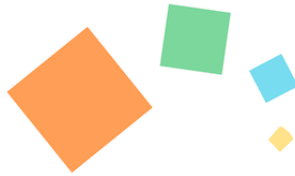
- Answering questions about equipment functioning, supplies, and maintenance. Early childhood programs often need additional information related to ordering equipment supplies (especially probe tips), and the appropriate source to contact for equipment maintenance.
- Providing input on the selection of hearing screening equipment and options for funding. Larger programs may want or need to purchase more than one piece of screening equipment. Assist sites in talking through current equipment options and how they meet program needs using the information available at KidsHearing.org such as [Elements to Consider When Selecting Equipment](#), [OAE Equipment Reviews](#) and [OAE Equipment Comparisons](#).
- Interacting with hearing screening equipment manufacturers/distributors. Early childhood program staff will rarely have experience working with salespersons. It will be important to offer support and information to programs on how what to expect/require from vendors when purchasing equipment and supplies.

Individual Case Consultation

- Interpreting screening, medical or audiological evaluation results and determining “next steps.” Consider ways that the Training Team can support programs when medical or audiological reports are provided, but are not written in clear language that helps the early childhood program staff understand what needs to happen next.
- Reviewing screening results and prompting follow-up on cases that are pending.

Administrative Duties

- Helping programs coordinate screening activities, share equipment, etc.
- Assisting with parent education (keeping it short and simple!)
- Supporting programs when they experience staff turnover – possibly by providing additional training when additional screeners need to be trained.



Appendix

Planning Tools:

Training Workshop Planning and Preparation Checklist	40
Workshop Materials Checklist	41
Training Workshop Day – Set-up Checklist	42
Information for Teachers	43

Handouts:

Instructional Guide and DVD (provided separately)

Screening and Diagnostic forms (pages 22-23 of Instructional Guide)

Training Workshop Agenda	44
OAE Screening Skills Acquisition Checklist	45
Test Your Knowledge about OAE Hearing Screening	46
Training Workshop Evaluation	48

Training Workshop Planning and Preparation Checklist

Identify a program to host the training that:	
	Has enough young children on site, ranging in age, so that each participant can practice screening at least 5 children each
	Is accessible to all potential participants, individuals with disabilities
	Has access to restrooms
	Permits refreshments/lunch to be served on site
	Has a relatively quiet, distraction-free environment for the meeting (conference room, empty classroom with moveable chairs, etc.) with sufficient space, tables, chairs and electrical outlets available for plugging in equipment if necessary
	Has a TV-DVD or Laptop, Projector, speakers and screen that can be used during the training (note that if using a TV-DVD the tracking tool and the review of additional online resources portions of the workshop will not be able to be completed)
Schedule the training workshop:	
	On a day acceptable to the host site and participants
Schedule and plan specific workshop activities:	
	Arrange for morning breakfast snacks/drinks
	Arrange for lunch/drinks
	"Hands on" screening practice to occur approximately 2.5 hours after the beginning of the training and at a time that fits with the children's schedules (mid-morning usually works best so that screening is completed before lunch)
Obtain screening equipment	
	Arrange for sufficient OAE equipment so that no more than 4 participant trainees are sharing a single piece of equipment. Also have 1 demonstration unit available. Be sure that batteries in the OAE equipment are charged or fresh.
Prepare teachers, staff and other participants	
	Provide host site with information about preparing teachers
	Ask about any special procedures screeners will need to follow such as the use of foot covers in infant areas, where participants should park, etc.
	Provide participants with general information on the agenda, hours of the workshop, and that a light breakfast and lunch will be provided
	Provide participants attending the training with maps on how to find the training location
	Advise participants they will be doing "hands-on" screening of children and need to dress comfortably to be able to interact w/children, sit on the floor, etc.

Workshop Materials Checklist

The following is a list of materials needed for each training workshop.

Provide 1 for each training session	
	Sign-in sheet
	Training Video/DVD
_____ # of pieces of equipment to be used in training workshop (provide 1 for each piece of equipment)	
	Instructional Guide with DVD
	Set of Screening Forms (enough copies with each piece of equipment to cover the number of children programs will be screening after the training.)
	Set of Follow-up Forms (enough copies with each piece of equipment to cover approximately 10% of children who will be screened who may also need to be referred for Follow-up.)
	Toys (silent toys--use during screenings and send home with equipment)
	Extra probe tips (adult & pediatric, enough for trainees to screen each other and to screen children of a variety of ages at the host site)
	Sanitary wipes (for cleaning hands prior to each child being screened)
	Zip lock bags (for used probe tips and wipes)
_____ # of participants (provide 1 for each participant)	
	Workshop Agenda
	Instructional Guide with DVD
	Name Tag
	Screening Skills Checklist
	Test Your Knowledge about OAE Hearing Screening
	Workshop Evaluation form
_____ # of children to be screened during the training workshop _____ # of workshop participants (provide enough copies of screening forms to cover the number of children that will be screened at the host site, 1 per child, plus 1 "practice" copy for each participant.)	
	Screening Forms

Training Workshop Day—Set-up Checklist

Meet host site staff; view host site facility:	
	Introduce the trainer(s) to all key host site staff, meet teachers, provide staff with information on OAE screening if that was not done previously.
	Review host site preferences and policies, including sign-in policies, parking, procedures to be followed when working with children, use of foot covers in infant areas, etc.
	Determine where screening can best be conducted; confirm the time when children will be available for screening.
Set up the meeting room:	
	Arrange tables in a semi-circle or U-shape that permits people to interact and for small clusters of up to 4 individuals to share a piece of equipment.
	Position the TV-DVD or Laptop in the front of the rooms so that people can watch the video while also glancing at the equipment that is on the table in front of them. Test internet connection.
	Locate electrical outlets to plug in equipment if necessary.
	Set up table on which breakfast refreshments, drinks, and lunch can be served.
	Set up a place for participants to sign in and receive a name tag upon arrival.
	Set-up a table and chair for equipment demonstration.
Equipment:	
	Set up TV-DVD or Laptop, speakers & projector, test it, and make sure volume is set.
	Be sure that batteries in the OAE equipment are charged or fresh.
	Place OAE screening equipment on tables so that up to 4 people can share equipment.
	Reserve one OAE unit for demonstration purposes along with probe tips, calibration chambers (if needed) and other equipment elements.
Materials:	
	Place an Instructional Guide, Workshop Agenda, Test, and Workshop Evaluation form at each seat.
	Place screening forms, extra probe tips, sanitary wipes, toys, and zip lock bag with each piece of equipment.
	Arrange other materials to give to participants when appropriate

Information for Teachers

We will be coming to complete hearing screenings on children in your class. The following describes the hearing screening process and explains how you can facilitate this in an efficient manner.

The Hearing Screening Procedure

The procedure we will be using is called Otoacoustic Emissions or OAE Testing. This is the same procedure used in many hospitals across the country to screen newborns. It is a highly reliable hearing screening method that will help us identify a wide range of hearing health needs, including middle ear disorders (infections) or permanent hearing loss that we otherwise might not know about. These conditions can have a significant negative impact on the social, educational and developmental progress of a child when left unaddressed.

If a child does not pass the screening we will repeat it again with a two-week period. If the child still does not pass, the child will be referred to a primary care provider for initial treatment and to an audiologist for a complete evaluation when necessary. **NOTE: If a child does not pass a hearing screening, this does NOT necessarily mean they have a serious hearing health need. Rather, it means that a complete evaluation is necessary.** Any child referred to a health care provider will also need to be rescreened once the health care provider tells us the middle ear is clear and healthy. Our screening looks at the inner ear and goes beyond what most health care providers examine.

What you need to know about OAE hearing screening:

- It involves a tiny sound transmitter/microphone being placed in the child's ear from which the child will hear a clicking or musical tone.
- Does not require the child to respond to the sounds in any way, except to be quiet.
- Will be painless for the child.
- Will take about 3-5 minutes per child.
- Must be done in a relatively quiet environment, but silence is not required.
- May be done while the child is sleeping.

Teachers may facilitate the screening process by:

- Preparing the children for screening by playing a little game in which the children pretend to listen to the sound of a bird or other animal coming from a small toy, or even the teacher's hand. (The game should NOT involve actually placing anything in the child's ear canal.) It is best if the teacher avoids introducing the screening activity by stating anything like, "You are going to have your hearing tested," which is likely to make children feel nervous. It is much better for teachers to **tell children that they will each have a chance to "play a listening game."** Having rewards such as stickers available after the screening can also be a good idea.
- Recommending an especially cooperative child as the first to be screened, one who can model cooperative behavior during screening for other children.
- Designating a specific area in the room where screening will take place and where something special is set up for the children that will encourage them to sit quietly.
- Occupying the children's hands and attention during the screening process, helping to hold the child, and finding ways to soothe them if they are distressed during the procedure. Having quiet toys available for the children can be very effective.

OAE Hearing Screening and Follow-up Training Workshop Agenda

8:00 – 8:15	Sign-in, breakfast snack and get settled
8:15 – 8:45	Activity 1: Get Started
8:45 – 9:30	Activity 2: Introduce OAE Hearing Screening
9:30 – 9:45	Break
9:45 – 10:15	Activity 3: Practice Hearing Screening
10:15 – 10:30	Activity 4: Introduce OAE Hearing Screening Protocol and Documentation Forms
10:30 – 12:00	Activity 5: Conduct Hearing Screenings with Children
12:00 – 12:30	Lunch
12:30 – 1:00	Activity 6: Review Equipment Care and Maintenance and Helpful Hints for Screening
1:00 – 1:30	Activity 7: Establish a Hearing Screening Data Collection and Tracking Process
1:30 – 1:45	Activity 8: Learn About Additional Resources
1:45 – 2:00	Activity 8: Evaluate the Training

OAE Screening Skills Observation Checklist

Screeners's Name _____

Helper's Name _____

Observer's Name _____



✓ Set-up

- ___ Appropriate environment selected or created
- ___ Appropriate distracters (quiet toys) available
- ___ All screening materials and supplies readily available
- ___ Hands sanitized
- ___ Remote probe assembly clipped to back of collar

✓ Starting Screening

- ___ Visual inspection of outer ear (pull back outer ear, view ear canal)
- ___ Tip placed properly on probe (tip pressed all the way on probe to base)
- ___ (Foam tips only) Tip formed into mushroom shape, angled away from probe opening
- ___ Outer ear pulled back during probe tip insertion
- ___ Probe inserted with angle toward the nose, then angled back
- ___ Hands removed from ear and probe after probe insertion

✓ Completing Screening

- ___ Appropriate probe fit achieved (may require reinsertion of probe or different size)
- ___ Correct buttons pushed to proceed quickly through the screening process
- ___ Probe removed by grasping the probe, not the cable
- ___ Probe tip and nozzle checked for earwax blockage, replaced if needed
- ___ (Foam tips only) Tip removed by grasping plastic tubing, not foam material
- ___ Used probe tips placed in baggie

✓ Child Management

- ___ Child positioned/re-positioned to facilitate screening
- ___ Child quietly told (not asked) what the screener is going to do
- ___ Visual or tactile distracters used, as needed, to engage child
- ___ Assistance enlisted to distract child and/or re-direct behaviors

✓ Documentation

- ___ Visual inspection outcome documented
- ___ Screening outcome documented after completion of screening for each ear
- ___ Appropriate follow-up step(s) identified

Feedback

One behavior that the screening team did extremely well _____

One aspect of the screening that the team could improve _____

Test Your Knowledge about OAE Hearing Screening

Circle the correct response.

1. How many children are born annually in the United States with permanent hearing impairment?
 - a. 1 in 100
 - b. 1 in 200
 - c. 1 in 300
 - d. 1 in 400
2. Middle ear infections, if chronic, can cause problems with language development. What percentage of preschool children experience repeated episode of middle ear infections?
 - a. 10%
 - b. 25%
 - c. 35%
 - d. 75%
3. Most children with permanent hearing loss:
 - a. Have parents who are hearing impaired
 - b. Have parents who do not have a hearing loss
 - c. Use cochlear implants
 - d. Need pressure equalization tubes
4. The otoacoustic emission is a response from which part of the ear?
 - a. Eardrum
 - b. Auditory nerve
 - c. Cochlea
 - d. Ossicles
5. Hearing screening with OAE:
 - a. Involves a behavioral response from the child
 - b. Is an objective test
 - c. Requires the child to be awake and alert
 - d. Is provided by most physicians
6. The role of the screener does not include:
 - a. Re-screening following treatment for an ear infection
 - b. Diagnosing hearing loss
 - c. Educating parents about the importance of hearing to a young child
 - d. Providing a medical referral

7. When selecting the tip size for screening is best to:

- a. Begin with the smallest available size
- b. Choose a size slightly smaller than the ear canal opening
- c. Choose a size slightly larger than the ear canal opening
- d. Begin with the largest available size

8. When screening a child for the first time you notice that he/she is congested and the result is a “refer” in both ears. Which action would be appropriate for the screener to take?

- a. Refer the child to the physician
- b. Refer the child to the audiologist for further testing
- c. Repeat the screening while holding the probe in place
- d. Repeat the screening within the next few weeks.

9. After a child refers from screening, is seen by a health care provider, and completes treatment for an ear infection, you should:

- a. Refer the child immediately to an audiologist
- b. No further action is needed
- c. Rescreen the child in 4-6 weeks
- d. Repeat the screening only if concerns arise

10. A child with an ear infection and accompanying fluid in the middle ear:

- a. Will pass the OAE screening
- b. Will not pass the OAE screening
- c. Will usually be identified easily without OAE screening
- d. Will typically not have difficulty hearing

11. If a child is uncooperative and consistently displaces the probe from the ear canal during the initial screening session, you should:

- a. Try to screen the child again during nap time
- b. Hold the probe firmly in the ear canal while screening
- c. Refer the child immediately to the audiologist
- d. Attempt to screen him/her the following year

12. If excessive noise is present during the screening:

- a. It will take longer to complete the screening
- b. The probe should be held in place
- c. A smaller probe tip should be used
- d. The equipment will increase the volume of the stimulus

Answer key:

1 - c	5 - b	9 - c
2 - c	6 - b	10 - b
3 - b	7 - c	11 - a
4 - c	8 - d	12 - a

OAE Hearing Screening Training Workshop Evaluation

1. Please rate the quality of each of the following the training components by circling the number that best describes your assessment of the component:

	High	Average	Low		Comments	
Video presentation	5	4	3	2	1	
Printed Instructional Guide	5	4	3	2	1	
Hearing Screening and Follow-up Forms (for documenting screening results)	5	4	3	2	1	
“Hands-on” practice screening other adults	5	4	3	2	1	
“Hands-on” practice screening children	5	4	3	2	1	
“Live” presentation and discussion by the Workshop team	5	4	3	2	1	

2. Please rate the overall quality of this training workshop in preparing you to do the following:

	High	Average	Low	Comments		
Prepare screening environment	5	4	3	2	1	
Use OAE equipment to screen young children	5	4	3	2	1	
Document screening results	5	4	3	2	1	
Implement the OAE screening protocol	5	4	3	2	1	
Make referrals when needs	5	4	3	2	1	
Track follow-up	5	4	3	2	1	
Care for OAE screening equipment	5	4	3	2	1	
Accessing additional resources	5	4	3	2	1	

3. What additional support or resources (if any) do you think you will need to successfully implement OAE screening in your program?

4. What can we do to improve the training provided to screeners/programs in the future?

Thank you for your input!