



Chair's Message

by Peter Weber, MD FACS,
Representative of the American
Academy of Otolaryngology
Head and Neck Surgery

Hi! With the beginning of fall starts the beginning of school, and again the start of another educational year. This is the theme for this fall's newsletter. The OHC Corner describes many effective tips for teaching adults and keeping their interest in your topic. How often do we talk, lecture or explain to people, only to wonder if they are really listening? This article gives practical tips on how to keep things interesting and hold a person's attention.

Many OHC's have asked for help concerning audiometric baseline revision. We offer an excellent guide with rules in

order for you to help teach your professional supervisor the appropriateness of when and how to change the audiometric baseline. It also discusses the importance of such revisions.

Another topic of interest and importance to the OHC is workers' compensation. The article by Susan Megerson (based on a chapter she coauthored in the recently-released *Noise Manual, 5th edition* (AIHA, 2000) summarizes the results of the most current available survey of state worker compensation practices.

Finally, I think you will totally enjoy the hearing conservation activity handout found on pages 5-8. This is an excellent teaching tool of cartoon-like images, word searches, puzzles and crosswords that even adults will like. It is a simple tool that employees can play with to learn about hearing conservation.

I certainly hope you profit from this fall issue of our newsletter and that it is as educational for you as it was for me.

NHCA Professional Guide for Audiometric Baseline Revision

Editor's note: Although OSHA specifies that hearing conservation program baseline audiograms can be revised to reflect changes in hearing sensitivity, the details are left up to the professional. What may seem a relatively straightforward proposition has been fraught with confusion and divergent opinions since the promulgation of the hearing conservation amendment in 1981/83. A new professional guide from the National Hearing Conservation Association (NHCA) now provides a uniform and well thought out approach. CAOHC urges you to share that guide, reprinted below, with the professional supervisor of your audiometric testing program to help bring uniformity to this practice. Please note that the professional supervisor, and not the occupational hearing conservationist, must implement these baseline revision guidelines.

What Is Baseline Revision?

In a hearing conservation program (HCP), each employee's baseline audiogram gives the reference hearing thresholds for that individual. The results of later monitoring audiograms are compared to the baseline to detect significant changes in hearing thresholds. When significant shifts for the worse are identified, follow-up actions are taken to improve employee protection from noise.

As specified in the Hearing Conservation Amendment (CFR 1910.95) promulgated by the Occupational Safety and Health Administration (OSHA), the baseline may be revised by

the reviewing audiologist or physician either for significant improvement in measured thresholds or for persistent standard threshold shift (STS).

Because the baseline audiogram is so important for detecting hearing change and reacting to prevent additional change, NHCA assigned a special committee to develop guidelines for revising audiometric baselines. The 16-member committee conducted research and evaluated various strategies over several years. The guidelines given here, which were approved by the board of NHCA in March 1996, represent the consensus of the committee. Following these guidelines will provide consistency across professional reviewers and audiometric testing service providers, thereby increasing the degree of protection for noise-exposed workers.

Note: although the guidelines require persistence of hearing changes before the baseline is revised, protective follow-up actions for the employee are needed as soon as significant changes for the worse are first shown.

continued on page 10

What's Inside?

CONTENT	PAGE
Audiometric Baseline Revision	1
Worker's Compensation for Hearing Loss	2
OHC Corner-Effective Training	3
Noise and Your Ears (Activity Handout)	4
Hearing Conservation Placemat (Pull-Out)	5-8



UPDATE

Published by the Council for Accreditation in Occupational Hearing Conservation, a not-for-profit organization dedicated to the establishment and maintenance of training standards for those who safeguard hearing in the workplace.

Articles should be submitted, with a black and white photograph of the author. The *UPDATE* is available to individuals not certified by CAOHC at an annual subscription rate of \$15. Payment must accompany request:

611 E. Wells Street
Milwaukee, WI 53202-3816
Phone (414) 276-5338
Fax (414) 276-3349
E-mail: info@caohc.org

- **Executive Director**
Janet L. Otten
- **Associate Executive Director**
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- **Administrative Assistant**
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Robert Goldenberg, MD
Susan Megerson, MA, CCC-A

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Course Director Workshop Scheduled for Spring 2001

The Spring Course Director Workshop will be held in Salt Lake City, UT on Friday, April 9, 2001 at the Embassy Suites Hotel.

If you are interested in becoming a Course Director and meet the qualifications described in the "Course Director Certification and Recertification Requirements" brochure and have your application approved by the Screening Committee, you must then complete a one-day Course Director workshop.

Contact Barbara Lechner at the CAOHC office at 414/276-5338 for more information, or access the CAOHC website at <http://www.caohc.org>

The location for the Fall 2001 workshop has not been selected as of publication date. Please check the next *UPDATE* for more information.

If you wish to have your name removed from mail solicitations from vendors who have purchased the CAOHC database, please notify CAOHC staff via fax at 414/276-3349; or e-mail to info@caohc.org.

Update on Worker's Compensation for Hearing Loss

by Susan C. Megerson, MA CCC-A
Representative of the American
Speech-Language-Hearing Association



The Occupational Hearing Conservationist (OHC) has many duties in a Hearing Conservation Program (HCP). Although prevention of hearing loss is always the primary goal of a successful program, there are times when employees (with or without occupational hearing loss) will file for compensation. It is essential that the OHC be prepared for these times, both by being familiar with hearing loss compensation practices in his or her state/jurisdiction, and by maintaining careful and detailed audiometric records which will be of benefit during assessment and processing of a claim.

Up to this time, OHCs have used as a reference a 1992 state survey of workers' compensation practices for occupational hearing loss conducted by the American Speech-Language-Hearing Association and reprinted in Appendix IV of the CAOHC *Hearing Conservation Manual*. A new survey of American states/territories and Canadian provinces has been conducted and published in a chapter entitled "Workers' Compensation" by Robert A. Dobie, MD and Susan C. Megerson in *The Noise Manual*, 5th Edition, American Industrial Hygiene Association, edited by E. H. Berger et. al. (2000). The authors obtained the data in late 1998 and early 1999 by a written survey of workers' compensation officials in various jurisdictions. In some cases, the state or province supplied a copy of relevant statutes while others simply completed the survey. A detailed summary of the survey results appears in the chapter.¹

Although this state survey is an excellent tool for general education and comparison purposes, due to the many special circumstances and qualifiers surrounding the processing of a workers' compensation claim for hearing loss, it is important for OHCs to become completely familiar with regulations and procedures within his or her jurisdiction. In practice, hearing loss claim evaluations are subject to many nuances that require an in-depth understanding of applicable regulations and practices. OHCs and/or their professional supervisors are encouraged to contact the appropriate workers' compensation office to request the most current and comprehensive information available.

Following are highlights of the survey for U.S. states, territories and other jurisdictions. Please refer to the book chapter for a more complete synopsis of results and for information on Canadian practices.

Calculation of Impairment and Awards

Many methods have been used over the years to calculate impairment ratings for hearing loss. Results of the survey revealed that the most commonly specified method for calculating hearing impairment is the latest formula recommended by the American Academy of Otolaryngology (AAO), the "AAO-79" method. Over two-thirds of states/territories reported utilizing the AAO-79 formula by specific reference or by virtue of a requirement to follow the most recent American Medical Association workers' compensation guideline (which specifies use of the AAO-79 formula). Six states reported still utilizing an older AAO method, the "AAO-59" formula, and several states reported having adopted other variations. It is notable that a full third of jurisdictions stated that a specific formula is not required, rather, that impairment ratings are based on "medical evidence." Table 1 provides a summary of reported impairment formulas currently in use in the U.S.

The process for determining monetary awards for workers' compensation claims is typically based on applying the impairment rating to a schedule for lump sum payments, or to extended payments based on a percentage of the individual's wages. There is a great deal of variation across states in the amount of awards provided for occupational hearing loss. Depending on the state, maximum awards range from as little as \$9000 to as much as \$150,000 over and above replacement of lost wages.

Worker's Compensation
continued on page 9

Some Tips on Effective Training

By George Krafcisin MA CIH CSP
Representative of the National Safety Council



The session was turning out just as Joe had feared it would: people were still drifting in twenty minutes after starting time; he was in the middle of his explanation of the decibel, and Terry and Jim were carrying on a private conversation in the back of the room; Sam was falling asleep in a corner; and several others were reading the handout material he had given them yesterday. "Oh, well," he said to himself, "I'll just finish going through my outline and send them back to work. If they don't care about protecting their hearing, I can't make them care." He carefully avoided thinking about the remaining twenty sessions for this year.

You may enjoy teaching, or you may hate it. More important is: how do your students feel about it? Here are a few thoughts on how to make those sessions more enjoyable for you and your students.

Remember adult learning characteristics

Adults have a lot going on in their lives and jobs. Hearing conservation training is not likely to be top priority on their list. You have to give them a reason to invest their time in what you have to say. Sending a message that OSHA required training will be held next Wednesday is unlikely to get an enthusiastic response. How about telling them that an information session will be held that will help them protect their hearing?

Adults want to learn things that will be of direct value to them. Adults want and expect their learning to be applicable to problems and situations they meet daily. They won't be very interested in calculating decibel levels from acoustic power measurements, but they just might appreciate learning how to insert an earplug so it doesn't hurt. Design the objectives for your training with this in mind (discussed below).

Adults have an extensive base of experience and beliefs that they bring into the training room. Take advantage of experience, tips and techniques that members of the group can share: is

there a hearing-impaired worker who is willing to tell others of his experience to illustrate the importance of hearing conservation?

Older people may not hear or see as well as younger ones. If you have a large group, you may need to speak up or use a microphone. If you have handouts or visuals, use larger type, fewer words. Power point and overhead transparencies should have no more than six lines of six words each.

Some people learn better from the spoken word, some from written information, some from pictures. Make important points using all three modes.

Does everyone read and speak English? You may need to instruct in their native language, use visual illustrations, or make sure that all the important information is in spoken form for those whose reading skills are limited.

Prepare thoroughly

What do you want people to know and do as a result of your training? Write specific objectives for the session. Use action verbs, stating what you would like the participants to be able to do after the session. For example: *Wear hearing protection at all times in noise exposure areas; Conduct an audiometer calibration; or Identify the abnormal audiogram from a sample of four.* These objectives are the core of what you are teaching, and all of your techniques and materials should focus on achieving them. *Organize the learning material into simple steps.* Take large concepts and break them down into small easy pieces. Start with simple concepts that the participants already understand, then move into more complicated issues. Repeat the important points frequently.

In the classroom

Maintain control of the session.

- **Start on time.** If you wait until everyone has arrived, you've just wasted the time of everyone who was on time. The message to them is "your time isn't as important as that of the latecomers". When someone comes in late, you can call attention to it in a friendly manner: "Hi, Charlie. Too bad you missed the opening points,

they were important. Maybe someone else can fill you in later." Word will eventually get around that 10 AM starting time really means 10 AM.

- **Stick to the subject.** Remember your objectives. If a discussion starts on something that's important, but isn't on your agenda, save it for another meeting. If a participant drifts off into irrelevancies, politely redirect them: "Interesting point, Fred; maybe we can cover this later. Bring it up at the end of the session."
- **Insist on discipline.** If participants start a side conversation, politely redirect their attention to the topic at hand: "Nancy, this is an important point, and I'm sure you won't want to miss it."
- **End on time.** Your participants have other important things to do, and so do you.

People remember 70% of what they hear in the first twenty minutes of a training session; they remember 15% of what they hear in the last twenty minutes. Go over the hard stuff first, and save the practice sessions and entertaining videos for the end.

Change presentation style frequently. An hour of lecture is a lot. Talk for thirty minutes, then start a discussion, show a video, hold a practice session, give a quiz or written exercise. After ten minutes of lecturing from the front of the room, walk to the back and continue. Breaking up the "energy flow" of a training session keeps the audience from getting stiff mental muscles.

Get feedback. Give a short quiz and have participants fill out an evaluation form. Use the results to measure whether they've actually learned what you wanted them to, and what you can do to improve your next session.

A month after that first disastrous training session, Joe was finishing another. He looked over the grades on the quiz: everyone got 100%, again. As he began to thank everyone for coming, they all stood and applauded. Smiling shyly, he thought, "This is embarrassing. Once in a while, OK, but every class?"

Noise and Your Ears: Worth Hearing About

Hearing Conservation Activity Handout (not just for kids!)

By Beth A. Cooper, PE Ince Bd. Cert.
Representative of the Institute of Noise Control Engineering



One of the OHC's most important responsibilities is to communicate the value of hearing conservation to employees in the workplace. Most often, these opportunities occur in the context of audiometric testing or annual hearing conservation training. As a practicing OHC you have probably developed your own collection of illustrative materials and handouts that are easy to use and that have proven to be popular with employees. It's especially nice when one of these items finds its way home with an employee so that the message of hearing conservation gets communicated to an even wider audience.

One of your professional goals should be to identify opportunities, even beyond the scope of your job, to educate

and motivate people of all ages to preserve their hearing. The four-sided pullout in this issue of UPDATE is an 11x 17 format activity "placemat" entitled, *Noise and Your Ears: Worth Hearing About*. It was originally developed as an educational outreach handout for elementary school children, to be used in the context of a career talk on occupational hearing conservation. It's also been distributed widely in the workplace, through booths and activities during events like National Safety Week, and at science and health-related community affairs attended by the general public.

Although it was designed to appeal to younger audiences, the placemat is surprisingly popular with adults! Because the word searches, unscrambles, mazes and crossword puzzles appear so cartoon-like and unthreatening, adults can't resist "playing" with them while waiting for an audiogram or for the hearing conservation training class to begin. Be sure to make a few spare copies for your next training session for those employees who complete theirs before class and want extras to take home for their families. That's a sure sign that your program is succeeding!

HERE IT IS! ➡

Remove the entire center section (pages 5 thru 8) for reproduction and use in your hearing conservation program.

UPCOMING OHC CERTIFICATION AND RECERTIFICATION COURSES* 2000

*The listed dates indicate day one of the scheduled classes; certification courses are 20 hours in length; recertification classes are 8 hours.

Approved as of August 2000 (for a complete list of courses visit our website at www.caohc.org)

Begin Date	State	City	Course Director	Phone	Begin Date	State	City	Course Director	Phone
10/2/00	OR	Portland	Atack, Rodney	503/614-8465	10/19/00	IN	Indianapolis	Elmore, John	800/357-5759
10/2/00	NY	Syracuse	Oviatt, Dana	315/428-0016	10/19/00	LA	New Orleans	Rhodes, Robert	713/869-6664
10/3/00	IL	Rockford	Cofer, Steve	815/964-5445	10/23/00	TX	Dallas	Deppensmith, Kathryn	713/869-6664
10/3/00	SC	Greenville	Guryan, Stephen	864/331-1400	10/23/00	NE	Omaha	Norris, Thomas	402/391-3982
10/4/00	MN	St. Paul	Cary, Carolyn	651/736-2089	10/24/00	GA	Atlanta	Russell, Charles	610/667-1711
10/4/00	KY	Owensboro	Etienne, Joseph	270/926-0418	10/25/00	FL	Tampa	Abrams, Harvey	727/398-9395
10/4/00	ME	Waterville	Giroux, Anne	207/873-7434	10/25/00	WI	Green Bay	Kurland, Paul	920/499-6333
10/4/00	CT	Hartford	Hengen, Garth	508/832-8484	10/25/00	MA	Brighton	Peterson, Nancy	617/254-7300
10/4/00	SC	Columbia	Meloy, Melette	678/363-9897	10/25/00	NC	Durham	Stewart, Andy	919/544-7500
10/4/00	TN	Nashville	Rhodes, Robert	713/869-6664	10/31/00	CA	Los Angeles	Deppensmith, Kathryn	713/869-6664
10/4/00	OH	Cleveland	Snyderwine, Carol	216/491-6104	11/1/00	IL	Round Lk. Bch	Connelly, Robert	847/382-3095
10/6/00	IL	E. Peoria	Pollock, Gail	309/266-9949	11/1/00	MD	Baltimore	Doyle, Mary Lynette	410/955-4082
10/10/00	IL	Chicago	Meloy, Melette	678/363-9897	11/1/00	MA	Worcester	Hengen, Garth	508/832-8484
10/10/00	NC	Charlotte	Newman, Valerie	336/665-1818	11/1/00	TX	Houston	Meloy, Melette	678/363-9897
10/10/00	MI	Detroit	Simpson, Thomas	313/577-6754	11/6/00	DC	Washington	Brewer, Diane	202/994-7167
10/10/00	IL	Bloomington	Thompson, Tamara	309/888-8888	11/6/00	TX	Houston	Deppensmith, Kathryn	713/869-6664
10/11/00	CO	Denver	Harris, Dean	970/586-0702	11/6/00	MO	Liberty	Ratliff-Hober, Linda	816/781-9268
10/11/00	PR	Santurce	Hogan, Donald	787/728-3535	11/7/00	GA	Atlanta	Moore, A. Gregg	770/933-9236
10/11/00	WI	Brookfield	Korabic, Edward	414/288-3428	11/7/00	MO	St. Louis	Thiele, Natalie	314/968-4710
10/11/00	NY	Buffalo	Swisher, Timothy	412/367-8690	11/8/00	NV	Las Vegas	Megerson, Susan	913/962-1759
10/12/00	OH	Columbus	Elmore, John	800/357-5759	11/8/00	SC	Greenville	Panhorst Lassiter, Barbara	864/250-8461
10/16/00	OH	Cleveland	Deppensmith, Kathryn	713/869-6664	11/8/00	NC	Durham	Stewart, Andy	919/544-7500
10/16/00	MI	Detroit	Elmore, John	800/357-5759	11/8/00	PA	Pittsburgh	Swisher, Timothy	412/367-8690
10/17/00	CA	Los Angeles	McCall, Kirsten	310/314-9957	11/8/00	GA	Atlanta	Vaughn, Cecelia	770/632-9007
10/17/00	IN	Merrillville	Proctor, Jacklin	219/738-2528	11/9/00	TN	Nashville	Rhodes, Robert	713/869-6664
10/17/00	IL	Oakbrook Terrace	Thunder, Thomas	847/359-1068	11/13/00	MI	Kalamazoo	Gallihugh, Nancy	616/343-2601
10/18/00	NH	Concord	Gordon, Pamela	508/481-5819	11/13/00	WV	Charleston	Harris, Gary	304/766-6555
10/18/00	FL	Boca Raton	Greenberg, Herbert	561/750-2100	11/13/00	IL	Hillside	Stukas, Natalie	630/241-0990
10/18/00	MO	Kansas City	Megerson, Susan	913/962-1759	11/13/00	IL	Bloomington	Thompson, Tamara	309/888-8888
10/18/00	FL	Ft. Wallon Beach	Meloy, Melette	678/363-9897	11/14/00	TX	Houston	Bloyer, Cindy	816/471-3900
10/18/00	OH	Moraine	Pavlakos, Chris	937/436-1161	11/14/00	WA	Seattle	McCall, Kirsten	310/314-9957
10/18/00	AR	Little Rock	Rimmer, Thomas	501/663-4742	11/14/00	NC	Chapel Hill	Newman, Valerie	336/665-1818
10/18/00	CT	Shelton	Sochrin, Phyllis	203/735-4327	11/14/00	NC	Durham	Stewart, Andy	919/544-7500
10/18/00	GA	Atlanta	Vaughn, Cecelia	770/632-9007	11/15/00	IL	Chicago	Elmore, John	800/357-5759
10/18/00	OH	Cleveland	Wolfe, William	770/475-2055	11/15/00	OR	Portland	Fairchild, Michael	503/232-1646

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<http://www.caohc.org> or e-mail our office at info@caohc.org

Worker's Compensation

continued from page 2

Table 1: Methods for Calculating Impairment Ratings for Occupational Hearing Loss

Impairment Formula	Impairment Formula Definition (single ear)	U.S. Jurisdictions Reporting Use/Comments
"Medical Evidence"	Impairment rating determined by examining professional	AL, AZ, CT, ID, IN, KY, LA, MA, MS, NE, NH, NM, OH, TN, VT, WY, Guam
AAO-79/AMA	Average hearing levels > 25 dB at 500, 1000, 2000 and 3000 Hz; 1.5% per dB	AK, AR, CA, CO, DE, Washington DC, FL, IA, KS, MN, NV, NY, NC, ND, OK, PA, RI, SC, SD, TX, UT, VA, WA, WV, U.S. DOL-FECA, U.S. DOL-Longshoreman
AAOO-59	Average hearing levels > 25 dB at 500, 1000, and 2000 Hz; 1.5% per dB	GA, HI, ME, MD, MO, MT
Illinois	Average hearing levels > 30 dB at 1000, 2000 and 3000 Hz; 1.82% per dB	IL
New Jersey	Average hearing levels > 30 dB at 1000, 2000 and 3000 Hz; 1.5% per dB	NJ
Oregon	Average hearing levels > 25 dB at 500, 1000, 2000, 3000, 4000, and 6000 Hz; 1.5% per dB	OR
Wisconsin	Average hearing levels ≥ 30 dB at 500, 1000, 2000 and 3000 Hz; 1.6% per dB	WI
Michigan	Non-applicable*	*Individuals are compensated only if an injury to the ear causes a loss of wages

Other Considerations:

Waiting Period

Seventy percent of jurisdictions indicated that no waiting period is necessary for filing a compensation claim. For those jurisdictions that do impose a waiting period, reported time-frames ranged from three days to six months.

Duration and Level of Exposure

Many states include a provision that excludes a claim where the occupational noise exposure is below a specified level, such as 90 dBA TWA. In addition, some states require that the noise exposure duration exceed a minimum number of days in order for a claim to be considered. These requirements emphasize the importance of accurate and complete noise exposure assessment records as part of the HCP.

Statute of Limitations

The statute of limitations for filing claims varies from state to state, and was reported to be as short as 30 days to as long as 5 years. In some states, the date of injury is "the last date exposed" to noise, while in others it is the date the employee became aware of the hearing loss or its work-relatedness.

Age Adjustments

Over 40 states indicated in the survey that some type of deduction in impairment/award may be made for presbycusis, or hearing loss related to aging. In other states, use of a "low fence" of 25 to 30 dB HL is usually considered to account for the effects of aging on hearing.

Tinnitus

Although tinnitus (ringing in the ears) typically accompanies noise-induced hearing loss, only about half of the states responded that tinnitus is taken into effect when calculating awards.

Apportionment or Allocation among Employers

Over 80% of jurisdictions reported that they have some provision for apportioning pre-existing hearing loss to previous employer(s). This consideration reinforces the importance of baseline and pre-placement audiograms as part of a company's HCP.

Hearing Aids

In most states, hearing impairment is evaluated without consideration of the effect a hearing aid or other prosthesis might have on the claimant's ability to understand speech. However, most states reported some provision for hearing aids as part of the claimant's compensation.

Use of Hearing Protection Devices (HPDs)

Although many workers' compensation laws do not address the question of personal HPDs, approximately 40% of states indicated that claims would be denied or an award penalty assessed if an individual was found to have willfully disregarded a requirement to wear HPDs.

Again, to become familiar with the details of your state's practices, you should contact your local workers' compensation offices to obtain a copy of pertinent regulations and guidelines. Changes, updates, new interpretations and new precedents are frequent. And although a successful HCP will minimize hearing loss, a good working knowledge of the compensation system will help you improve the effectiveness of your efforts and reduce the financial impact of workers' compensation activity for your company.

1 The Noise Manual can be ordered at www.AIHA.org/newspubs.html or by calling 703-849-8888.

Audiometric Baseline Revision

continued from page 7

Definitions

OSHA STS: OSHA defines a standard threshold shift (STS) as a change for the worse in either ear of 10 dB or more in the average of thresholds at 2, 3, and 4 kHz, relative to the baseline.

Significant Improvement: OSHA does not specify a definition of significant improvement. However, an example in Appendix F of the Hearing Conservation Amendment illustrates revision of the baseline after an improvement of 5 dB in the average of hearing thresholds at 2, 3, and 4 kHz.

Baseline Audiogram: Initially the baseline is the latest valid audiogram obtained before entry into the HCP. If no appropriate pre-entry audiogram exists, baseline is the first valid audiogram obtained within 6 months of entry into the HCP (12 months for mobile testing). OSHA requires 14 hours of quiet prior to the original baseline.

Monitoring Audiograms: Subsequent to the baseline audiogram, new audiograms are obtained at least annually. To increase the preventive function of audiometry, many professionals suggest performing annual audiograms during the workshift in order to detect any noise-related temporary threshold shifts which may occur.

Age Corrections: OSHA permits optional application of age correction values (from Appendix F) to annual audiograms when comparing them to baseline for detection of STS, in order to account for median values of age change. Note: many professionals feel that if intervention for threshold shifts is delayed until after age-corrected STS has occurred, then significant hearing changes will not receive needed follow-up attention.

How to Use NHCA's Guidelines

Professional Review

These guidelines are meant to be employed only by a professional reviewer (audiologist or physician). Although the guidelines can be programmed by computer to identify records for potential revision,

the final decision for revision rests with a human being. Because the goal of the guidelines is to foster consistency among professional reviewers, human over-ride of the guidelines must be justified by specific concrete reasons.

Separate Consideration of Each Ear

Each monitoring audiogram is compared to the baseline to detect improvement or OSHA STS (or other significant shifts). The two ears are examined separately and independently. If one ear meets the criteria for revision of baseline, then the baseline is revised for that ear only. Therefore, if the two ears show different hearing trends, the baseline for the left ear may be from one test date, while the baseline for the right ear may be from a different test date.

Use of Age Corrections

Age corrections do not apply in considering revisions for improvement. The audiologist or physician may choose whether to apply OSHA-allowed age corrections in evaluating baseline revision for persistent OSHA STS. Rule 2 operates in the same way whether optional age corrections are used or not.

Application Exceptions

These guidelines for baseline revision do not apply to the calculation of the 25-dB average shifts which in many states are recordable on the OSHA log for occupational illness and injury. The original baseline is the appropriate reference for that purpose. Neither do the guidelines apply to identification of other (non-STS) significant threshold shifts for the worse, which may be communicatively or medically important.

The Guidelines

Rule 1: Revision for Improvement

If the average of thresholds for 2, 3 and 4 kHz for either ear shows an improvement of 5 dB or more from the baseline value, and the improvement is present on one test and persistent on the next test, then the record should be identified for review by the audiologist or physician for potential revision of the baseline. The baseline for that ear should be revised to the

Male employee "L.M." born 10/05/63 See far right column for test data.

Test Age Type	Left Ear Thresholds (dB) by frequency (kHz)							No Age Correction				With Age Correction (does not apply to improvement)			
	.5	1	2	3	4	6	8	STS avg.	Change	Reviewer decision	Baseline status	Corr. avg.	Corrected change	Reviewer decision	Baseline status
	22 Initial	10	5	5	10	25	40	15	13.3			B			
23 annual	5	5	5	5	25	45	20	11.7	-1.7						
24 annual	0	-5	0	0	25	35	10	8.3	-5.0 impr		RB				RB
25 annual	0	-5	0	0	25	40	20	8.3	-5.0 impr	revise					
26 annual	0	-5	-5	0	20	40	20	5.0	-3.3						
27 annual	0	0	0	5	25	30	10	10.0	1.7			9.0	0.7		
28 annual	5	5	5	5	35	40	15	15.0	6.7			13.7	5.3		
29 annual	5	0	5	10	40	40	15	18.3	10.0 STS		RB	17.0	8.7		
30 annual	10	0	5	10	45	45	20	20.0	11.7 STS			18.3	10.0 STS		
30 retest	10	0	5	10	40	40	15	18.3	10.0 STS	revise		16.7	8.3		
31 annual	5	0	5	15	50	50	30	23.3	5.0			21.3	13.0 STS		
31 retest	5	5	5	10	50	50	35	21.7	3.3			19.7	11.3 STS		RB
32 annual	5	0	5	15	55	55	40	25.0	6.7			22.3	14.0 STS		
32 retest	5	0	5	15	50	55	35	23.3	5.0			20.7	12.3 STS	revise	
33 annual	5	5	5	20	55	55	35	26.7	8.3			26.0	4.3		

Audiometric Baseline Revision

continued from page 10

improved test which shows the lower (more sensitive) value for the average of thresholds at 2, 3, and 4 kHz, unless the audiologist or physician determines and documents specific reasons for not revising. If the values of the three-frequency average are identical for the two tests, then the earlier test becomes the revised baseline.

Rule 2: Revision for Persistent OSHA Standard Threshold Shift

If the average of thresholds for 2, 3 and 4 kHz for either ear shows a worsening of 10 dB or more from the baseline value (OSHA STS), and the STS persists on the next annual test (or the next test given at least 6 months later), then the record should be identified for review by the audiologist or physician for potential revision of the baseline for persistent worsening. Unless the audiologist or physician determines and documents specific reasons for not revising, the baseline for that ear should be revised to the STS test which shows the lower (more sensitive) value for the average of thresholds at 2, 3, and 4 kHz. If both STS tests show the same numerical value for the average of 2, 3, and 4 kHz, then the audiologist or physician should revise the baseline to the earlier of the two tests, unless the later test shows better (more sensitive) thresholds for other test frequencies.

Following an STS, a retest within 30 days of the annual test may be substituted for the annual test if the retest shows better (more sensitive) results for the average threshold at 2, 3, and 4 kHz. If the retest is used in place of the annual test, then the annual test is retained in the record, but it is marked in such a way that it is no longer considered in baseline revision evaluations.

If a retest within 30 days of an annual test confirms an OSHA STS shown on the annual test, the baseline will not be revised at that point because the required six-month interval between tests showing STS persistence has not been met. The purpose of the six-month requirement is to prevent baseline

revision when STS is the result of temporary medical conditions affecting hearing. Although a special retest after six months could be given if desired to assess whether the STS is persistent, in most cases the next annual audiogram would be used to evaluate persistence of the STS.

Example Description

The example below illustrates how the baseline revision guidelines apply to one audiometric record. The abbreviations used are: B for baseline, RB for revised baseline, STS for OSHA STS, and IMPR for improvement. Revisions are shown both without use of age corrections, as well as with use of OSHA age corrections (with the choice being up to the professional in charge of revision). In the left ear, baseline is revised in 1988 for persistent improvement, to the test of 11/12/87. Subsequently the left ear shows persistent STS, with revision after the 1993 retest to the test of 5/21/92 (without using age corrections). With age corrections, the left ear shows persistent STS in 1995, with baseline revised to the test of 6/25/94. In the right ear baseline revision for persistent STS without age corrections occurs in 1994 to the test of 5/28/93. With age corrections, the right baseline is revised in 1996 to the test of 06/01/95.

Note that the table shows values rounded to one-tenth of a decibel, resulting in some apparent errors of one-tenth in the columns showing change from baseline. For example, one comparison in the table indicates that $19.7 - 8.3 = 11.3$ because the underlying values are really $19.67 - 8.33 = 11.34$.

Also recall that age corrections are not applied to baseline tests, but only to annual tests. Therefore, in the sections showing calculations with age corrections, the "corrected change" column shows change from the STS average without age corrections for the currently applicable baseline compared to the STS average with age corrections on the current annual test.

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Right Ear Thresholds (dB) by frequency (kHz)								No Age Correction				With Age Correction (does not apply to improvement)				Date of Test
.5	1	2	3	4	6	8	STS avg.	Change	Reviewer decision	Baseline status	Corr. avg.	Corrected change	Reviewer decision	Baseline status		
15	10	5	5	20	40	15	10.0			B				B	08/03/85	
10	5	0	5	25	35	10	10.0	0							11/04/86	
0	-5	0	5	25	40	20	10.0	0							11/12/87	
0	0	0	0	30	35	15	10.0	0							10/15/88	
0	-5	0	5	35	40	10	13.3	3.3			12.0	2.0			12/12/89	
5	0	0	0	40	40	15	13.3	3.3			11.7	1.7			11/23/90	
0	0	0	5	40	40	15	15.0	5.0			13.0	3.0			04/14/91	
5	0	0	5	45	50	20	16.7	6.7			14.7	4.7			05/21/92	
10	5	5	10	55	45	20	23.3	13.3 STS			21.0	11.0 STS			05/22/93	
5	0	0	10	50	45	15	20.0	10.0 STS		RB	17.7	7.7			05/28/93	
10	5	0	10	50	55	20	20.0	10.0 STS			17.3	7.3			06/10/94	
5	5	0	10	50	55	20	20.0	10.0 STS	revise		17.3	7.3			06/25/94	
5	5	5	15	60	60	25	26.7	6.7			23.3	13.3 STS			05/07/95	
5	0	5	15	55	65	30	25.0	5.0			21.7	11.7 STS		RB	06/01/95	
10	0	5	10	60	60	25	25.0	5.0			21.7	11.7 STS	revise		05/02/96	

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