

THRESHOLD LEVEL

The THRESHOLD

A T K GROUP PUBLICATION DEVOTED TO OCCUPATIONAL HEARING LOSS PREVENTION AND PROGRAM MANAGEMENT

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We are conducting a Certification/Re-certification class July 12, 13, and 14 2011 in Cherry Valley, IL. If you wish to participate, contact Beth Minnick at (815) 332.3460

Occupationally Related Determinations For Non-Noise Exposed Employees

The two Federal noise regulations (29 CFR 1910.95-the Hearing Conservation Amendment and CFR 1904-The Recordable rule) apply to persons exposed to workplace noise equal to or greater than 85 dB 8 hour TWA. OSHA states however that if an employee receives one 85 dB exposure during the course of a year, the “action level” is triggered; the resulting action mandates inclusion to the Hearing Loss Prevention Program.

T K Group often receives determination requests for persons in the sub-8f dB TWA classification and the reviewing Audiologist frequently returns a determination deemed work related. In most cases, a work related determination is returned when an individual presents: 1. Normal threshold values (i.e. 0-25 dB) at baseline. 2. Developed noise induced notching. 3. Aggravated noise induced notching to a pre-existing condition. 4. *No reported off the job exposures thought to contribute to the noise induced loss pattern.*

Invariably, T K Group is contacted and informed that the individual is not noise exposed and is asked “how can he or she be Recordable when they are not noise exposed?”. When the reviewing Audiologist is presented with the aforementioned audiometric and case history evidence, a non-occupational determination cannot be supported.

Here begins the “gray” area. Technically, persons not exposed to 85 dB 8 hour TWA are not covered under the noise regulation umbrella and hence such persons would not need to be logged as a Recordable. If you elect not to log such a case, ensure that you have *current and reliable* dosimetry to support your “no log” action. The alternative approach would be to log applicable persons. All determinations issued by T K Group represent the reviewing Audiologist’s best possible and informed opinion; in the end,

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Occupationally Related Determinations For Non-Noise Exposed Employees (continued)

the decision to log or not rests with on-site Administration.

The question then raised is “Why are such persons being tested anyway?”. For those marginally exposed, annual testing is strongly recommended for three reasons. First, annual testing will identify non-work related pathologies; appropriate Medical Referral recommendation will be issued. Secondly, annual testing works to foster strong employee relations. Lastly and perhaps most importantly, testing (and a returned occupational determination) can help you identify unknown noise exposure risks at your facility.

John Davis

Work Relatedness Determination: ACME Corporation

Left Ear Shift Date:	Right Ear Shift Date:	Bilateral Shift Date: 4/1/11
Date of Persistency:	Date of Persistency:	Date of Persistency: 4/28/11
Determination Date: 4/29/11	Non-occupational	X Occupational

An Extended Questionnaire indicates the following significant history (Bold Print):

No significant off-the-job noise exposure	Occasional off-the-job noise exposure	Significant off-the-job noise exposure
Inconsistent use of hearing protection for off-the-job noise exposure	Inconsistent use of hearing protection at work	Ear related pathology

Other:

Normal and unremarkable baseline data is presented. Subsequent test data indicates developed bilateral mid frequency notching. Mid frequency notching is consistent with noise-induced damage to the inner ear characterized by significant mid frequency loss at (3000, 4000, 6000 Hz) with less threshold deterioration at 8000 Hz.

Pursuant to CFR 1904, an injury is “presumed” work-related if (and only if) an event or exposure in the work environment is a discernable cause of the injury or a significant aggravation to a pre-existing condition. Stated with a reasonable degree of professional certainty and based on the audiometric and case history data provided to me, I cannot eliminate occupational influences as the discernable cause and/or aggravation of this loss pattern.

Cochleotoxic medications and other chemical agents are potential contributors to any hearing loss; concomitant noise exposure may act synergistically to contribute to hearing loss. Continue appropriately attenuating use of hearing protection when exposed to ear-damaging noise, both on and off the job.

If you are new to T K Group, or if you are simply interested in receiving email notification of new newsletter postings, please email robertwilliams@tkontheweb.com and type “Add to Newsletter” in the subject line.

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Presbycusic Versus Noise Induced Hearing Loss

As we age, most of us develop hearing loss. Many classifications of hearing loss develop. Noise induced hearing loss has clear audiometric characteristics. with very noticeable mid frequency notching. Most often, notching is seen at 3000, 4000, and 6000 Hz with a rebound (less threshold deterioration) at 8000 Hz.

Non-noise induced loss patterns have distinct characteristics which are attributed to ageing, underlying pathology, or other non-noise induced sensory and/or neural (i.e. sensorineural) pathology. Presbycusic or other sensorineural configurations usually present initial onset of loss at 6000 Hz or 8000 Hz; hearing threshold levels deteriorate progressively with spread to lower adjacent frequencies and are most consistent with a non-

noise induced sensory (referring to cochlear outer hair cell dysfunction) and/or a neural (referring to dysfunction originating along certain portions of the eighth cranial [auditory] nerve or subsequent ascending auditory neural pathways) deficit.

As is customary procedure, T K Group always tests the 8000 Hz frequency; without having an 8000 Hz test result, it may be difficult and even impossible to differentiate noise induced versus non-noise induced hearing loss. Consider the following noise induced and non-noise induced loss patterns:

A classic noise induced loss pattern; this case was deemed occupationally related.

Date	BASELINES		THRESHOLDS																SHIFT STATUS LEFT	SHIFT STATUS RIGHT	MEDICAL REFERRAL STATUS
	Left	Right	Left Ear								Right Ear										
			.5K	1K	2K	3K	4K	6K	8K	.5K	1K	2K	3K	4K	6K	8K					
11/12/10			25	15	25	40	50	35	35	15	15	20	10	25	40	30	Persistent 6/20/08 STS (Delayed) Persistent 6/20/08 Recordable				
11/13/09			25	15	15	35	50	35	20	20	20	10	10	25	30	25					
12/12/08			20	15	15	35	45	30	20	15	15	05	05	15	30	25	Non-Persistent 6/20/08 STS Non-Persistent 6/20/08 Recordable		8		
06/20/08	REVISED		20	15	20	35	45	30	30	20	15	10	05	20	30	25	STS Recordable		8		
06/29/07			20	15	20	35	40	30	20	20	15	10	05	10	30	15					
02/07/06			20	10	15	30	40	30	15	15	15	05	00	10	25	10					
12/14/04			15	15	15	15	15	30	20	15	15	15	10	20	25	20					
11/13/02			15	10	05	20	30	20	10	05	10	05	05	05	25	15					
03/08/01			10	05	10	15	30	15	10	15	10	00	00	15	25	05					
10/12/99			10	10	10	15	35	15	NT	15	15	15	05	05	25	NT					
10/02/98			15	10	10	20	30	15	NT	20	15	05	15	10	05	NT					
09/19/97			15	10	10	10	25	10	NT	10	10	15	10	05	15	NT					
08/24/92			10	05	10	10	15	05	NT	10	10	05	05	00	05	NT					
08/17/90			10	05	05	15	20	05	NT	10	10	05	00	05	05	NT					
08/28/89			20	10	10	20	20	05	NT	15	10	10	05	05	00	NT					
07/28/88	BASELINE	BASELINE	20	10	10	15	15	15	NT	20	20	10	10	05	10	NT					

Presbycusic Versus Noise Induced Hearing Loss (continued)

A classic non-noise induced loss pattern; this loss is likely presbycusic.

Date	BASELINES		THRESHOLDS																SHIFT STATUS LEFT	SHIFT STATUS RIGHT	MEDICAL REFERRAL STATUS
	Left	Right	Left Ear								Right Ear										
			.5K	1K	2K	3K	4K	6K	8K	.5K	1K	2K	3K	4K	6K	8K					
01/24/11			05	05	55	75	90	80	90	00	05	35	65	80	70	70		Persistent 1/7/11 STS Persistent 1/7/11 Recordable			
01/07/11			05	10	55	80	90	95	90	05	05	30	65	75	95	90		STS Recordable			
01/08/10			05	05	50	75	85	90	95	05	05	25	55	75	80	85					
01/09/09			00	05	45	60	90	90	90	05	05	25	55	75	75	85					
01/28/08			05	05	45	65	80	95	NR	05	05	15	65	60	70	80					
02/15/07	REVISED		10	05	40	70	85	NR	70	05	10	10	60	70	60	60	Persistent 1/19/07 STS Persistent 1/19/07 Recordable		1,8,9		
01/19/07			05	05	45	70	80	90	NR	10	05	10	60	70	70	60	STS Recordable		1,9		
01/18/06			00	05	40	65	40	90	95	05	05	15	60	60	60	60		Persistent 1/7/05 STS Persistent 1/7/05 Recordable			
01/07/05		REVISED	05	05	25	50	75	85	85	05	10	15	50	60	55	65		STS Recordable			
03/11/04			05	00	25	55	55	80	85	10	05	05	45	55	40	60					
01/07/04			05	05	30	50	75	80	85	10	10	10	35	55	55	60					
01/21/03			05	05	15	50	65	75	80	05	05	10	35	50	45	60					
01/17/02			05	05	10	45	65	65	80	05	05	05	35	55	50	60					
02/01/01	BASELINE	BASELINE	05	05	05	45	70	65	80	05	05	10	30	45	45	60					

Poor Sleep Quality Thought To Be One More Mal-Effect Of Workplace Noise

Noise induced hearing loss is known to affect numerous biological functions. Workplace noise has been linked to heart problems, reduced attention spans, irritability, and high blood pressure.

A recent study at Ben Gurion University now adds poor sleep quality as a likely mal effect of noise. The study monitored certain sleep variables of noise exposed workers with and without hearing loss. It was found that while Tinnitus was the primary sleep disruptant, persons with noise induced hearing loss required a greater period of time to fall asleep; their sleep quality was judged to be lacking. As a result, affected persons arose feeling tired and sleepy throughout the day.