

To Record or Not Record a STS in Hearing – That is the Question

HIOSH has adopted OSHA's rule that revised the criteria for recording hearing loss on the OSHA 300 log (See Chapter 12-52.1 Recording and Reporting Occupational Injury and Illness). The effective date of this was January 10, 2003.

Only cases that meet the revised two-part criteria must be recorded. First, the employee must have at least an average 10 dB shift over their baseline at 2000, 3000 and 4000 Hz. Second, when the variance from audiometric zero, which refers to "0" on the audiogram for perfect hearing, reaches an average of 25 dB or more at 2000, 3000 and 4000 Hz, the case must be recorded.

The first table below is an illustration of a 25 dB average hearing threshold level (HTL) above audiometric zero, and the second table shows an average 10 dB Standard Threshold Shift (STS) for Employee A:

1. An **average hearing threshold level (HTL)** at the 2,000, 3,000, and 4,000 Hz frequencies **of at least 25 db over audiometric zero**

Frequency (Hz)	Audiometric Zero (dB)	Audiogram HTL (dB)	Difference in HTL (dB)
2,000	0	20	+20
3,000	0	25	+25
4,000	0	30	+30

$$\text{Average HTL} = (20 + 25 + 30)/3 = 75/3 = 25 \text{ dB}$$

2. An **average Standard Threshold Shift (STS)** at the 2,000, 3,000, and 4,000 Hz frequencies **of 10 dB or more**

EMPLOYEE A

Frequency (Hz)	Baseline Audiogram HTL (dB)	Annual Audiogram HTL (dB)	Standard Threshold Shift (dB)
2,000	20	25	+ 5
3,000	25	35	+10
4,000	30	50	+20

$$\text{Average STS} = (5 + 10 + 20)/3 = 35/3 = 11.7 \text{ dB}$$

The second table above represents the change in employee A's hearing threshold level relative to the baseline audiogram. The **STS = 11.7 dB and HTL = (25 + 35 + 50)/3 = 36.7 dB**. The **STS meets both recording criteria**. Therefore, the STS is a **recordable**

STS and must be recorded on the OSHA 300 Log under column M, All other illnesses, until January 1, 2004, when the revised OSHA 300 Log will have a column for hearing loss.

An employee may experience gradual hearing loss while employed by several employers, but never work for the same employer long enough to allow a recordable STS to be captured until the employee's HTL reaches the at least 25 dB over audiometric zero level. Once an employee's HTL reaches the at least 25 dB over audiometric zero level, an average STS of 10 dB or more will result in a recordable STS.

What would be two examples of annual audiograms that would not be considered OSHA recordable shifts?

EMPLOYEE B

Frequency (Hz)	Baseline Audiogram HTL (dB)	Annual Audiogram HTL (dB)	Standard Threshold Shift (dB)
2,000	20	25	+ 5
3,000	25	30	+ 5
4,000	30	40	+10

STS = (5 + 5 + 10)/3 = 6.7 dB and HTL = (25 + 30 + 40)/3 = 31.7 dB. Since this STS only meets the HTL at least 25 dB over audiometric zero criteria, this STS is **not a recordable STS**.

EMPLOYEE C

Frequency (Hz)	Baseline Audiogram HTL (dB)	Annual Audiogram HTL (dB)	Standard Threshold Shift (dB)
2,000	0	5	+ 5
3,000	5	15	+10
4,000	10	30	+20

STS = 11.7 dB and HTL = (5 + 15 + 30)/3 = 16.7 dB. Since this STS only meets the STS of 10 dB or more criteria, this STS is **not a recordable STS**.

Allowance for age correction

The revised rule allows the employer to age-correct the STS portion of the recording criteria. However, there is no allowance for age correction for determining a 25-dB HTL because the American Medical Association (AMA) Guides to the Evaluation of Permanent Impairment specifically state that total hearing loss should not be age adjusted and there is no recognized consensus method for age adjusting a single audiogram. The 25-dB HTL criteria is recognized by the AMA as a disabling condition, reflects the employee's overall health condition, regardless of causation, and is used to assure the existence of a serious illness.

Work-relatedness

The revised rule included a presumption of work-relatedness when employees are exposed to an 8-hour 85 dBA noise exposure level or a total noise dose of 50 percent. However, it is not necessary for the workplace to be the sole cause, or even the predominant cause, of the hearing loss for it to be work-related. Therefore, work-relatedness should be evaluated on a case-by-case basis. The revised rule allows the employer to seek the guidance of the audiologist or physician reviewing the audiometric record to make the determination regarding whether the 10-dB or more STS is work-related.

Hearing Conservation Program and Protective Measures

The occupational noise exposure standard, 29 CFR 1910.95, requires employers in general industry to administer a hearing conservation program when employees are exposed to an 8-hour 85 dBA noise exposure level or a total noise dose of 50 percent. If an employee experiences a 10-dB STS, the noise standard also specifies the protective measures employers must take to prevent further hearing loss for the employee. These requirements apply without regard to the recording criteria in the recordkeeping rule.

In the examples above, 29 CFR 1910.95 requires employers to take protective measures to prevent further hearing loss for employees A and C, but not employee B. However, employers should pay close attention to the baseline audiograms as a result of the revised recordkeeping rule for recording hearing loss. The baseline audiograms of employees A and B show that their HTLs are already at the 25 dB over audiometric zero level and meet one of the recording criteria. Therefore, a prudent employer will also take protective measures to prevent further hearing loss for employee B and any employee whose baseline audiogram HTL is at least 25-dB over audiometric zero because an average STS of 10 dB will result in a recordable STS.