NOISE EXPOSURE LEVELS IN CALL CENTRES

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1. INTRODUCTION

In the name of efficiency, increasing importance is being placed on 'Customer services'. By the end of 2001 it was estimated that 2% of the UK workforce were employed in call centres. Many health problems have been associated with the modern technology used in such centres. Such problems of stress, harassment, musculo-skeletal disorders, voice loss and hearing damage have all been sited.

The Royal National Institute for Deaf People (RNID) launched its noise campaign in 1999 in a joint paper with the TUC called 'Indecent Exposure'. It was designed to raise awareness of high levels in the workplace and the responsibility employers have to protect their staff. The report highlighted that there was a potential risk of hearing damage in 'new industries' such as call centres. This report was followed in February 2001 by a TUC report, which concentrated on call centre working practices. As well as bad practices examples of good ideas were given. This report mentioned that operators were being subjected to 'Acoustic Shock', a high increase in noise level being transmitted into the headset. Compensation has already been awarded to some operators who have suffered this effect.

The launch of these reports caused a lot of media attention and Health and Safety executive (HSE) were asked to look if the issues were a risk in these industries. There was no reliable or relevant information available to address the concerns. So HSE commissioned the Health and Safety Laboratories (HSL) to conduct two pieces of research to assess the hazards and the possible level of risk. One of these pieces of work is the subject of the presentation.

Some of the actions required by the Noise at Work regulation 1989 (NAW) are:

- To carry out a noise assessment
- Implement a programme of control measures
- Provide suitable hearing protectors
- Identify hearing protection zones

None of the actions can easily be applied to the call centre environment.

2. NOISE EXPOSURES

It is difficult to apply existing guidelines to measure the noise exposure from headsets wearers. It requires specialist equipment and knowledge. The methods used to measure the generated noise levels are either to measure in the ear of the person or to use a manikin. When using a manikin the sound level is measured at the eardrum position, but the NAW regulations and guidance ask the level to be measured at a position outside the ear. Correction is therefore required to convert the measured level in the ear to an equivalent level outside of the ear (corrected noise level). This is carried out using a transfer function, which has been previously tested for the manikin being used.

3.THE STUDY

At each call centre the following information was obtained:

- The background noise was measured using dosimeters
- The noise levels generated by the headsets for 10 operators using a KEMAR manikin
- Information on typical working patterns, so that operator noise exposures could be calculated

The KEMAR manikin is a head and torso model with average adult dimensions. It has simulated ears, and an ear canal – eardrum simulator with a microphone at the eardrum position. A spare headset of the same type as the operator was fitted to the KEMAR manikin and connected to the operator's workstation. The volume control for both headsets were set at the operator's normal listening level and the noise levels generated by the headset was measured for a typical 15-minute period.

The microphone at the eardrum position measured the noise levels generated by the headset. The output from the microphone was analysed directly into a one third octave band frequency analyser and the transfer function applied directly to the third octave band levels to give the corrected noise levels.

Noise exposure measurements were made in 15 call centres across the following industry sectors:

- Business and other services
- Call centre outsourcing (cold calling)
- Financial services
- Hotel and leisure
- Retail
- Telecommunications and IT
- Utilities

The call centres ranged from 1 month to 16 years old. With a population of between 70 and 1450 operators. The environment was mainly large open plan rooms with low reverberation, the operator's separation of between 1 to 3 metres. The majority of headsets were of the monaural type (85%) fitted with the DTI specification acoustic shock protection set at 118dB (+24dBPA). The headsets were connected to either directly to the telephone turret with volume control, telephone turret via an amplifier, both with volume controls and directly to a computer-based system with volume control. Of these systems it was found that the turret volumes were generally set at at a maximum level, which gave comfortable listening levels. The amplifier gave operators a wider range of listening levels and was easy to use. The most sophisticated controls were found with the computer based systems allowing for individual default levels to be set. It was generally found that more training was required in the use of the systems.

4.RESULTS

The background noise levels were: -

- mean 62dB(A)
- maximum 66 dB(A)

The background noise levels were generally more than 10 dB(A) below the headset noise levels.

The corrected noise levels generated by the headsets :-

- range 65 – 88 dB(A) with a mean of 77 dB(A).

Using the data of typical working patterns the estimated daily personal noise exposures were :-

- Mean - range 68 – 84 dB(A) ; mean 75 dB(A)
- Maximum – range 66 – 87 dB(A) ; mean79 dB(A)

The maximum daily personal noise exposures exceeded the 85 dB(A) action level of the NAW regulations for only 3 operators out of 150. In all three cases the operators were listening to the calls at maximum volume with a particularly loud caller on the line. There was no attempt to lower the listening level. This could be due to habit, ease of use or lack of training.

5.ACOUSTIC SHOCK

There are reports in the literature of operators being exposed to acoustic shock events. All operators who were tested in the project were asked about their experiences of this type of exposure, non-reported having experienced such events. While we were at one centre one operator across the room was exposed to an acoustic trauma (?shock) event. The level was measured at 93 dB(A) for a few seconds. The main complaints were about mobile phones (bad lines, calling from a noisy environment)

6. CONCLUSIONS

In the 15 call centres visited, the operators daily personal noise exposure is unlikely to exceed the first action level of the Noise at Work regulations. Thus the risk of hearing loss from normal exposure is very low. Exposure to high peak noises (acoustic shock)
is possible but not found in these tests.

7. GOOD WORKING PRACTICES – HEADSETS

- Headsets should not be shared
- Headsets should be adjustable and well – maintained
- Headset feeds should have an adjustable volume control
- Headsets should be cleaned regularly
- Training should be provided (volume controls, maintenance)
- Time should be allowed for operators to adjustment and maintenance
- Prompt operators to adjust the listening levels.

8. DEVELOPMENTS

- Publication of the Local Authority report on call centre practices.
- Development of a noise exposure monitor for headset wearers
- Testing of commercially available ‘Acoustic shock ‘limiters’’
- Long term study of Noise induced hearing loss in young employees
- New European Physical Agents Directive (Noise) Due 2002 (law by 2005?)
  - Exposure LIMIT value of 87 dB(A)
  - Upper exposure action value of 85 dB(A)
  - Lower exposure action value of 80 dB(A)