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Control of Noise in Call Centres

An Accident Waiting To Happen

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Headset Wearers in Contact Centres
An Accident Waiting To Happen

There is growing evidence that headset wearers particularly in contact centres and command and control centres e.g. emergency services are showing the early signs of noise induced hearing loss. The growing population employed in these industries coupled with the poor standard of information and training provided to them on health and safety matters means that a potential problem is going unchecked.

Though legislation exists to regulate noise exposure, it is not always rigorously enforced in office environments where headsets are worn. The assumption is that noise exposure standards are not easily exceeded. However, as industry and employers have found to their cost in the past, ignoring an issue does not mean that it will go away. This was the case with RSI and the lifting of heavy loads. Both of these areas were not originally controlled or had standards in place. It was only when there were a number of claims for industrial injury and supportive evidence that standards changed.

This paper discusses the information available on acoustic shock injury and the impact of wearing headsets for prolonged periods of time. It further suggests best practice measures that can be adopted to reduce the risk of injury whether temporary or permanent.

The rapid increase in the number of headset users, particularly employed in an office or contact centre setting, means that a significant number of the working population is now exposed to the risk of hearing damage. There is growing evidence that prolonged headset use, with or without incidents of acoustic shock, can give rise to accelerated hearing loss amongst headset wearers. Historically, noise induced hearing loss was characterised by excessive exposure to noise in an industrial setting. Usually this was associated with working with noisy tools or equipment e.g. drills or grinders. The Control of Noise at Work Regulations 1989 introduced a process of risk assessment, training and control strategies. These included the use of personal protective equipment to reduce the impact of noise exposure and where possible to reduce noise at source via engineering controls. These regulations also specified the need to clearly mark noisy areas and to adequately train persons who might be exposed to noise levels at 85dBA or above during their normal working day.

Up until the early 1990's noise exposure was almost entirely industrial with little or no office-based examples of persons at risk. This situation has now changed.

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The EC Directive (2003/10/EC) relating to physical agents like noise adopted by EU member states in February 2006 has tightened up the allowable noise levels to which persons can be exposed. The directive reduced the action level from 85dBA leq to 80dBA leq thus greatly increasing the size of the population potentially at risk. It also introduced a training obligation for those previously non-exposed persons. Employers are now obligated to exercise a duty of care towards their staff and control the noise level in the workplace more closely than ever before.

Noise Exposure in Headset Wearers

As far back as the early 1990's concern was being raised about the impact of prolonged headset use on the hearing of telephone operators. Much of this was documented by researchers in Australia. In the UK the trade unions, Amicus and the CWU highlighted the need for more research into the consequence of noise exposure for headset wearers, being all too aware of injuries that befell some unfortunate operators.

In recent years concerns over noise exposure for headset users has received much more attention. Devices are now available to control and monitor both the volume and frequency range of calls, as well as to protect from loud uncontrolled bursts of noise that result from bangs, clangs, signal breaks from mobile phones, dialling into fax machines and malicious calls.

Exposure Regime

Headset wearers are somewhat unique in respect of the type of noise exposure they experience. This is characterised by:

- The noise source being very close to the ear canal.
- A limited frequency range to which the ear is exposed during the course of a working day.
- Adjustable volume control that can introduce high noise levels at the ear, certainly in excess of 85dBA.

There is in many cases no ability to intercept or otherwise attenuate loud unpredictable sounds that can occur for a variety of reasons. For example:

- Signal breaks resulting in white noise or shrieks.
- Loud bangs or clangs as a result of a phone being dropped.
- Lightning strikes.
- Fire alarms and sirens in emergency situations.
- Malicious calls, such as whistles being blown down the line.
- Misdialling into fax or modem lines.

These types of sound are often termed 'Acoustic Shock' incidents. The term 'Acoustic Shock' as applied to headset wearers was coined in Australia in the early 1990's. The term was used to describe an incident that involved a headset wearer being exposed to a sudden burst of noise at somewhat higher amplitude (volume) or of a pre-dominant frequency that was significantly different to the frequency and volume of the rest of the call. Typically this might be described as:

- A sudden amplitude increase vs normal background of approximately 8-9dBA or greater. (An increase of 3 dB is a doubling of the sound level)
- An increase in amplitude of approximately 12-15dB within a specific frequency band.

Based on the research conducted over the last 20 years, there is not only substantial evidence that these types of events occur but that most wearers of headsets in a contact centre or emergency response environment may experience a potential acoustic shock incident at least once during their working life.

Claims and Cases

Both the CWU and Amicus Trade Unions have reported cases of acoustic shock and the effects experienced by employees. These range from pain to tinnitus (ringing in the ear) for many hours after the noise exposure. As far back as 1998 BT admitted liability on seven test cases brought by the CWU. The CWU has also won more recent cases with compensation levels around the £20,000 per case.

Control Strategies

Headsets

Headsets that meet CE approval are compliant with existing technical standards, but do not in themselves comply with the Noise at Work Directive. Few if any studies have been conducted that examine the close range exposure that occurs when a person uses a headset. This is a materially different exposure regime than most environments that have been studied previously i.e. free field industrial exposure and open ear canals.

The first and most important thing to check on headsets is that they are marked with a CE approval. There are some grey-market imports of branded headsets that do not carry this mark (imported from outside the EU) and these do not conform to British legislation on the control of noise at work.

Workplace Design

When contact centres were originally designed they were often based on a single cell structure. This was very good at controlling noise that might have interfered with other headset wearers. However as contact centres have evolved to accommodate a more open working style, more problems have been experienced with background noise.

Contact centre design has to strike a balance between basic functionality in terms of a team of people delivering the performance required, a suitably stimulating environment in which they can work and one that looks good and performs well. Get this mix wrong and you have a major issue and a clear problem usually indicated by high staff turnover.

From a noise perspective, the basic design is very important as are the use of the right materials. Some of the key rules to be followed are:

- Do not have entirely open plan areas without the use of screens or dividers made of absorbent material.
- Reduce the amount of noisy equipment within the contact centre e.g. faxes, printers, fans.
- Employ a pod type design that restricts the number of people in a given area and where screens provide a barrier from other pods. This restricts the amount of voice interference in a space and also greatly reduces the overall impact of voice across the call centre as a whole.
- Provide 'break out' areas away from the contact centre for meetings and 'one to one' discussions.
- Measure background noise levels at least twice a year to check for any patterns of change.

Workplace design and Impact on Noise exposure

The background office noise level can have a marked impact not only on the use of a headset and its performance but also on the overall noise exposure that a headset user is subjected to. A headset user with a monaural or single ear-piece headset, in a noisy contact centre will probably listen at a higher volume than if they were wearing the same headset in a quiet contact centre. This happens because the individual has to overcome the competing background noise to hear the voice of the caller in their headset.

An everyday example is making a mobile phone call close to a road. There can be so much 'road noise' that you have to cover the unused ear to be able to hear the voice of the caller. So where you have a lot of background noise the audibility of the sound in a monaural headset is always affected.

Switching to binaural headsets will lessen the intrusion of background noise. These allow the user to concentrate totally on the caller. However some users then feel 'cut off' from their colleagues as 'local' conversation and information exchange becomes more difficult.

The ear naturally fatigues over the course of a working day at even relatively low noise levels e.g. 70-80dBA. This fatigue will manifest itself as a loss of acuity or a dulling of the received voice. This is called temporary threshold shift or TTS. The user's natural remedy for this is to increase their headset volume to accommodate for the loss of sensitivity. However, in so doing the wearer is inadvertently increasing their daily noise exposure.

This phenomenon is further compounded should there be an incident of 'Acoustic Shock' as described earlier. If this happens it is now at a significantly higher volume than it would have been previously and in some cases can produce a painful response in the ear. This pain is usually the result of the structures in the middle ear trying to move quickly to reduce the noise before it reaches the inner ear. It is the speed of movement, which is a reflex action or 'startle response' that causes the sensation of pain.

Incidences of such noises are growing and cover not just contact centre headset wearers but also people employed in voice transcription and translation services.

What type of Noise Produces an Acoustic Shock

The noises that cause an acoustic shock have either very rapidly rising amplitudes of the order of 16-100ms or have discreet frequency components that make them objectionable due to the volume and pitch. The issue is that no phone system can recognise these events and intercept them before they get to the ear.

An Acoustic Shock can affect people in many different ways. Some are measurable and do result in hearing loss or tinnitus. However, effects on mental health can also result, for example: affected sleep patterns, headaches and a reduction in performance due to a loss in confidence when dealing with calls (waiting for the next Acoustic Shock event). People who have suffered acoustic shocks are likely to experience pain, discomfort and anguish. Thankfully solutions are now available to safeguard headset users and to combat this. Most manufacturers now build in noise limiting technology to their wireless headsets. Standalone acoustic safety units are also available that can be used with any headset.

Financial Risk Assessment

There are legislative requirements for noise to be controlled in the workplace. Failure to comply can result in financial penalties.

With headset wearers it is very important that an employer can show the following:

- What noise the user has been exposed to.
- Who has worn what headset and when.
- What has happened to the headset during the course of its life.
- When and if certain tests have been done e.g. hygiene or function testing.
- What repairs have been done and by whom.

Were this information not to be available and a claim for industrial injury was presented; an employer would have no real line of defence.

Impact of Noise legislation on UK contact centres

There is no doubt that the lower action level introduced by the Noise at work Directive 2006 has impacted many contact centres. As a minimum this has involved providing additional training for headset users. Best practice is to provide this training either as part of the induction process when a new member of staff joins the company, or through health and safety training modules for existing staff.

Just as important is to provide staff with the correct tools to do the job. This means headsets that are CE marked together with acoustic safety amplifiers to safeguard the user's hearing.

If you need help and advice on any of the aspects covered by this paper or would just like more information on acoustic shock please call us on +44 (0)1189 209 420 or email sales@com-solutions.co.uk.