

# Acoustic Shock In Headset Wearers: *The Medical and Legal View*

By Paul Jenkins

*To-date more than \$17 million has been paid out world-wide in claims and this is set to grow if employers do not get to grips with the problem.*

Acoustic shock injury is a phenomena that is on the increase especially in headset wearers. Generally speaking a single acoustic shock incident is unlikely to cause direct harm. However, if headset wearers are not properly trained and such incidents are not properly understood or managed the potential for harm is alarming.

**The Physiological Effects:** The evidence collected by interview and measurement to-date has identified certain characteristics that can give rise to an acoustic shock injury. Some examples might include:

- Signal breaks resulting in white noise or shriek type noises
- Loud bangs or clangs, a function of a phone being dropped.
- Lightning strikes.
- In an emergency response environment the presence of loud obtrusive alarm sounds
- The increase in malicious calls involving whistles being blown down the line etc.
- Misdialing into modem type lines.

Such noises are termed 'acoustic shrieks' or acoustic shocks. On their own such events are most likely to give rise to short term effects like tinnitus and reflex pain.

However, if such events are poorly handled within the workplace then far more serious issues arise. There is already evidence that once a person has experienced an acoustic shock event they become more aware that this could happen again. This may not seem especially important but such anxiety can give rise to changes in behavior that can have very serious consequences.

Once a person is 'sensitized' the fear of another event can start to affect their performance and their ability to do their job. This can lead further to noise hyper sensitivity that can seriously undermine their ability to do their job. If no action is taken, this will develop further into anxiety based depression.

The problem here is this; an event that starts as an acoustic shock episode with fairly broad symptoms can, if not properly managed, develop into a full-blown mental illness. The link between anxiety developing into depression is documented in libraries of literature. The issue here is that this progression is independent of the initial trigger.

So one can see that a key component of any control strategy or company policy is to make sure that you never allow an acoustic shock experience to get to the anxiety stage.

**Company Policy:** It is very important a company has a clear policy around acoustic shock event reporting and worker education. The key here is to ensure that all workers know about and recognize an acoustic shock event. Once an event is reported the employer needs to ensure that it is properly handled and followed up. The following is an example:

**Event Reporting and Follow-up:** A call centre agent reports an acoustic shock event to her supervisor at 11:30 am on Monday. The supervisor logs the event and talks with the agent. This initial talk is about discovering how the agent feels, if they are happy to continue working that day and setting a follow-up interview for two days hence.

If the agent is okay, then the agent returns to front line duties within the hour. Should the agent report other effects then they should be pulled from duties involving a headset for the remainder of the workday. After two days a follow-up interview is conducted and if all is ok the

event is closed. If further effects or issues are noted at this time then the matter is referred directly to company medical for follow-up.

This kind of straightforward process is an important step in ensuring that acoustic shock events do not escalate to anxiety and all the problems that brings with it. It is reliant on the following being in place:

- An education and training program on acoustic shock for all agents.
- Supervisor training on event logging and follow-up.
- A clear action plan following an acoustic shock report.
- A straightforward referral process should the agent show further symptoms post event.

**Control Strategies:** In order to control acoustic shock one must first ensure there is a clear understanding of what it is. We already know that acoustic shock is a function of three key parameters:

- The speed with which the noise changes.
- The frequency of the noise.
- The loudness of the noise relative to the normal working level.

The headset producers would have you believe that loudness is the only factor, however they would be wrong. Just limiting volume, the basis for offering a headset solution or desktop amp to limit only volume provides no protection against acoustic shock injury.

Most headset products do have a noise limiting capability that can be enhanced through the use of a desktop amplifier. However, no headset by itself can currently reject shrieks and the growing knowledge base is clearly identifying that volume has little impact on acoustic shock events.

While the focus remains on the headset as the primary control point little progress will take place. Experience is showing that additional solutions may be needed to provide acceptable control over acoustic shock exposure without impacting voice or intelligibility of speech.

**Solutions:** The key to successful control is to remove the rapidly rising sounds in the 1-4 kHz frequency bands without removing any of the voice components. This can be done and devices are already available that can be used with most headset types and with most telephony switch or VoIP type packages.

One such product is Soundshield 3G that is already on the market and has sold more than 50000 units world-wide. Others include the TC 1000/TC2000 from C3 headsets.

These devices sit on the desktop and the headset plugs into them through normal bottom end cables provided by the manufacturer.

The Soundshield device can also offer further benefits in that it can be used to monitor worker noise exposure through the working day. This is especially valuable as such measurements can be used as an on-going risk assessment across the entire call centre workforce. The noise dosimetry feature allows for measurements to be taken before and after the device so its protective effect can be clearly reported.

*Paul Jenkins, is an industrial hygienist by professional training, has a wealth of experience on noise assessment, and has been actively involved in the assessment of acoustic shock exposure and the development of control strategies for the last few years. He is now MD of CIS Ltd in the UK who have a branded offering Nomadtrack ([www.nomadtrack.com](http://www.nomadtrack.com)) that is the first 'software as a service' offering incorporating RFID technology to help call centers better manage headset inventories.*