NIHL Claims:
A Collection of Articles from BC Disease News
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BC Disease News
Volume II

CONTENTS

PAGE 4
The ABI Proposals on Noise: Who Will They Benefit? (Annexed to BCDN Edition 102)

PAGE 23
Hearing Aids and Damages Inflation: Parallels to Credit Hire? (BCDN Edition 103)

PAGE 26
De Minimis in NIHL Claims: Claimant Success (BCDN Edition 108)

PAGE 29
Acoustic Shock: Indecent Exposure in Call Centres (BCDN Edition 109)

PAGE 31
Assessing the NIHL Component in NIHL Claims I (BCDN Edition 110)

PAGE 33
Assessing the NIHL Component in NIHL Claims II (BCDN Edition 111)

PAGE 38
Methodologies For Calculating NIHL (BCDN Edition 112)

PAGE 42
Hidden Hearing Loss (BCDN Edition 113)

PAGE 44
Delayed Onset Hearing Loss (BCDN Edition 115)

PAGE 47
New CLB Guidelines For The Diagnosis and Quantification of NIHL (BCDN Edition 117)

PAGE 49

PAGE 53
Summary of Some Common Reasons Why Repeat Audiometry/Defendant’s Own Medical Evidence Reasonably Required in NIHL Claims (Annexed to BCDN Edition 118)

Page 54
The Increase in Non-Organic Hearing Loss (Edition 121 of BC Disease News)

Page 57
New CLB Guidelines For The Diagnosis & Quantification of NIHL (BCDN Edition 124)

Page 64
Obtaining Your Own Medical Evidence In NIHL Claims: Further Case Law (BCDN Edition 126)

Page 69
A Lesson from History: The Coal Mining Scheme and Fixed Fees in NIHL Cases (Edition 128 of BC Disease News)

Page 73
The Impact of The New LCB Guidelines on NIHL Claims (BCDN Edition 129)
Introduction

BC Disease News has covered a wide range of issues that arise in NIHL Claims. This reference guide collates all of our articles into one collection, across two volumes, with the aim of making the information more accessible and practically beneficial.

Any comments or feedback can be sent to Boris Cetnik or Charlotte Owen.

As always, warmest regards to all.
The ABI Proposals on Noise: Who Will They Benefit? (Annexed to BCDN Edition 102)

On 16 June 2015 the Association of British Insurers (“ABI”) launched a discussion document entitled “Noise Induced Hearing Loss Claims: Improving the system for everyone.” It proposes the following:

1. Extending the Portal to include multi-defendant disease claims;
2. Extending fixed fees to NIHL cases;
3. Introducing a Medco like accreditation for medical experts.

This paper examines these proposals and considers whether they can work, how they can work and possible outcomes of these or similar changes being enacted.

First we consider the NIHL market generally and the current problems that need to be solved.

(i) Volume of Claims

Figure: GIRO Deafness Working Party claims notifications 1980-2014

NIHL claim notification volumes have been increasingly steadily for around the last 10 years with a peak of c. 90,000 notifications in 2013 and exponential growth pre-LASPO. 2014 still saw around 70,000 NIHL claims notifications. The signs for 2015 are that volumes may again be on the increase.

Figure: GIRO Deafness Working Party claims notifications Jan 2012-Jan 2015
(ii) Volume of repudiations

Reported repudiation and ‘nil claims’ rates vary widely amongst insurers and can be recorded in several different ways.

According to the Deafness Working Party 2013 report between 1996-2011 ‘there has been a consistent 50% / 50% split of notified claims between non-nil and nil claims’ although ‘2012 may show the first signs of the number of nil settled claims exceeding the non-nil settled claims numbers’.

In 2014 the AWP stated that the industry average stood at 65%.

Aviva have recently stated their repudiation rate to be 85%-see the link below.

http://www.aviva.co.uk/media-centre/story/17459/aviva-calls-for-clampdown-on-spurious-industrial-d/

The current problem for insurers is not necessarily the volume of claims that are paid, but the volume of claims that are not. Insurers are having to expand claims teams and/or increase their spend on external advisors to meet the large volumes of claims that are ultimately found, usually after 18-24 months, to be lacking in merit and successfully repudiated.

No insurer would object to compensating a noise deafened Claimant, where the same can be adequately demonstrated. But insurers have huge front end work to do on claims: ELTO uploading, employment and policy cover enquiries, liaison with the insured and brokers on employment dates and cover, limitation and breach investigations and liaison with other insurers on apportionment and cut-offs—all on claims that may ultimately go nowhere. What in the current proposals will deal with these pressures?

(iii) Distrust of the Audiology and Medical profession

Claimant audiograms are often poor in quality and may be undertaken in mass clinics with scant regard for British Society of Audiology (“BSA”) guidance and recommendations on how audiology should be performed.

Up to 30 potential claimants a day can be seen by a single ‘clinician’ who can give them a few minutes at most. The medical professional does not supervise the audiometry, may have someone else read the medical notes and
if he asks how long the Claimant has suffered symptoms of hearing loss, he either fails to record the answer or glosses over the obvious implication for a limitation defence by stating symptoms have developed "over time".

The result of all this are often audiograms showing worse than actual hearing thresholds. Volume second audiometry projects have been undertaken by several insurers. One insurer has indicated that in 50% of cases where repeat audiometry was performed in accordance with BSA guidance, the 2nd audiogram provides significantly different thresholds, which cannot be explained by typical audiometric error and which no longer support a diagnosis for NIHL applying the ‘Coles/Lutman Guidelines’. Another insurer has reported similar results in 61% of cases.

Our own data collected from ABC Noise, our online diagnostic software used by BC Legal and clients, indicates audiograms increasingly satisfying the Coles/Lutman diagnostic criteria, jumping from a 50% +diagnosis rate in 2009 to 80% in 2014.

![2009 YES /NO](chart.png)

![2014 80%/20% YES / NO](chart.png)

Either claims are of a better quality today or ‘clinicians’ are becoming wise to the game. Certainly repudiation rates are not going down and given the results of second audiometry initiatives we assume it to be the latter.

The over-simplistic application of the Guidelines to complex cases and / or their incorrect application can also often result in over-diagnosis of NIHL. The Guidelines themselves are probably not sufficiently robust and, in our view, set the diagnostic hurdle too low (considered in a future paper). Many individuals not exposed to noise will satisfy the Guidelines.

Against this back drop, single experts determining the issues of diagnosis and causation is not an attractive proposition. In our view any scheme based on a single audiogram will be flawed.

(iv) Distrust of Claims Management Companies (CMC's)

While the payment of referral fees has been banned, anyone working in this industry knows that work is still bought and significant sums are expended by Claimant firms in acquiring such work.

These companies know the game and know how to package a claim. BC Legal undertook an undercover operation into the CMC industry and anyone who attended the BC Legal 2014 Conference would have seen the shocking footage of a CMC employee on being told by our undercover operative that he had been aware of symptoms of hearing loss for 10 years, coaching him into onset of symptoms only 18 months earlier and if he did not do so then solicitors would not take on the claim. A ‘rogue’ employee perhaps? No—the same advice could be heard being given by another CMC employee to a Claimant on the table next to our operative. This Clinic was by one of the largest suppliers of claims in the market. With such practices going on, how can Claimant firms trust the claims they acquire and insurers the claims they see?

(v) Overcharging by Claimant lawyers
Many NIHL claims are run by Litigation Executives or Paralegals yet hourly rates equivalent to Grade C or B Solicitors are routinely sought, with huge amounts of time spent on the very limited documents available. Reductions in claimant costs of 40-50% are commonly achieved and, with such reductions, comes real distrust and entrenchment. Fixed fees in NIHL claims would at least deal with that but as a caution it is wrong to assume that such work could still not be profitable. Further a consequence of such fixed costs may actually be more claims not less, as the most organised and efficient operators consolidate market share and farm ever harder to generate more claims and so maintain incomes. High turnover with low profit margins is a well recognised business model in other sectors.

Solutions

The ABI has been clear that its number one priority is achieving fixed fees in NIHL claims:

http://www.lawgazette.co.uk/news/fixed-fees-for-deafness-top-insurers-agenda/5048586.fullarticle

We consider the various ways the current market could be changed:

No change- Let LASPO take effect
Extension of the Portal to multi-defendant claims
Fixed fees for NIHL lawyers
Agreed panel of medical experts
Causation determined by Audiologists

The above options may have initial appeal, as they will not require primary legislation and can be introduced with the Civil Procedure Rules. However the Ministry of Justice will need to take a lead and facilitate an agreement acceptable to insurers and Claimant advisors. This will inevitably require some "give" from insurers in some areas, as Claimants solicitors would be moving from an hourly rate to a fixed fee and would rightly expect some kind of return.

LASPO effects

Claimant firms still have a decent book of pre LASPO claims where 62.5% success fees can be recovered. Will the depletion of this book into post LASPO cases with maximum returns of 25% damages calm the market? Firms will no longer be able to sustain 50-70% repudiation rates and make up the balance with 62.5% success fees. Will this solve the problem?

Some Claimant firms will presumably better vet their claims and cease the delegation of this service to insurers. Those in the market that currently pick up claims rejected by others may struggle to survive with lower profit margins on successful cases. If any fixed fee scheme is brought in there will inevitably be further consolidation of the market in the way we are already starting to see.

Should insurers wait to see if this happens, rather than surrender any arms to ease the processing of volume?

As LASPO claims become the norm and the market consolidates we will have fewer players, operating at greater economies of scale and greater financial reach. Yes their will be less profit per claim, but the answer to maintaining profits is to run more of them.

There seems no reason to do nothing and the parties can be exploring and moving to a better way to deal with the current market, while monitoring the LASPO changes.

Market agreement

Any market agreement will have to have something for insurers and Claimant lawyers if there is to be mutual co-operation. Claimant lawyers are unlikely to accept a reduced per case fee income only to be fought tooth and nail on duty of care, breach of duty, causation, damage and limitation to the extent they currently experience.
David Marshall, Chair of the Law Society Civil Justice Committee indicated at the ABI event that for the Society to support fixed fees requires the work involved on a NIHL claim to be easy to quantify. At present this is not the case.

Are insurers to lower standards of proof to ease the processing of volume and in return for a fixed fee and should they do so?

We have monitored volume NIHL data for many years and it is clear that repudiation rate is intrinsically linked to lower indemnity spend:

![Graph showing repudiation rate and average cost per case over time.](image)

Anything that impacts on that repudiation rate has potential to increase costs to the insurance industry, regardless of individual claims costs being reduced. It is always cheaper to pay nothing.

**Extension of the Portal**

Unlike RTA and EL/PL claims, historic disease claims do not have an accident on one day, with an easily identifiable Defendant, insurer and one factual incident which occurred close in time to the claim being intimated.

Disease claims require investigation of several years with multi-insurers, differing historic standards of care and unclear corporate histories.

The Portal currently applies to single-Defendant disease claims, around 10-15% of total NIHL claims. One option is to open up that Portal to the remaining 85-90% of NIHL claims—on GIRO Deafness Working Party figures some 59,500-63,000 of further claims. Extension of the Portal in RTA claims has shown that the software can deal with increased volume, but will an extension for NIHL claims achieve anything?

The Portal has the potential to work in disease claims, but few insurers have argued it to be a success in lowering indemnity spend in single Defendant claims. Where you have a single Defendant, whose risk and insurance history are understood and for whom no potential of a limitation and / or breach of duty defence exists, the Portal may have a place. However this is a very small percentage of claims received.

The current CNF has limited information regarding the onset of symptoms, with Claimant advisors tactically giving little information away. While a statement of truth is present, this is often signed by lawyers, and with the detail given being so limited, is easy to flesh out in later proceedings without real consequences.
An insurer is to admit breach of duty, subject to causation within 30 days. To do so, for all intents and purposes, removes from them the ability of arguing that they are evidentially prejudiced for the purposes of section 33 of the Limitation Act. If they were, why would they have admitted?

Such a concession comes before the disclosure of medical records and the sight of any Statement of Truth as to the onset of symptoms. With the Court of Appeal setting robust limitation hurdles for claimants – see for example the decisions in Johnson and Platt - this is quite a concession for an insurer to make on an insured for which little is known. The Courts may accept an insurer was taking a commercial approach, but certainly Claimants will argue prejudice on any attempt to resile from a Portal admission.

As the profile of claims continues to move away from the traditional, heavy industries and heavy, long occupational exposures, allegations of noise exposure will require even further scrutiny. Is this really possible within the confines of an extended Portal?

Any extension of the Portal requires multiple insurers and insureds to investigate and agree insurance cover, appoint a co-ordinator, agree apportionment and make an admission within 30 days. This period could be easily extended, but most insurers have agreed in principle a “pay and be paid” approach to co-ordination of NIHL claims via IDCWP, but has this speeded up admissions within the Protocol period? I think few would say it has.

It is possible the incentive of fixed costs savings might galvanise insurance claims teams, but with estimated volumes, it would seem a real challenge. If keeping claims within the Portal represents real savings then insurers may have to reduce caseloads and increase recruitment, to ensure that volume of claims and workloads does not impact on the ability to realise those savings through proactively engaging with the Portal and it is unlikely extending the Portal will reduce the burden of administering these claims. To get maximum benefit, administration and resourcing may have to increase.

An extension of the Portal is understandable, if it is accepted it works for single Defendant claims. But can this really be said?

The general feeling from our clients is that the Portal is of limited use, save for a small proportion of Insureds for which the insurance and legacy position is well understood and there where they may be no genuine limitation defences on individual cases. Where the prospect of repudiation is so high, why should Claimants be given any easy wins? To pay nothing is always cheaper than a reduced fixed fee.

ABI research indicates less than 1% of total NIHL claims are settled within the Portal, with only 9% of those claims that start in the Portal concluding within. Most fall out, so we cannot assume the Portal will have any greater success, if extended to Multi-Defendant claims.

The practical answer is likely to lie in fixed fees being imposed outside the Claims Portal.

From a Claimant’s point of view they will have to bring most claims in the usual fashion, but receive a reduced fee. The only reason this would be in their interest would be if a system reduces the volume of poor work they take on, as most Claimant advisors have largely demonstrated themselves to be incapable of properly vetting claims or that the evidential standards are relaxed so they receive payment on more claims.

What might the fee structure be?

Comparison with EL/PL fixed fees.

It is difficult to argue that NIHL claims do not involve more work and are of more complexity than standard EL/PL claims and it seems a reasonable assumption that the fixed fee will be higher.

To get the figures closer to EL figures, insurers may have to concede a lower evidential standard for some elements of the claim. As David Marshall stated at the ABI event, the course of the litigation must be predictable if costs are to be fixed.
Below are the current EL fixed fees:

<table>
<thead>
<tr>
<th>Pre issue £1,000 - £5,000</th>
<th>Pre issue £5,001 - £10,000</th>
<th>Pre issue £10,001 - £25,000</th>
<th>Issued - post issue pre allocation</th>
<th>Issued - post allocation pre listing</th>
<th>Issued - post listing pre trial</th>
<th>Trial advocacy fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>£950</td>
<td>£1,855</td>
<td>£2,500</td>
<td>£2,630</td>
<td>£3,350</td>
<td>£4,280</td>
<td>£500.00 (&lt;£3,000)</td>
</tr>
<tr>
<td>+ 17.5% of damages</td>
<td>+ 12.5% of damages</td>
<td>+ 10% of damages</td>
<td>+ 20% of damages</td>
<td>+ 25% of damages</td>
<td>+ 30% of damages</td>
<td>£710 (&lt;£3-10,000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>£1,070 (&lt;£10-15,000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>£1,705 (&lt;£15,000)</td>
</tr>
</tbody>
</table>

Possible Disease fixed fees

Below we set out how a Disease fixed fee scale may look. We have used the settlement value of £2,500 generally, as GIRO Deafness Working Party responses indicate that insurers felt settlement was generally between £2,000-3,000.

<table>
<thead>
<tr>
<th>Damages Agreed:</th>
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<tbody>
<tr>
<td>£ 2,500.00</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre issue £1,000 - £5,000</th>
<th>Pre issue £5,001 - £10,000</th>
<th>Pre issue £10,001 - £25,000</th>
<th>Issued - post issue pre allocation</th>
<th>Issued - post allocation pre listing</th>
<th>Issued - post listing pre trial</th>
<th>Trial advocacy fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>£4,457.50</td>
<td>£8,312.50</td>
<td>£6,500.00</td>
<td>£7,625.00</td>
<td>£9,250.00</td>
<td></td>
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</tbody>
</table>

It may be a disease fixed fee scheme would have additional fixed fees. For example a fixed fee for cases concluded with limitation as a preliminary issue hearing, or with causation dispute between experts or Trial on breach of duty, causation and limitation attracting a higher fee:

<table>
<thead>
<tr>
<th>Damages Agreed: £ 2,500.00</th>
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<tbody>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre issue £1,000 - £5,000</th>
<th>Pre issue £5,001 - £10,000</th>
<th>Pre issue £10,001 - £25,000</th>
<th>Issued - post issue pre allocation</th>
<th>Issued - post allocation pre listing</th>
<th>Issued - post listing pre trial</th>
<th>Trial advocacy fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>£2,500.00</td>
<td>£5,500.00</td>
<td>£12,500.00</td>
<td>£2,500.00</td>
<td>£2,500.00</td>
<td>£2,500.00</td>
<td>£750.00 (&lt;£3,000)</td>
</tr>
<tr>
<td>Basic Fee</td>
<td>£1,500.00</td>
<td>£3,500.00</td>
<td>£3,500.00</td>
<td>£4,500.00</td>
<td>£6,000.00</td>
<td></td>
</tr>
<tr>
<td>Breach premium</td>
<td>£250.00</td>
<td>£500.00</td>
<td>£750.00</td>
<td>£750.00</td>
<td>£1,000.00</td>
<td>£1,250.00</td>
</tr>
<tr>
<td>Causation premium</td>
<td>£250.00</td>
<td>£500.00</td>
<td>£750.00</td>
<td>£750.00</td>
<td>£1,000.00</td>
<td>£1,250.00</td>
</tr>
<tr>
<td>Limitation premium</td>
<td>£250.00</td>
<td>£500.00</td>
<td>£750.00</td>
<td>£750.00</td>
<td>£1,000.00</td>
<td>£1,250.00</td>
</tr>
<tr>
<td>Success fee %</td>
<td>12.5%</td>
<td>32.5%</td>
<td>10.0%</td>
<td>25.0%</td>
<td>30.0%</td>
<td></td>
</tr>
<tr>
<td>Success fee</td>
<td>£437.50</td>
<td>£687.50</td>
<td>£1,250.00</td>
<td>£500.00</td>
<td>£625.00</td>
<td>£750.00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>£5,187.50</td>
<td>£10,187.50</td>
<td>£10,500.00</td>
<td>£8,750.00</td>
<td>£10,625.00</td>
<td>£13,000.00</td>
</tr>
</tbody>
</table>

Such an approach may make the work involved in NIHL claims more predictable and cause insurers to think carefully about taking the cost risk of fighting each point.
What claims behaviours might this drive?

More litigation

It is clear that the Claimant’s return increases the further through the litigation process the claim gets. Will this drive more litigation?

Coupled with QOCS will may drive a Claimant business model that says “We may as well run them. There is no costs risk and if we win at Trial, the returns make it worth while.”

The same might apply from an insurer perspective. We have anecdotal evidence from Chambers that there are more RTA Fast Track Trials than ever before since fixed costs were introduced. Birkenhead, Halifax, Manchester and Liverpool Courts are listing 8 Trials before a single Judge, in the traditional anticipation that these will settle. However they are not and Trials are being stood down 3-4 times before they are heard. The reason? Insurers know they can fully test the credibility of the Claimant, with a decent chance he will not discharge his evidential burden as fraud is rife in this area, but if he does, the cost to them is fixed in the region of £8,000.

Might the same logic not apply to limitation claims? Insurers and their advisors suspect most clients have known about their symptoms for more than 3 years prior to proceedings being issued. At a maximum loss of £12,250 for a claim that settles following a limitation hearing might not insurers selected the fixed fee route of a preliminary hearing on most cases?

If our undercover operation is an indication of the industry as a whole and that those with 10 years of symptoms are being routinely coached to say those symptoms have been present for only 18 months, then there may be some merit in such a strategy. Certainly it would be worth a try in the first instance, to assess the cost and benefits. Might staged fees drive more litigation?

Greater volume of claims generally

Consolidation in the market, with fewer, well resourced major players who are geared to work on a high turnover/low return model is unlikely to see a reduction in claims. Such a model does not work without increased volumes and fixed fees leave no other business model. It is difficult to see how claims would reduce and any relaxation in evidential standards on causation/limitation as a quid pro quo for fixed fees being accepted, is only likely to create a more stable business environment.

General Damages inflation

NIHL claims are simplistically compared to whiplash claims as they are currently settled at similar values. It is the environment of risk that keeps the cost of NIHL claims to the levels they are. On a legal analysis of quantum virtually all NIHL claims are settled well below their current real value.

From the RTA and EL/PL fixed fees schemes and the fundamental changes of the Jackson reforms it is clear that Solicitors will be entitled to take a % of Claimant’s damages. For cases that remain in the Portal breach, limitation and causation will have been conceded. There will be no risk on the Claimant when deciding what sum he advises the Claimant to accept and the income they derive from the case is directly linked to the amount they recover.

GIRO Deafness Working Party 2013 figures indicate settlement of NIHL claims are generally in the region of £2,000-3,000, as the following extract shows:
Currently negotiations are framed like this:

"On the basis that evidence of noise damage is seen at only 4kHz and 3 and 6kHz appear largely untouched by the effects of noise, despite a 20 year history of noise, that your client lived in a heavily industrialised area and volunteered to our audiologist that he had known of symptoms for "several years" and that our client has been dissolved for 25 years such that no liability enquiries are possible, we believe that there are many risks for your client.

However reflecting those risks, we are prepared to offer £2,000 in respect of damages and £5,000 for costs. If this is not acceptable then we will seek a report from an ENT of our own choosing, who we expect will say noise damage could not occur at 4kHz in isolation, if noise were the cause of the loss."

Those offers are invariably accepted. Risk on all issues in dispute is used to control cost. Anyone handling these claims knows that. What if risk is removed or lowered?

What will Claimant advisors’ ambitions on quantum be?

Will exchanges now follow this:

"Having accepted liability under the Portal and surrendered any arguments in respect of section 33 and having accepted the single audiogram produced by an Accredited Audiologist, we are prepared to offer £2,000 damages in respect of your claim for 7dB NIHL and mild tinnitus."

"We are grateful for your offer, but the JC Guidelines value our clients claim at between £10,775-12,100, factoring in a 10% uplift. We have taken our client’s instructions and our client is prepared to accept £11,000 in full and final settlement of his claim."

If arms are surrendered to facilitate a more streamlined fixed fee regime, how will our next letter read?

"We offer £7,000."

"We are grateful for your increased offer. Our instructions remain that our client will accept £11,000 in respect of his claim. This valuation is supported by the JC Guidelines."

"£8,000?"

"No. £11,000"

"£10,000?"

"Ok then."

These claims are talked about as low value claims and it is true that currently, settlement frequently occurs at a low level. Contrast this with whiplash claims, which are never likely to be worth more than £2,000-3,000. It may be useful at this stage to consider the JC Guidelines on appropriate settlements at this stage. Are NIHL claims really low value?
Within the existing system, damages are usually agreed while factors such as limitation, breach and causation are live issues and the Claimant has a risk of receiving no damages. While such factors are live, damages and costs can be controlled.

With risk lowered or removed from the process as it would be on:

- Stage 3 of the Portal, or
- by insurers being bound by an opinion of a Medco accredited expert, or
- having lowered evidential requirements to make fixed fees more palatable to Claimant advisors and any regulatory body.

Claimants’ advisers would be free or freer, to maximise damages recovery and will have a direct financial interest in doing so, as they can recover 25% of their clients damages under a Conditional Fee Agreement success fee, or an appropriate % under fixed fee tariffs.

We have discussed with clients who are able to engage with the Portal and make the relevant concessions on breach and causation, due to the knowledge of the specific insured. They are reporting that Claimants’ damages expectations during negotiation at Stage 3 of the Portal are dramatically different to that seen outside the portal where risk remains. This is clearly driven by the % interest in the Claimants’ damages by way of success fee.

Special damages inflation

Ask any insurer or their advisers and they will likely say they do not pay hearing aid claims. Actuarial figures support that this is the case.

However ask any Claimants’ Solicitors and they will likely tell you that they are being approached by companies offering hearing rehabilitation packages, supported by insurance in respect of failed claims, which will entitle the Claimant Solicitors to recover 25% of the cost of the hearing aids usually set at £2,500. The % interest in the level of damages award has created new business opportunities and these opportunities are realised by increased damages recovery.

Schedules of Loss are invariably served, but not pursued. As Claimant Solicitors look to maximise income based on maximising damages recovery and with companies offering off the shelf packages to facilitate that, it is highly likely as LASPO bites and any movement towards fixed fees structured in the way the EL/Pl fees are incorporated, hearing aids will not be forgotten about as they currently are, which will further increase the cost of these claims.

Part 36 protection?

While insurers were given greater protection by way of Part 36 and a cost risk remains on Claimants with QOCS protection removed if they fail to beat a Defendants Part 36 offer, how does a Defendant pitch that Part 36 offer to gain cost protection? With the JC Guidelines as drafted do we really think the £2-3,000 usually paid made as a Part
36 puts a Claimant under real risk when they have a MedCo approved report that cannot be challenged indicating tinnitus is mild?

Should settlement be based on JC Guidelines, then damages in NIHL claims settled within the Portal have the potential to double; without any work on the part of Claimant advisers. Risk would still have a part to play in any fixed fee extension to NIHL claims that fall out of the Portal, depending on the parameters agreed between the parties, facilitated by the Ministry of Justice, but any move towards a MedCo approach to audiometry and expert evidence may impact on the level of risk inherent in the claim.

Will we start to see a raft of moderate or even severe tinnitus cases emerging? The answer is probably yes.

Spectre of Professional Negligence Claims

Type “Under settlement personal injury claim” into Google and you will get pages of firms offering to review settlement values and take action against previous advisors. This is a growing industry and NIHL claims are an area rife for growth as so many claims are settled at below the true market value based on the JC Guidelines and decided cases. As claims and litigation in this area increase and the same CMC’s producing data on Claimants have access to data of those who brought NIHL claims so they can be contacted as to whether they were adequately compensated, so will lawyers become keener to get an award that truly reflects the injury. If risk is removed or lowered to facilitate volume this will be a further driver to increase claims cost.

Significant increases in quantum as result of removing the control that risk presents would have a profound effect on the overall cost of the claims.

Experts- Panel of ENT/Audiologists/ Extension of Medco

Often described as new whiplash (which is an over simplification of this market and based purely on an assessment of the increasing volume and current settlement value, rather than the complexity of the issues involved) NIHL is not as straightforward a diagnosis as whiplash, which form the bulk of RTA Portal settlements.

The NIHL market is also dominated by very few experts with clearly defined, but differing view points, on both sides. The undertaking of audiology is easy to control and regulate, or should be. The BSA sets out how audiometry should be undertaken. Most experts state in their report that these standards have been adhered to. Why then do audiograms undertaken at insurer request return such differing results so consistently?

With experts swearing by way of Part 35 statement that the audiograms are BSA compliant, how can the quality of audiograms be more effectively policed and lead to a system that can be trusted by either party?

The ABI propose and extension of Medco. Would an extension of Medco or the creation of another NIHL expert Panel solve this problem?

Firstly it should be said that Medco has by no means proven itself as a method of controlling the expert market in RTA cases. Expert accreditation does not begin until January 2016 and it is clear such a scheme cannot be extended to NIHL claims before its effectiveness has been adequately assessed on more straightforward RTA claims.

There is little reason why all the same experts we see currently reporting in large volume for Claimants, would not be MedCo accredited on application. While the view points they hold may seem to insurers and those that advise them to lack evidential merit, these experts are entitled to hold their view and it is unlikely a regulator would reveal them to be acting outside the realms of their clinical experience in giving the opinions they do.

Most experts giving opinion in these cases currently are Consultants and working within the NHS, so it would be surprising if they did not achieve MedCo accreditation.

Insurers may consider certain experts as suspicious, but what evidence exists that would undermine the accreditation of such an expert? The only reason these experts back down is forensic analysis of their opinion and another expert pointing out the flaws.
Assuming we are dealing with the same experts, how does Medco work?

Medco experts are chosen for Claimants randomly. Applied in an NIHL setting, if you get an expert who chooses not to apply the Guidelines or even sticks rigidly to the Guidelines and diagnoses NIHL where no movement is seen from age related data at 4 kHz (the most noise sensitive frequency) what is your recourse as an insurer? Questions and then settlement?

If Claimants are being made to select an expert at random under a Medco accredited model, it is assumed Defendants will not be allowed to find an expert who believes that where no damage is seen at 4kHz then it is unlikely noise is the cause of loss and put that view before the Court, despite this being a perfectly reasonable argument. The insurer will presumably be bound by the opinion of the MedCo expert and have to settle. That presents a worrying change, if it is the case and if it is not, then we are in the same position we have now.

Might this be an insurer concession to bring the Claimant market closer to fixed fees? Perhaps the insurer gets an opinion from another randomly selected Medco accredited expert?

From my point of view, I would rather the current position of assessing the Claimant’s expert view and then instructing, where appropriate, an expert I know holds a differing view, and placing the full range of medical opinion before the Court. Without this, it becomes a lottery as to how the Medco expert you get approaches diagnosis of NIHL.

To trust the opinion of a single expert is a noble aim, but the individuals who have been giving their opinion in these matters have been entrenched in their own particular opinion for many years. To agree a Panel from existing practitioners to administer the scale of claims we currently face is a huge task and there seems limited reason why most current experts would not receive MedCo accreditation.

A Claimant expert dominated panel would be a worrying development for insurers.

As also discussed below any diagnostic scheme based on single audiograms will result in over-compensation and further fuel this market.

Coles/Lutman Guidelines

Can there be an agreed approach to diagnosis of NIHL?

One such method of expert control is to agree an approach to diagnosis. The Coles/Lutman Guidelines have been mooted as one such method of ensuring consistency. These Guidelines are currently being updated, the extent to which is unclear. The Guidelines have been around since 2000 and have failed to bring experts together and despite a clear attempt to provide a roadmap for diagnosis, experts on both sides resist their use, unless the application suits their purpose. There are several limits on the Guidelines, some of which we set out below:

1. They are limited in scope. Point 2.1 of the Guidelines States “For the most part, the guidelines refer to uncomplicated cases of NIHL: that is cases of typical NIHL”. As cases move from the traditional heavy industry into a different claims profile and with more serial occupational health audiometry, the “uncomplicated” and “typical” cases will become fewer and fewer and more and more cases are seen where a simple ‘notch’ or ‘bulge’ is too simple an approach to the assessment of the audiometric picture. While reducing diagnosis to a tick or a cross may have an attraction to those fearing volume, to over simplify may mean to over compensate. Adopting the Guidelines without question may help volume resolution, but with 80% of audiograms being input into our ABC Noise Tool returning a Coles compliant diagnosis, slavish acceptance will not improve repudiation rates.

2. A qualifying notch or bulge at 3, 4 or 6 kHz is sufficient to meet the Guidelines. Any system based rigidly on those Guidelines applied by a single expert would lead to a significant increase in payments. What about a case where 3 kHz shows notching, but 4 kHz, the most noise sensitive frequency, is exactly where
it should be based on age data for a non exposed individual on 75th centile, despite 30 years of unprotected exposure to noise. Most of the experts regularly instructed by Claimants would diagnose NIHL and Guidelines are satisfied, but it is highly improbable that noise would impact on 3 kHz but not 4 kHz. Similarly bulging is often seen at 3 kHz but is replicated at 1 and 2 kHz. What ever is causing the loss of 1 and 2 kHz is not noise, as these are not noise sensitive frequencies, but still the Guidelines give a diagnosis based solely on 3 kHz. A simple system, geared at volume process might render such claims payable when they should not be. A 10 dB notch / bulge is simply too low a threshold, based on a single audiometry.

3. Such application of the Guidelines is based on acceptance that the audiograms are accurate. For reasons expressed above, this is rarely the case.

4. The Guidelines are expressly stated as not being a guide to when a loss is sufficient to cause a disability. There have been several cases where a qualifying notch or bulge is seen at a noise sensitive frequencies, but the Court is unable to find a measurable disability (Hughes v Cardiff Rhonda/ Pascoe v MOD/ Holloway v Tyne Tees). However a volume system risks either arbitrarily finding that a dB loss below 5dB say, does not constitute a disability, or that a Guideline based diagnosis is enough to constitute a disability, as loss above ageing is established. A Claimant will always say he suffers symptoms and if any attempt to scrutinise this closely is lost in the interests of expediency, then defences previously available will be lost. Similarly it would be unfair to state a claim fails as a Claimant has not reached an arbitrary dB loss figure, when the legal test of damage may well be satisfied, in his case.

5. The Guidelines take the best match based on anchor points at only 25, 50 and 75 centiles. This is understandable for broad assessment, but it is possible to match a Claimant to exact centiles and reveal a more realistic understanding of his age related loss, to assess whether loss due to noise is present. A volume system that simplifies matters and allows experts to broadly centile match will remove defences previously available and lead to increased payments.

6. While the Guidelines allow for averaging of serial audiometry, this is only where the audiograms are "acceptable for averaging", which is not defined and Note 3 seems more appropriate for serial audiometry undertaken at a single sitting, where headphones can be adjusted. Quite commonly these days we have Claimants with a couple of audiograms, the insurer with a re-test and then perhaps occupational health audiometry obtained from a later employer. Here the assessment of the impact of noise on hearing thresholds is more complex and the Guidelines of limited assistance. With software it is possible to examine the deterioration of individual frequencies over time and compare all serial audiometry to form an evidential view on the probability of noise damage, for which the Guidelines offer little assistance. They were not written with such factual circumstances in mind and again the pursuit of simplification could lead to the removal of defences that would be revealed with greater evidential scrutiny.

The Guidelines work for "straightforward cases" and were never intended to cover other kinds of claims. The cases we currently litigate over are not straightforward and to adopt the Guidelines to facilitate volume is an over simplification that, if the cases are being looked at in an appropriately forensic manner in the first place, is likely to impact on repudiation rates.

Reliance of the evidence of a single Accredited Audiologist

To remove ENT surgeons from the process would significantly reduce the costs inherent in these claims. If an Audiologist could be agreed and a BSA compliant audiogram produced, would that remove causation as an argument between the parties? There are a number of problems with that:

Audiologist not competent to diagnose NIHL.
Need to be able to rule out other competing causes.
Need to examine medical history, ototoxic medication, impact of medication on late onset tinnitus.
The audiogram may be Coles compliant, but so was Hughes, Pascoe and Holloway.
Not competent to consider disability and the impact of loss at individual frequencies.
Not competent to recommend hearing aids on NHS. There is a risk of Claimants under compensated.
How many Audiologists can be agreed? Would this cope with volume?
Can a Claimant Solicitor reasonably agree to accept an offer, or reject the claim, without an ENT opinion? Do professional duties require it? Spectre of professional negligence claims.

Can all Defendant questions be dealt with by an Audiologist? Issues of symptom onset etc.? The problems with Guidelines identified above and reliance on single audiograms. Can they assess tinnitus?

Reliance on single audiometry

BC Legal have commissioned research from the University of Southampton Institute of Sound and Vibration ("ISVR") which has produced for us a report entitled "The variability of the threshold of hearing: Its importance in cases of Noise-induced Hearing Loss" written by B.W. Lawton, Associate Principal Consultant at the University.

This is a review paper of all published research literature on the subject of variability of hearing thresholds on audiograms undertaken in a clinical setting. The conclusion of ISVR's principle consultant Mr Brian Lawton is as follows:

“For an individual test subject, a single audiogram is an unconfirmed determination of that individual’s state-of-hearing in both ears. Put more simply, a single audiogram is a guess.”

The full paper will soon be released by BC Legal as part of a series of ISVR reports, but it emphasises the significant audiometric variation, which is particularly focussed at the test frequencies of 4, 6 and 8 kHz.

It is common ground that 4 kHz is the most noise sensitive frequency and 8 kHz is used as an appropriate anchor point under the Guidelines to select the centile for age related data and the bulge calculations.

The Guidelines allow for 10dB (+/- 5dB) variation in terms of audiometric error. By way of simple demonstration we can show how significant 10dB of variation at 8 kHz can be using the Guidelines:

An increase of 10dB at 8 kHz, which is commonly seen based on the ISVR commissioned research, makes this claim diagnostic under the Guidelines.

The ISVR report looked at research undertaken in clinical settings by audiological scientists trying to replicate hearing thresholds as accurately as possible for academic research purposes. It was not looking at mass clinics in the Holiday Inn by ‘audiologists’ who part of organisations with vested financial interest in the outcomes and a continued market.

Were the parties to rely on single audiometry, even conducted in BSA compliant scenarios together with the Coles/Lutman Guidelines as an arbiter of causation, the potential for misdiagnosis and over compensation is clear and dangerous.
Our research indicates two audiograms are much more reliable, with three far more so, subject to there being sufficient rest between the second and third. Can a streamlined system facilitate this volume of testing, or are insurers prepared to accept increased audiometric error ratios to facilitate ease and the processing of volume?

One size scheme

It is worth considering what an insurer’s indemnity spend would be were damages to increase due to all the factors identified above:

<table>
<thead>
<tr>
<th>Pre issue</th>
<th>Pre issue</th>
<th>Pre issue</th>
<th>Issued - post issue pre allocation</th>
<th>Issued - post listing pre trial</th>
<th>Trial advocacy fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>£1000 - £15,000</td>
<td>£5,001 - £10,000</td>
<td>£10,001 - £25,000</td>
<td>£12,500, fixed fee of £3,500 + 10% of damages = £1,250.00</td>
<td>£12,500, fixed fee of £4,500.00 + 25% of damages = £600.00</td>
<td>£750.00 (£3,000)</td>
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<tr>
<td>£17,250.00</td>
<td>£18,500.00</td>
<td>£20,125.00</td>
<td>£22,250.00</td>
<td>£1,000.00 (£3,10,000)</td>
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</table>

Tiered scheme

<table>
<thead>
<tr>
<th>Pre issue</th>
<th>Pre issue</th>
<th>Pre issue</th>
<th>Issued - post issue pre allocation</th>
<th>Issued - post listing pre trial</th>
<th>Trial advocacy fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>£1000 - £5,000</td>
<td>£5,001 - £10,000</td>
<td>£10,001 - £15,000</td>
<td>£22,500, fixed fee of £3,500 + 10% of damages = £2,250.00</td>
<td>£22,500, fixed fee of £6,000.00 + 30% of damages = £6,750.00</td>
<td>£750.00 (£3,000)</td>
</tr>
<tr>
<td>£28,250.00</td>
<td>£30,500.00</td>
<td>£32,625.00</td>
<td>£35,250.00</td>
<td>£1,175.00 (£10,115,000)</td>
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</table>

<table>
<thead>
<tr>
<th>Damages Agreed</th>
<th>£12,500.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre issue</td>
<td>Pre issue</td>
</tr>
<tr>
<td>£1000 - £5,000</td>
<td>£5,001 - £10,000</td>
</tr>
<tr>
<td>£19,500.00</td>
<td>£20,750.00</td>
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</table>
We are not proposing that settlement levels will jump to £22,500 or £12,500, but if the influence of risk is watered down it, damages sought by Claimant advisors will go up and it cannot be assumed the low settlement values we currently see in these claims will continue if a more stable business model and environment for Claimant firms to bring these claims is created. The more the Claimant gets, the more income Claimant firms derive.

### Potential savings to Insurers from a fixed fee NIHL scheme?

A scheme that reduces volume is likely to save money. I am not convinced that fixed fees at the levels that are likely will stop those seeking the work. They will remain the most profitable volume PI claims available.

Nothing in the current proposals limits volume and the assumption is that when LASPO bites, and fixed fees make the work less appealing, the volumes will naturally stall. But with NIHL being the most lucrative form of volume fixed fee PI work and an assumption that there will be some relaxation of evidential requirements to facilitate the fixed fee scheme, are Claimant firms not working in a more stable environment, where more limited returns can be expected on more cases? The opposite may well happen just with consolidation in the claimant market to the best run organisations.

Fixed fees and single accredited experts and audiologists are unlikely to reduce the volume of claims. Insurers will still have the burden of setting up and investigating etc., only perhaps for the audiology to come back in negative form. Is there any reason why the Audiology cannot be obtained and disclosed by Claimants Solicitors at the start of the process? At least then parties only need to deal with the claims that have some prospect of success. This rests on the agreement of Audiologists/Experts, such experts existing in sufficient volume and Claimant advisors being prepared to front end the process and insurers being prepared to accept a single audiogram and risk the impact of audiometric error. Will such a scheme present overall savings to both parties?

There are several factors in the current regime and a potential regime that could impact on the repudiation rate and increase the amount paid in damages:

1. The absence of risk of costs following QOCS. Post Jackson CFAs entitle the Claimant Solicitors to an interest in damages.
2. Stage Fixed Fees promote settlement as late as possible.
3. A scheme reliant on a single accredited audiologist will throw up many false diagnoses, where reliance is placed on a single or two audiogram(s).
4. Staged Fixed Fees entitle the Claimants solicitors to an interest in damages which increases based on the value of settlement and stage of settlement.
5. Medco style expert accreditation will likely see the same experts giving reports in NIHL claims.
6. Can Medco style expert accreditation reasonably fetter the opinion given by an ENT surgeon?
7. Insurers may lose the right to a second opinion where the original opinion is given by a Medco accredited expert.
8. If the insurer is entitled to a second opinion, this may be from another Medco accredited expert and this becomes a game of chance as to the view expressed.
9. Settlement of Quantum at Stage 3 Portal is when no risk exists and the Claimant can maximise recovery.

<table>
<thead>
<tr>
<th>Disease cases</th>
<th>Pre Issue £1000 - £5,000</th>
<th>Pre Issue £5,001 - £10,000</th>
<th>Pre Issue £10,001 - £25,000</th>
<th>Issued - post issue pre allocation</th>
<th>Issued - post allocation pre listing</th>
<th>Issued - post listing pre trial</th>
<th>Trial advocacy fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damages</td>
<td>£ 12,500.00</td>
<td>£ 22,500.00</td>
<td>£ 22,500.00</td>
<td>£ 22,500.00</td>
<td>£ 750.00</td>
<td>(£3,000)</td>
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<tr>
<td>Basic fee</td>
<td>£ 3,500.00</td>
<td>£ 3,500.00</td>
<td>£ 3,500.00</td>
<td>£ 3,500.00</td>
<td>£ 3,500.00</td>
<td>(£10,000)</td>
<td></td>
</tr>
<tr>
<td>Breach premium</td>
<td>£ 750.00</td>
<td>£ 750.00</td>
<td>£ 1,000.00</td>
<td>£ 1,000.00</td>
<td>£ 1,250.00</td>
<td>(£10-£15,000)</td>
<td></td>
</tr>
<tr>
<td>Caution premium</td>
<td>£ 750.00</td>
<td>£ 750.00</td>
<td>£ 1,000.00</td>
<td>£ 1,000.00</td>
<td>£ 1,250.00</td>
<td>(£10-£15,000)</td>
<td></td>
</tr>
<tr>
<td>Limitation premium</td>
<td>£ 750.00</td>
<td>£ 750.00</td>
<td>£ 1,000.00</td>
<td>£ 1,000.00</td>
<td>£ 1,250.00</td>
<td>(£10-£15,000)</td>
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</tr>
<tr>
<td>Success fee %</td>
<td>10.0%</td>
<td>20.0%</td>
<td>25.0%</td>
<td>30.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Success fee £</td>
<td>£ 1,250.00</td>
<td>£ 4,500.00</td>
<td>£ 5,625.00</td>
<td>£ 6,750.00</td>
<td>£ 1,750</td>
<td>(£15,000)</td>
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<tr>
<td>TOTAL</td>
<td>£ 19,500.00</td>
<td>£ 32,750.00</td>
<td>£ 35,625.00</td>
<td>£ 39,000.00</td>
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</tbody>
</table>
10. Single Medco style accredited expert may remove causation, quantum and possible limitation arguments such that settlement offers will have to be made with no real risk on the Claimant.

11. Any relaxation in evidential requirements to facilitate fixed fees removes risk and will be felt in damages being sought.

If any some or all of these factors impact on volume, repudiation rate and settlement value, how might this impact on the overall cost to the insurance industry?

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<tr>
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<th>(A)</th>
<th>(B)</th>
<th>(C)</th>
<th>(D)</th>
<th>(E)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing position</strong></td>
<td>Volume maintains but repudiation rate falls</td>
<td>Volume maintains, repudiation rate drops and settlement value goes up</td>
<td>Volumes falls, repudiation drops and settlement value goes up</td>
<td>Volumes increase, repudiation drops and settlement value goes up</td>
<td></td>
</tr>
<tr>
<td>Repudiation rate: 70%</td>
<td>Repudiation rate: 50%</td>
<td>Repudiation rate: 50%</td>
<td>Repudiation rate: 50%</td>
<td>Repudiation rate: 50%</td>
<td></td>
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<tr>
<td>Settlement rate: 10,000 per annum</td>
<td>Settlement rate: 10,000 per annum</td>
<td>Settlement rate: 10,000 per annum</td>
<td>Settlement rate: 7,000 per annum</td>
<td>Settlement rate: 12,000 per annum</td>
<td></td>
</tr>
<tr>
<td>Damages paid: £2,500 (GIRO DWP 2013 Actuarial data - damages cost between £2-3,000)</td>
<td>Damages paid: £3,500</td>
<td>Damages paid: £3,500</td>
<td>Damages paid: £7,000</td>
<td>Damages paid: £7,000</td>
<td></td>
</tr>
<tr>
<td>Costs paid: £7,500 (GIRO DWP Actuarial data - costs paid are around £7-8,000)</td>
<td>Costs paid: £3,500</td>
<td>Costs paid: £3,500</td>
<td>Costs paid: £3,500</td>
<td>Costs paid: £3,500</td>
<td></td>
</tr>
<tr>
<td>10,000 claims of which 30% paid = 3,000 paid claims</td>
<td>10,000 of which 50% paid = 5,000 paid claims</td>
<td>10,000 claims of which 50% paid = 5,000 paid claims</td>
<td>7,000 of which 50% paid = 3,500 paid claims</td>
<td>12,000 of which 50% paid = 6,000 paid claims</td>
<td></td>
</tr>
<tr>
<td>£10,000 per claim = £30 million paid by insurance industry.</td>
<td>£6,000 per claim = £30 million paid by the insurance industry.</td>
<td>£7,000 per claim = £35 million paid by insurance industry.</td>
<td>£10,500 per claim = £36.75 million paid by insurance industry</td>
<td>£10,500 per claim = £63 million paid by insurance industry</td>
<td></td>
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</table>
Political will

NIHL claims are often wrongly compared to whiplash claims.

Yes there are lots of them and they are currently settled at a low value, but in all other respects they are different.

One key difference in the political debate is that the problem for insurers is not really passed on to policy holders or voters, as few claims are actually paid, the burden is largely on the administration of claims that will ultimately fail in 12-18 months.

Insurance premiums of voters do not go up as a result of NIHL claims and while the cost of NIHL claims may be factored into the additional cost of EL policies and there is little pressing social issue for a government to resolve, as there is with whiplash claims.

In whiplash claims the impact is felt on car insurance, which is of course compulsory and RTA fraud was the justification for ever increasing premiums.

EL Insurance premiums are not stifling the economic recovery. Do the government really care enough to get all parties around a table and start twisting some arms?

Conclusions

Will extending the Portal and Fixed Fee scheme have the desired effect of driving down claims volumes and costs and overall indemnity spend? The simple answer is probably not and it may well have the opposite effect.

1. There is potential for increased costs if repudiation rates fall and damages go up, even if costs per claim lower and volumes drop.

2. There is potential for increased damages per claim.

3. There is potential for a reduced repudiation rates.
4. There is potential for increased claims volumes—albeit run by a consolidated claimant market—to maintain income streams.

5. Audiometric error is prevalent and will produce more Guideline compliant audiograms in a streamlined single audiogram process. This will occur regardless of whether audiograms are taken in BSA compliant surroundings.

6. Insurers should look to maintain an ability to obtain a second expert report.

7. Key to controlling volume and cost will be quality repeat audiometry and putting this at the start of the process, as the extended Portal and/or fixed fees is unlikely to discourage those from seeking NIHL claims.

Hearing Aids and Damages Inflation: Parallels to Credit Hire? (BCDN Edition 103)

Introduction

In edition 101 of BC Disease News we reported that a new rehabilitation scheme for claimants has raised concerns about potential damages inflation in NIHL claims. This article aims to explore further how this scheme will work in practice, what the chances of recoverability are and will consider any comparisons that can be drawn with credit hire cases in RTA claims in order to predict the future success of such rehabilitation schemes.

Background

Unique Hearing Rehabilitation Services claims to offer a bespoke service to claimants that are in need of hearing aids in NIHL claims. Its modus operandi, in effect, is to provide claimants with hearing aids and then issue a ‘paid’ invoice to allow a claim for special damages to be made as part of any legal claim for NIHL. This is said to avoid the prospect of being awarded only a general amount in respect of hearing aids as part of any general damages awarded. Further, Unique Hearing seeks to ingratiate itself with claimant firms by noting that claimant firms can then add the 25% uplift on damages as part of their conditional fee agreement with the claimant, which will be increased by reason of the hearing aid damages. So, says Unique Hearing, claimants get the latest hearing aid technology tailored to their requirements, claimants can also claim for the full amount of the aid by reason of the ‘paid’ invoice, and claimant firms can add their uplift to the recovered amount.

Unique Hearing Ltd are prescribing aids where the average losses are 25dB. They claim that the typical cost per pair of aids is £2,500. The scheme is said to also typically add £1000-£1,500 onto the Claimant solicitor’s costs, arising from instructing Unique Hearing, considering reports and advising the client. In addition, of course, the claimant solicitor is able to retain up to 25% of the £2,500 damages as part of the conditional fee agreement with the claimant.

Under this scheme the claimant enters a credit arrangement with Novitas Loans Ltd (Novitas) who pay Unique Hearing for the cost of the aids. If ultimately the claim for damages is not successful, there is nothing to pay as the loan is protected by insurance. If successful, the cost of the loan will be paid for from the recovered damages settlement. This service means the claimant will receive hearing aids well in advance of any settlement with no cash outlay required; all the costs incurred will be part of the claim for damages that the claimant’s solicitor will pursue on the claimant’s behalf together with other damages that they may be entitled to.

So why does this pose a risk of damages inflation? As we have previously reported, claimant practitioners are keen, more than ever, to increase recovered damages. That is so for two reasons. Firstly, the fixed fees accompanying the Claims Portal/protocol for low value claims mean that claimant practitioners are recovering less in costs. Further, the pre-LASPO claims where 62.5% success fees are available are depleting so that claimant solicitors are left with more post-LASPO cases with maximum returns of 25% of the damages. One way, therefore, to increase their costs is to recover more damages so that they can retain more as part of their conditional fee arrangement with the claimant – claimant practitioners can charge an uplift of up to 25% of the recovered damages as noted above.
Dependent on the claimant’s hearing, an aids claim could easily add £10,000+ to a value of a claim with the aim of elevating it beyond the £25,000 portal threshold and outside of the fixed fee regime. Secondly, there has been a rise in professional negligence actions against claimant practitioners for under-settling claims. Therefore there is an impetus to recover as much in the way of damages as possible so as to avoid that prospect.

The question was posed last week whether all the costs shown in the ‘paid’ invoice will be recoverable due to the fact that the claimant has actually spent nothing. In order to help answer this question it may be prudent to examine the court’s approach to credit hire claims in RTA cases where many similarities can be drawn.

The Future

Credit hire is the supply of a like-for-like replacement hire vehicle on a credit basis to the not-at-fault vehicle owner following an accident. Rather than requiring payment for the hire of the vehicle at the time of hire, the credit hire company will attempt to recover the costs of hire from the at-fault driver’s insurer once the claim is settled. Credit hire may be available to any non-fault vehicle owner whatever their own insurance status - comprehensively insured, third party insured or even (in many cases) uninsured as the claim is not against their own insurance but directly against the insurer of the at-fault third party driver. These cases present their own particular issues and the Court of Appeal has set out a guide in the form of eight principals expressed by Aikens LJ in Pattni v First Leicester Buses Limited, Bent v Highways and Utilities Construction.

The first of these principles is that it is the duty of the claimant in these cases to mitigate their loss. Hiring a replacement car is such mitigation where the use of a car is needed regularly and to hire one over a period of time is cheaper than, say, the cost of taxis. Where the claimant has mitigated the loss of use by hiring a car, the cost of such a hire will be the measure of damages.

Secondly, if there was no need to mitigate loss (because there was no loss), the claimant will not be justified in hiring a replacement car to mitigate their damages for loss of use and recovery will be limited to recovering only general damages for loss of use. The assessment of general damages in this scenario will be on a factual basis. For example, if the claimant required a car to travel to work on a daily basis but as a result of the accident was on sick leave throughout the period the car was being repaired but hired a car to do her weekly shopping (just one outing a week) then the court is likely to find that this kind of mitigation is unreasonable and therefore would assess what would have been reasonable e.g. the cost of a return taxi journey once a week and award this amount as a general damage.

Thirdly, if there is a need to mitigate loss on the part of the claimant, the claimant must also act reasonably in doing so. Pattni held that the claimant must prove three things: firstly, a reasonable need to hire a car at all; secondly, a reasonable need to hire it for the period for which it was hired; and, finally, a reasonable need to hire a car of that size or quality.

How would this apply in NIHL claims? As to the first Pattni principle, in order for there to be a duty/need to mitigate in an NIHL claim there must be a clinical need for hearing aids. In Coffin v Ford Motor Company (Southampton County Court, 18 March, 2008) hearing aids were only awarded on the basis that they were ‘reasonably required’. Arguably, hearing aids will be of no clinical benefit to claimants whose loss in the ‘better ear’ averaged over the frequencies 0.5-4 kHz is below 35 dB.

As to the second Pattni principle, if there is no clinical need for aiding then there is no need to mitigate the loss, since the loss is not sufficient to require mitigation through the acquisition of hearing aids. The cost of acquiring aids in those circumstances will not be recoverable.

As to the third Pattni principle, where the need to mitigate by the use of hearing aids has been established, the mitigation must itself be reasonable. So, if there are reasonably suitable aids available more cheaply on the open market then that is the sum that would be awarded, as Coffin itself made clear. If Unique Hearing’s aids are not competitively priced then damages at that level would not be awarded. This is in accordance with the principle in Pattni. Similarly, if there was only a clinical need for one aid, then it would not be reasonable mitigation to acquire two. In those circumstances damages would once again only be awarded for one aid, a point Coffin also made.
Quite aside from the *Pattni* principles, arguments can be made more generally about an award of damages for hearing aids, namely that expenses should not be recoverable because the claimant would not seek treatment at all. Many claimants suffer with hearing difficulties for many years prior to making a claim but fail to seek treatment. Would they all of a sudden incur the cost of private hearing aids? In *A v Powys Local Health Board*, it was confirmed (following *Sowden v Lodge*), that a claimant is entitled to damages to meet their reasonable requirements and reasonable needs arising from their injuries. If a claimant has not sought treatment and had no intention of doing so prior to their claim, do they reasonably then require hearing aids and would they be reasonably incurring this cost as required by the principles in *Pattni*?

More generally, it remains the case of course, that damages will not be awarded for any period when aids were not necessary, or would have become necessary in any event by reason of age-associated hearing loss/other losses.

The judgement in *Pattni* becomes particularly useful where it addresses the issue of the use of credit to hire a vehicle. Here the Court of Appeal states that the claimant must prove a need to hire the car on credit rather than cash terms i.e. evidence that the claimant is ‘impecunious’. A claimant is not impecunious if they could pay in advance and not on credit terms without having to make unreasonable sacrifices. If this is the case then they would be expected to pay for the cost of hiring the car outright from their own funds thus preventing the need for a credit hire agreement and the additional costs that are attached. If in the future this is the approach taken to NIHL rehabilitation scheme cases then the claimant will not only be required to show that they could not obtain reasonably suitable aids more cheaply but that they also could not afford to pay for the hearing aids provided by Unique Hearing and therefore required the credit provided for by Novitas. If this cannot be shown then *Pattni* states that in credit hire claims, only the Basic Hire Rate (BHR) can be recovered which is usually less than the Credit Hire Rate (CHR). For NIHL claims, this may mean that if the claimant cannot show they are ‘impecunious’ then only the cost of the hearing aid is recoverable and not the interest of the loan provided by Novitas or the insurance premium which covers the loan. Plainly, if the only reason that credit is required is due to the excessive cost of hearing aids themselves then the claimant’s impecuniosity will not be in issue as such because it would be unreasonable to mitigate the loss by the purchase of such expensive aids when perfectly adequate ones are available more cheaply on the open market. In those circumstances, *Pattni* indicates only damages for cheaper hearing aids would be awarded. The defendant may decide to use a request for further information under CPR 18 in order to obtain clarification or additional information in order to challenge claimed impecuniosity or need.

If the claimant manages to show their impecuniosity, that it was reasonable to obtain a hearing aid and one of that calibre, they will be able to recover the cost of the hearing aid and the loan which covered it as special damages. However, the seventh principle in *Pattni* states that interest on deferred hire charges is not recoverable. Because the hire is on credit, the claimant has not expended the money to pay for it and is not out of pocket. Where the interest on the hire charges is provided for separately in the credit-hire agreement, it is not recoverable as interest is not part of the damages for loss of use – it is the price for deferring payment, which is an additional benefit to be stripped out. Were the courts to take this approach in NIHL claims in the future this could scupper some of the claimant solicitor’s hopes to inflate the amount of special damages retrieved by using these rehabilitation schemes.

**Conclusion**

Rehabilitation schemes such as Unique Hearing are an indication of how innovative claimant solicitors are and their ability to seek profits in a challenging market where non-disease claims have become financially unattractive or unviable. Defendants should urge the courts to adopt the same approach as has been taken with the analogous credit hire claims in RTA cases. Then the needs for aids, reasonableness of the calibre of hearing aid and also the claimant’s need for credit can be challenged and disproportionate and unnecessary costs will not be recoverable. Defendants should take a robust stance against such schemes as they will inevitably increase damages and costs if left to run amok.

**De Minimis in NIHL Claims: Claimant Success (BCDN Edition 108)**

**Introduction**
We have previously explored the issue of whether noise-induced hearing loss (NIHL) can be de minimis in editions 3, 39 and 97 of Disease News. Edition 97 probed the issue in light of the decisions of Hughes v Rhondda Cynon Taff County Borough Council (Cardiff County Court, 3 August 2012), and Holloway v Tyne Thames Technology (Newcastle County Court, May 2015). Since these judgments there have been two cases of interest, Hinchliffe v Cadbury UK Ltd (Leeds County Court, 12 May 2015) and Briggs v RHM Frozen Food Limited, (Sheffield County Court, 30 July 2015) and we are therefore revisiting the issue in this article in consideration of these decisions. Before we go on to examine these judgments in order to tease out any useful practical applications, it is necessary to recap on the position of de minimis in NIHL claims as we left it in edition 97.

Background

In the first instance decision of Hughes the claimant alleged NIHL arising from exposure to excessive noise during employment with the defendant as a labourer between 1969 and 1986. The claimant initially had difficulties in hearing speech against a noisy background from 2009 when aged 60.

There were 5 audiograms considered by the court, none of which showed any hearing disability within the key 1-3 kHz frequency range. However, it was common ground that there were a few decibels of loss at 4 kHz caused by noise and Mr Tomkinson, the expert for the claimant, purported that this loss was sufficient to cause a ‘disability’. However, this point was not raised until he gave his oral evidence at the trial and it was submitted by Counsel for the defendant that none of the written evidence suggested that 4kHz could be taken into account in assessing whether the claimant suffered from noise induced hearing disability. Mr Jones, the expert for the defendant, contended that 4kHz loss would create ‘very little’ practical problems and 20dB change was necessary before an individual would be aware of any change.

The judge found that the NIHL of between plus 5 and 16dB at the 4kHz level did not give rise to any disability. The claimant’s difficulties in hearing speech arose from age related and idiopathic (unknown) losses. The claimant’s hearing was still within a range of normal hearing for a man of his age and as such there was no ‘disability’. The claimant was not ‘appreciably worse off’ and the change in hearing fell within the de minimis principle so as not to be actionable.

This approach was followed in the County Court decision of Holloway v Tyne Thames Technology in which the medical experts, Professor Homer for the Claimant and Professor Lutman for the Defendant, agreed that the claimant’s audiometry satisfied the criteria for diagnosing NIHL. The medical experts were divided on the quantification of noise loss but Judge Freedman accepted Professor Lutman’s conclusion that the noise loss was 1.3 dB (binaural 1, 2, 3 kHz average) using age 70 statistics. In addition to this it was accepted that, in relation to the loss at 4kHz, but for the noise exposure the claimant would have had a 30dB loss in each ear, but noted she had a 40 and 45dB loss in the right and left ears respectively. The primary issue for determination, however, was whether this NIHL should attract an award of damages or if it fell within the de minimis range. Judge Freedman accepted the test to be applied was whether the claimant was ‘appreciably worse off’ on account of the NIHL, in accordance with Rothwell v Chemical & Insulating Company Ltd [2007] UKHL 39.

In order to determine this the question of whether or not the claimant noticed her additional noise loss at 4kHz was posed. Professor Homer contended this loss was sufficient to be noticeable to the claimant. Professor Lutman did not agree; while the claimant might notice the loss it would be so rarely that he could not accept that she was materially affected. Judge Freedman found that whilst the loss at 4kHz would make some theoretical difference to the claimant’s hearing, he could not be satisfied that she would be appreciably worse off. He helpfully gave his reasons for this conclusion, stating: ‘I come to this conclusion primarily, as I have already said, because Professor Lutman has been able to provide some data to support what he says. I do not criticise Professor Homer for not being able to provide any data, but the fact remains that all he can do is express an opinion without providing any research or science to support what he says’ ([Para 41]).

Hinchliffe and Briggs

Hinchliffe and Briggs are 2 recent county court decisions involving Roberts Jackson solicitors (as they were in Holloway) and well known claimant medical experts Mr Zeitoun and Professor Homer respectively (Professor Homer was also the claimant expert in Holloway). Breach of duty in respect of exposure to excessive noise was conceded
in both cases. In both cases the issues were the same was the claimant suffering from NIHL?-and if she was then was she ‘appreciably worse off’ as a result or was the loss de minimis?

In Hinchliffe v Cadbury UK Ltd (Leeds County Court 12 May 2015) the claim was dismissed as the claimant failed to prove a diagnosis of NIHL. The decision is worthy of reading on the interesting causation arguments alone but the issue of de minimis was also considered by HHJ Gosnell in an obiter judgment. HHJ Gosnell applied the test of whether the claimant is ‘appreciably worse off’, therefore not departing from the approach in Hughes and Holloway. He interpreted this test as meaning there must be ‘real damage as distinct from damage which is purely minimal’ (Para 21). Could 1.7dB of NIHL between 1-3 kHz plus a loss of about 10-15dB at 4 kHz make the claimant appreciably worse off? The experts agreed that the 1.7dB loss could not be noticeable. Both experts however agreed that the needs for hearing aids had been accelerated by between 2-5 years and on the Worgon-Coles scale of disability the claimant reached stage 1 (see paragraph 121 of the Nottinghamshire & Derbyshire Deafness judgement of HHJ Inglis for a more detailed discussion of the scale). HHJ Gosnell expressed that he ‘felt very uncomfortable in making an assessment as to the effect of this particular hearing loss as I had not been able to read the academic papers that Mr Zeitoun relied on. However, I have his evidence that in his professional opinion, having read and considered the five papers he referred to, the loss of hearing at that frequency is a contributing factor to an individual’s hearing handicap which he placed in the witness box at about 25% of the total. There is evidence from the claimant that she has difficulty talking to other people on the telephone and across the table and it seemed to me she was describing difficulty in speech recognition and intelligibility of the type described in the various papers referred to by Dr (sic) Zeitoun. If Mr Zeitoun is right then the claimant is reporting symptoms caused by hearing loss which are appreciable and more than minimal’. [Note: Counsel agreed that the quantum for such loss at £2,800].

Shortly after this decision followed the case of Briggs v RHM Frozen Food Limited (Sheffield County Court 30th July 2015 and now heavily cited by Roberts Jackson solicitors). The claimant claimed damages for NIHL which she alleged she sustained whilst employed by the Defendant between 1981 and 2006. The claimant’s daily exposure to noise was between 85-90 dB(A) Lep,d. Breach under the Noise at Work Regulations 1989 was established for the period 1990-1999 (at which point the claimant was provided with training and wore hearing protection. Pre 1990 exposure was non-negligent. The claimant’s hearing was essentially normal between 1-3 kHz and typical for her age. Again the judgment is worthy of reading on the causation arguments which arose but HHJ Coe QC found there was a NIHL loss of between 10-15dB at 4 kHz (it is not clear whether this was unilateral or bilateral).

Professor Homer for the claimant, argued that 4kHz is a critical frequency for hearing and specifically stated that any dismissal of there being any importance of impaired hearing at this frequency would be an opinion that would be outside of mainstream ENT and audiological opinion. He went on to state that this is very basic knowledge within audiology and placed reliance on the claimant’s loss at 4kHz falling within the ‘speech banana’ (see BCDN edition 97—the speech banana represents the intensity and frequency of sounds of speech or ‘phenomes’ in language that when placed on the audiogram form a banana like shape. In adults hearing loss within the speech banana can affect a person’s ability to follow what is being said).

Mr Jones, expert for the defendant, argued that a 15dB loss at 4kHz would cause no significant disability and whilst a marked high-frequency loss above 2kHz would have a significant effect on speech perception, a loss of a few decibels at 4 kHz is of no great importance particularly with good hearing at 1-3 kHz. He also considered that in respect of disability in the claimant’s case that the ‘speech banana’ was incorrect, stating that the effect of this level of loss at 4kHz would not have an impact and there was nothing to suggest that it would.

HHJ Coe concluded that he preferred the evidence of Professor Homer on the basis that his views were conventional and the argument with which he supported them was logical and well-researched with his views being supported by the literature and other clinicians. He therefore accepted the evidence from Professor Homer regarding the significant loss at 4kHz and about the usefulness of the ‘speech banana’. As with the judgment in Hinchliffe, HHJ Coe felt it appropriate to comment on the claimant’s evidence of her hearing loss, concluding that she was a credible witness and he accepted the account of her symptoms. Similarly, it was noted, as it was in Hinchliffe, that the claimant was likely to need hearing aids sooner than would otherwise have been the case.

So what sense can be made from these somewhat contradictory outcomes for de minimis defences in NIHL claims?

Comment
Despite this recent departure from defendant favourable judgments, one should not jump to the conclusion that de minimis defences based on 4kHz hearing loss are doomed to fail. It should be borne in mind that these decisions are first instance in the County Court: they are not binding. There is also probably little weight that can be attached to the obiter judgment of HHJ Gosnell in Hincliffe where he himself expressed real reservations in determining the de minimis issue where he had not been able to consider medical authorities on the issue. In all 4 of these NIHL claims the main battleground appears to have centred on primary diagnosis and causation. It is unclear to what extent argument and authorities were marshalled on the issue of de minimis.

**Conclusion: Success In Running a De Minimis Defence**

Despite the claimant success in Briggs the appropriate selection criteria for running a successful de minimis defence, which were outlined in edition 97, we believe are still relevant and are as follows:

- The main speech frequencies between 1-3 kHz unaffected by any NIHL, or are only affected in a very limited way;
- NIHL of not more than 15 decibels at 4 kHz or 6 kHz. It is preferable that the NIHL is only at 6 kHz since there are studies to support the role of hearing at 4 kHz for speech recognition and it is possible to argue that any loss at 6 kHz is transient or spurious or, if the loss is permanent, does not arise as a result of NIHL.
- An elderly claimant with already significant non-noise related losses such that it can be argued that any disability from NIHL is completely subsumed by other losses/disability. Whilst the effects of NIHL and age related losses are initially additive the effect of the noise component progressively diminishes over time. By the age of 80 it is arguable that it makes virtually no difference to an individual's hearing ability what noise exposure has arisen, though be aware of the onset of any disability being 'brought forward' as a result of the NIHL.

Also, as already outlined, the importance of developing proper medical evidence supported by authorities should be emphasised. Not all of these selection criteria need to be present for a de minimis defence but the more present the better the prospects of success. We consider the medical authorities on NIHL and speech intelligibility in a forthcoming edition of BCDN.

**Acoustic Shock: Indecent Exposure in Call Centres (BCDN Edition 109)**

**Introduction**

Noise is probably the most widespread of industrial hazards. Although we associate noise at work with noise induced hearing loss (NIHL), concerns have also been raised regarding what is known as ‘acoustic shock’ and ‘Acoustic Shock Syndrome’ among people using telephone headsets and other similar communication devices.

**What Is Acoustic Shock?**

As this is still a relatively new and developing field, there are still several slightly different definitions of acoustic shock and global consensus has yet to be reached. One of the first definitions of acoustic shock was produced by the International Telecommunications Union European Transmission Standards Institute in 1998. It defined acoustic shock as ‘any temporary or permanent disturbance of the functioning of the ear, or of the nervous system, which may be caused to the user of a telephone earphone by a sudden sharp rise in the acoustic pressure produced by it’. In a 2008 Position Paper the HSE defined it as ‘a term used in connection with incidents involving exposure to short duration, high frequency, high intensity sounds through a telephone headset’. The Health Services Australia Group has produced the most expansive definition which states that ‘acoustic shock refers to the combination of exposure to a brief, sudden, unexpected, high frequency, high intensity sound emitted (the stimulus) and the subsequent symptoms (the response) which can develop’. This group also produced a definition for the causative
sound or 'acoustic incident': 'acoustic incident refers to a sudden, unexpected, high-pitched sound of high intensity...'. It is generally accepted that these ‘acoustic incidents’ are unexpected and randomly occurring with a high frequency at between 2.3-3.4 kHz and with intensities varying between 82-120 dB and of varying durations.

**Acoustic Shock Syndrome**

It should be noted that acoustic shock appears to be unrelated to NIHL, the latter potentially arising from repeated exposure to sounds of an intensity greater than 85dB causing cochlear damage. Whilst a call handler may be shocked or startled by an acoustic incident the HSE state in their 2008 Position Paper that exposure to these acoustic events is not sufficient to cause hearing damage as assessed by conventional methods.

However some sources suggest that acoustic shock incidents are associated with a range of physiological and psychological symptoms that have been reported amongst headset wearers. Symptoms include a sense of fullness/blockage of the ear, recurrent pain in the ear, sensations of numbness or burning felt in the head, neck, shoulder and down the arm on the affected side, unusual sensitivity to everyday sounds (hyperacusis) followed by fear of loud sounds and associated anxiety and panic in some acoustic environments. Serious depression has also been linked to acoustic shock incidents.

In a recent study carried out in 2014, the medical notes and occupational health records of 30 ‘sufferers’ were scrutinised followed by interview and examination. There was a range of otological symptoms identified (with an average of 3.2 per patient), the most common being tinnitus which was present in 90% of the subjects. It was also found that 70% of study participants had previous oto-pathology, 63% had psychopathology and 17% had head injuries. It was again concluded that hearing loss was not necessarily a feature of acoustic shock syndrome.

Anecdotally, one of the common complaints of people who have experienced an acoustic shock is that their symptoms are ignored or minimised by medical staff. Following normal audiological tests many patients are merely reassured that no damage has been sustained and are dismissed. It has been suggested that recognition of the condition and a sympathetic approach are simple and helpful measures. Techniques used for mainstream hyperacusis and phonophobic patients, such as tinnitus retraining therapy and psychological therapies, have been used to treat patients with acoustic shock. However, no firm evidence of the efficacy of this approach has yet emerged. Westcott, reported four cases of acoustic shock which were treated with sophisticated in-the-ear digital hearing aids, set up to act as electronic filters and compress all sounds down to the range of conversational speech. The rationale for this approach was that it would protect against dangerous sound levels while avoiding the risk of overprotection. Three of the four patients treated in this study showed improvement, but it is difficult to draw firm conclusions from such a small study.

**Who is at Risk?**

Employees within the call centre industry are typically seen as being most at risk. A press announcement made by the Call Centre Management Association on 5 November 2004, suggested that 300,000 such workers may be victims of acoustic shock syndrome. Acoustic shock in this scenario may be caused by interference on the telephone line, by mis-directed faxes, or by a smoke or fire alarm sounding at the caller's end. There have also been incidences of malicious callers blowing whistles into the sending headset.

In response to such unexpected loud sounds, the natural reaction is to remove the headset quickly, thus limiting the exposure duration to a few seconds, it is highly unlikely that an exposure lasting a few seconds would produce any lasting shift of the hearing threshold.

Since 1991, major manufacturers have incorporated an acoustic limiter in the electronics of their headsets to meet the requirements of the Department of Trade and Industry (DTI) specification 85/013. In the UK, this limiter ensures that any type of noise (eg conversation, short duration impulses) above 118 dB is not transmitted through the headset. However, it is said that reducing the overall output level through a headset can reduce the intelligibility of speech, particularly within the sometimes noisy environments of call centres and this can result in operatives straining to hear and therefore increasing their central auditory gain. This may render the operative more susceptible to acoustic shock. As a result there have been several attempts to design more sophisticated filtering equipment, such as an in-line acoustic shock limiter that can recognise and reject acoustic incidents while allowing
normal speech to pass through in a largely unaltered state. Some manufacturers are now bringing ‘acoustic shock protection’ and ‘headset noise limiter’ devices to market.

Prevalence

The HSE considers that, in general, call handlers’ daily personal noise exposure is unlikely to exceed the 80 dB lower exposure action value defined in the Control of Noise at Work Regulations 2005, provided good practice in the management of noise risks is followed. However, the Communication Workers Union (CWU) estimated in 2005 that there had been more than 500 claims in the UK for damages associated with the symptoms of acoustic shock, resulting from breaches in common law by the employer, for example, the Provision and Use of Work Equipment Regulations 1998, Reporting of Injuries Diseases and Dangerous Occurrences Regulations 1995 and the Health and Safety at Work Act 1974 all enforce a duty of care upon the employer over their employee. These claims resulted in out of court settlements in excess of £3 million and there were reported to be an average of 10-15 new cases every month at this time.

In their local authority circular (LAC Number 94/2, Advice Regarding Call Centre Working Practices), the HSE recommend that employers keep up to date with developments in this field through professional associations and other representative bodies. Employers should also train call handlers to recognise incidents that result in any adverse reactions and how to report them. This should be encouraged alongside them implementing a traceable reporting system for headset users who may have been exposed to incidents. More recently, in 2011, the National Institute for Occupational Safety and Health (NIOSH) made recommendations for both employees and employers. They claim that employees should notify their supervisors and take protective action if they experience tinnitus, a dulled sense of hearing or a fullness in the ears after a work shift or exposure to noise (that was not present before the exposure or work shift) as this can indicate an overexposure that, if repeated will likely cause permanent effects. They also recommend that employees do not set the volume control above the middle point, the lower the better and that they ask to try different headsets with improved protection or noise-cancelling features. Employers are advised to consider supplying communication systems with noise-limiting features and to install noise controls to reduce background noise levels in the work environment, such as barriers between workstations or sound-absorbing materials on hard surfaces in the room.

Conclusion

Whilst the research in this area is somewhat limited, it is clear that acoustic shock syndrome is significantly different to NIHL in both its causes and its symptoms. It should be noted that Acoustic Shock Syndrome is not a recognised medical diagnosis. Acoustic Shock Syndrome is no more than a descriptive term for a constellation of symptoms—many of which appear to be ill-defined and unrelated and with no (as yet) physiological link between exposure to acoustic shock and the suggested symptoms. The HSE has not found evidence to establish whether the reported symptoms of acoustic shock syndrome are caused directly by the exposure to the unexpected sound. Currently scientific/medical evidence in support of the existence of Acoustic Shock Syndrome remains extremely limited. Interestingly, a recent study carried out by Hooper RE, identified cases of pseudohypacusis (exaggerated or false hearing loss) and suggested that acoustic shock syndrome is predominantly psychogenic with indications that malingering is a factor in some cases. Due to this absence of real epidemiological or other medical evidence, it is difficult to see how claims for acoustic shock syndrome can succeed although, employers should endeavour to limit their liability by taking all preventative measures available. We will continue to watch the developing research for Acoustic Shock Syndrome to predict how the future landscape for any such claims may develop.

Assessing the NIHL Component in NIHL Claims I (BCDN Edition 110)

Introduction

How do we assess NIHL and disability in NIHL claims? On the face of it this is a simple enough question. Unfortunately as with many issues in NIHL claims it is one which is surprisingly complex and difficult to answer. With the recent announcement that Professor Coles, Lutman and Buffin are due to publish new diagnostic guidelines for NIHL in the journal, Clinical Otolaryngology, in Autumn 2015, it seemed an apt time to begin the first in a series of articles which endeavours to provide a root and branch overview of assessing NIHL and disability in NIHL claims.
Whilst the Coles (or CLB) Guidelines are generally accepted by medical experts and the courts as a framework within which to determine a diagnosis (or otherwise) of NIHL the Guidelines exclude any quantification of the NIHL component and any disability arising from the same.

The question of how we assess any noise loss and disability in NIHL claims raises the following issues which will each be addressed in their own articles:

(i) What frequencies should be considered to determine the NIHL and disability? Should it be 1, 2 and 3 kHz or 1, 2 or 4 kHz (or perhaps even some other range / combination)?

(ii) What AAHL data should be used as the ‘baseline’ against which to determine the NIHL component? Do we use the AAHL data in ISO 7029 or the modified ISO 7029 data within the Coles Guidelines or more ‘typical’ AAHL data as found within the MRC National Study of Hearing or other source?

(iii) Having selected the appropriate frequencies and AAHL database then what methodology should be used to determine the NIHL? Should we look at AAHL data for someone of the same age and sex as the claimant at the median percentile as recommended within the ‘Black Book’? Should we ‘best fit’ the claimant to the age data-do we select the data from the closest quartile or select a specific percentile of AAHL? Alternatively, should the NIHL component be determined with reference to the bulge calculation row within any assessment performed under the Coles Guidelines? This then raises a further question of whether the anchor points within the Coles Guidelines-most typically 1 and 8 kHz being used-are affected by noise and whether an assessment using the bulge calculation row underestimates the NIHL component and whether some ‘correction factor’ should be applied to address that underestimate?

(iv) How does any NIHL then translate into disability? When does a disability equal injury for which compensation is payable-the de minimis issue?

(v) Should there be a uniform approach taken in assessing the NIHL component and disability in all claims or should any method be dependent on the specific facts of the case? If a claimant has normal hearing at 1-3 kHz but a significant NIHL component at 4 kHz only then can any assessment based on the frequencies of 1-3 kHz really be applied?

This article, as the first in a series, will briefly look at the importance of each of the frequencies used to hear speech and will provide a historical and chronological overview of the adoption of frequencies used to assess disability in NIHL in the United Kingdom over the past four decades. In next week’s feature article there will be an examination of the medical authorities in relation to how NIHL impacts on speech intelligibility and speech communication and how this may influence the frequencies which are selected to assess disability.

**Which are the most Important frequencies?**

The Irish Expert Hearing Group helpfully distinguish between as ‘hearing loss’ ‘as the amount by which an individual’s hearing threshold level changes for the worse as a result of some adverse influence’ and ‘hearing disability’ ‘as any restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being’. A hearing disability therefore, is the inability to hear every day sounds, in either quiet or noisy backgrounds, in a manner which is considered to be normal for humans.

Claimants are compensated not for the hearing loss in itself but rather the disability that results. There are several methods used to assess disability which have been adopted since the first successful claim for NIHL was brought in 1969. The rationale for each depends greatly on the importance attached to certain frequencies at the time.

But which frequencies are the most important in speech communication and speech intelligibility? This is a controversial question and is the root of the debate over which frequencies should be adopted when assessing disability in NIHL. In simple terms it seems generally accepted that the frequencies between 0.5-3 kHz are most important as evidenced by many telecommunication systems operating within these frequencies. But does this
mean that hearing at 4 and/or 6 kHz play no or little part in hearing or that a loss at one of both of these frequencies cannot result in a disability?

**History of Frequency Adoption in the United Kingdom**

The seminal judgment of Mustill J in *Thompson v Smiths Shiprepairers (North Shields) Ltd* (1981 T No.2418), in 1981, largely established the legal framework for handling NIHL claims. Much is said throughout the judgment regarding the authorities for which frequencies should be adopted when assessing disability in NIHL. Despite Mustill J acknowledging that the Department of Health and Social Security made use of 1, 2 and 3 kHz (at that time) for determining payment of benefits for NIHL, he adopted the Coles/Worgan scale to assess disability which makes use of the binaural average loss in the 0.5, 1 and 2 kHz frequency range and also considers the loss at 4 kHz but only where above 25dB. Mustill J went on his judgement to outline that the opinions at this time were expressing favour for determining disability based on the average NIHL over the frequencies 1, 2 and 4 kHz.

Indeed, in their 1983 publication the ‘Blue Book’ the British Association of Otolaryngologists and British Society of Audiology advocated the use of the frequencies 1, 2 and 4 kHz for assessing disability. The subject was considered to have a disability if the average threshold at these frequencies was greater than 20dB. The rationale behind the adoption of this selection of frequencies was because 4 kHz is the frequency most affected by noise. The case of Thompson and the publication of the ‘Blue Book’ were followed by many more cases which affirmed the adoption of the 1, 2 and 4 kHz frequencies such that the assessment of the average binaural NIHL and disability based on these frequencies became convention.

The Blue Book was then followed in 1992 by the ‘Black Book’ (King, Coles, Lutman and Robinson-the Inter Society Working Group on Hearing Disability) for the assessment of disability in NIHL claims. The authors assessed hearing based disability on the thresholds at 1, 2 and 3 kHz. 3 kHz was preferred to 4 kHz as it contains more speech information than 4 kHz. The thresholds at 4 kHz were also excluded as a notch may occur at this frequency which may be narrow and deep and lead to inflated characterisation of the average hearing levels. Assessment of loss and disability at 1, 2 and 3 kHz has largely been the convention for the last 15 years or so.

In 2002 the Industrial Injuries Advisory Council for the Department of Work and Pensions reviewed the frequencies at which disability for NIHL would be assessed and continued to recommend use of the frequencies 1, 2 and 3 kHz.

In the decision of Parkes v Merdian, the nature of noise and its measurement were considered, with it being pointed out that at different times, different studies and bodies have proposed averaging different frequencies for this purpose. It was acknowledged that the main frequencies important to speech are 0.5–4 kHz and that 6 kHz has significance for high tone noise, for instance music or birdsong. It was, however, again recognised that in England the most common method of averaging hearing loss is over the frequencies 1,2 and 3 kHz, therefore confirming the convention.

However, are we likely to see this convention being challenged with the increasing number of minimal hearing loss claims where the hearing thresholds at 1-3 kHz are often largely unaffected? As outlined by Mustill J in *Thompson*, ‘[…] where the losses are comparatively small, the average at 1, 2 and 4 kHz is likely to display a larger impairment than assessments made on the other bases’. Claimants may well seek assessment of NIHL and disability based on inclusion of 4 kHz (and possibly above).

**Conclusion**

In the recent case of *Briggs v RHM Frozen Ltd* (Sheffield County Court, 31st July 2015), it was recognised there is no fixed method of assessing disability in NIHL claims, which may explain the shifting landscape in this field over the past four decades. It is hoped that by providing a chronological outline of the developments thus far in this field that we now have a solid foundation to examine the medical authorities in relation to how NIHL impacts on speech communication and intelligibility and how this may influence the frequencies which are selected to assess disability. This will be the topic of next week’s article.

**Assessing the NIHL Component in NIHL Claims II (BCDN Edition 111)**
Background

This is the 2nd of a series of articles addressing the assessment of the NIHL component and disability in NIHL claims. Last week we provided an overview of the different use of frequency ranges to assess disability. This week we consider some of the medical authorities on how NIHL impacts upon speech intelligibility and speech communication. When does NIHL impact at what levels of loss and at what frequencies?

The ‘speech banana’

The 4 recent de minimis decisions considered in edition 108 of BC Disease News all had in common normal (or largely normal) hearing in the frequency range 1-3 kHz but accompanied by 10-15 dB NIHL at 4 kHz. Did such loss give rise to any disability?

In addressing the issue of whether minimal NIHL makes a claimant ‘appreciably worse off’ such that compensation is payable, the courts have turned to discussion of the ‘speech banana’. The ‘speech banana’ is said to be the range of frequencies and magnitudes into which human vocal sounds typically fall shown diagrammatically on an audiogram and representing the shape of a banana.

There does not appear to be an official or universally accepted version of the speech banana, though a universal long-term average speech spectrum has been proposed by Byrne et al. Several versions of the ‘speech banana’ are shown below:

![Speech Banana Diagram](http://www.listeningandspokenlanguage.org/SpeechBanana/)
from http://www.hearinglink.org/what-is-the-speech-banana

Generally, the ‘f’, ‘s’ and ‘th’ sounds appear in the 4 kHz region, though their positions vary from less than 4 to more than 6 kHz between diagrams. Another notable difference is that the scale of the first diagram ends at 5 kHz whereas the shaded regions of some other bananas extend beyond 8 kHz. These quantitative differences suggest that the banana should be used as a broad pictorial guide only.

The ‘s’ sound has been measured by Boothroyd and Medwetsky, who found that its frequency averaged from 4.9 to 6.0 kHz depending on adjacent sounds, and that the mean of individual speakers averaged from 3.2 to 8.4 kHz. Stelmachowicz found that the ‘s’ sound was best recognised at 4-5 kHz for male speakers and at 9 kHz for female and child speakers. These results suggest that the ‘s’ sound covers a wide range of frequencies and that variations between speakers are large, which suggests that loss of hearing over a narrow frequency band may result in the listener missing ‘s’ sounds from some speakers, but being able to hear ‘s’ from the majority of speakers.

Standard formulae for fitting hearing aids include gain for frequencies up to at least 6 kHz. In addition, most leading hearing aid manufacturers have introduced hearing aids with ‘frequency compression’ that are intended to restore information at frequencies above 4 kHz by moving those components down to lower frequencies. This indicates that information at and above 4 kHz is considered to be useful - at least by hearing aid manufacturers.

Standard methods of disability assessment and correlations with the audiogram

The Guidelines for Medico-Legal Practice: Assessment of Hearing Disability, widely known as ‘The Black Book’ was written by King, Coles, Lutman & Robinson and considers only frequencies between 1 and 3 kHz in disability assessment. It has been reported that 4 kHz was not included because the notch that can occur at this frequency might lead to inflated characterisation of the average hearing levels, and more speech information is found at 3 kHz than at 4 kHz. The Industrial Injuries Disablement Benefit scheme definition of hearing loss is ‘Occupational deafness. Sensorineural hearing loss amounting to at least 50 dB in each ear, being the average of hearing losses at 1, 2 and 3 kHz frequencies, and being due in the case of at least one ear to occupational noise’. A 2002 review of by the Industrial Injuries Advisory Council found it appropriate to retain this method of assessment.

Studies have suggested for decades that frequencies at or higher than 3 kHz, for example, combinations of hearing level at 1, 2 and 3 kHz and 2, 3 and 4 kHz, may correlate with speech intelligibility performance. A study of 200 individuals with NIHL by Smoorenburg found that speech recognition in noise was adequately predicted by a linear relationship with the average of the audiogram thresholds at 2 and 4 kHz. As hearing losses occur mostly at high frequency, it makes sense that high frequency (such as 4 kHz) losses may accurately predict reduction in hearing ability. However, this does not necessarily imply that 4 kHz plays a large part in hearing ability, or that hearing loss at 4 kHz causes reduction in hearing ability.

**Effect on speech Intelligibility**

A standard method of predicting speech intelligibility in a particular situation is the Speech Intelligibility Index (SII), which considers the relative importance of particular frequencies. Approximately 23 % of the weight is for frequencies above 3 kHz and 17 % is for 4 kHz and above.

Plyler and Fleck found that hearing aids that maximised audibility beyond 2 kHz improved hearing performance, compared with those that did not. Vickers and Baer of the Moore Group studied the effects of low-pass filtering on the intelligibility of speech in quiet and noise respectively. Vickers found that performance generally improved with increasing cut-off frequency up to 7.5 kHz, and Baer found the same effect, and that the effect was stronger in noise than in quiet. It may be inferred that loss of information at these frequencies results in listeners being less able to hear than they would be had hearing at these frequencies not been lost. It is also important to note that low pass filtering removes all of the information above a particular frequency, rather than information in a narrow frequency bandwidth around a particular frequency, which would be a more realistic model of a claimant with a small amount of NIHL.

**Loss of hearing at 6 kHz**

The claim that hearing loss at 6 kHz results in minimal disability is more convincing, primarily due to a lack of consensual evidence that information at 6 kHz makes a significant contribution to speech intelligibility. Most diagrams of the ‘speech banana’ do not include sounds at 6 kHz, and the SII allocates weighting of 6.8 % for 5.8 kHz and above. Most hearing aids provide benefit up to 6 kHz, and the benefits of recent models that provide gain up to 10 kHz are, according to Moore, debatable. Pure tone thresholds at 6 kHz are not often used to predict disability.

A study by Moore found that there was no significant effect of cut-off frequency when a listener and a sound are in the same place, but there was a small but significant benefit from increasing the cut-off from 5 to 7.5 kHz when the listener and the sound were spatially separated. There were marked individual differences in the benefit from extended bandwidth, which could not be predicted by the audiogram. Some other studies have shown that provision of information at up to 6 kHz improves speech intelligibility scores in those with varying degrees of hearing loss, though tests that provided additional high-frequency information also provided additional low-frequency information, making it difficult to claim that the improved performance is due to the addition of high-frequency information alone. One study reported that young normal hearing listeners benefited from increasing the bandwidth from 200-2300 Hz to 200-6400 Hz, though the lack of an intermediate bandwidth makes it difficult to determine whether information at 6 kHz is useful, as the improved test results may be due to information in the 3-5 kHz region. It has also been reported that bandwidths of up to 7.5 and 10 kHz improve performance in normal hearing listeners compared with a bandwidth of 5 kHz.

**Standard methods of quantification of disability**

Though the studies by the Moore Group and others suggest that information at 4 kHz may contribute to speech intelligibility, the question remains of whether a loss of 10-15 dB at this frequency alone in the context of normal hearing at 1-3 kHz would be noticeable. Historically, most hearing loss classification systems of disability consider the onset of symptomatic disability to start at around 25 dB of loss. However, these ‘low fence’ values are generally for an average of several pure tone thresholds, and not for hearing loss at 4 kHz alone. The ‘Black Book’ has no ‘low fence’ value. A 2002 review by the IIAC recommended retaining the current disability scale, which is that the onset of disability is at 30 dB loss, and disability increases by 1 % per decibel from 31-50 dB, by 1.5 % per dB from 51-89 dB and by 1 % per dB from 90-110 dB (thresholds averaged for 1, 2 and 3 kHz).
Hearing loss is classified into categories by the WHO, of which moderate and above are considered to be disabling, as shown below:

<table>
<thead>
<tr>
<th>Grade of hearing impairment</th>
<th>Audiometric ISO value</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0   no impairment</td>
<td>≤ 25 dB (better ear)</td>
<td>No, or very slight, hearing problems. Able to hear whispers.</td>
</tr>
<tr>
<td>1   slight impairment</td>
<td>26–40 dB (better ear)</td>
<td>Able to hear and repeat words spoken in normal voice at 1 m.</td>
</tr>
<tr>
<td>2   moderate impairment</td>
<td>41–60 dB (better ear)</td>
<td>Able to hear and repeat words using raised voice at 1 m.</td>
</tr>
<tr>
<td>3   severe impairment</td>
<td>61–80 dB (better ear)</td>
<td>Able to hear some words when shouted into better ear.</td>
</tr>
<tr>
<td>4   profound impairment, including deafness</td>
<td>≥ 81 dB (better ear)</td>
<td>Unable to hear and understand even a shouted voice.</td>
</tr>
</tbody>
</table>

Table 3: Definition of hearing impairment

International Organization for Standardisation, average of 500, 1000, 2000, 4000 Hz.

Linear relationships have been reported between pure tone thresholds and speech in noise test results. Smoorenburg found that speech recognition ability in noise is most accurately predicted by considering how much the hearing loss at 2 and 4 kHz exceeds 12 dB - ability did not differ between someone with no hearing loss and someone with less than 12 dB of hearing loss at 2 and 4 kHz. Greater hearing losses can result in disability; the authors estimate that someone with an average hearing loss of 30 dB at 2 and 4 kHz might need to compensate by reducing the distance to a speaker from 100 cm to 75 cm, which is a noticeable handicap.

An ideal study to quantify the effects of hearing loss at 4 kHz on speech recognition ability would include listeners with no hearing loss at low frequencies and varying amounts of hearing loss at 4 kHz. Vermiglio et al compared the audiograms of 215 listeners with hearing in noise test (HINT) scores. The listeners had a range of pure-tone hearing thresholds averaged from 2-6 kHz, and all had little or no low-frequency hearing loss. There were no significant differences in HINT results between the normal to severe groups, and non-significant or weak correlations were found between pure-tone averages and HINT thresholds. The study concludes that the ability to recognise speech in noise may not necessarily be predicted accurately from the audiogram, which is contrary to other studies such as Smoorenburg. This creates uncertainty in assessment of disability in NIHL claims, as the audiogram is usually the main quantitative evidence of hearing performance.

Conclusions

The evidence tends to suggest that sound at 4 kHz makes a contribution to speech intelligibility, and that those with moderate and severe hearing loss at this frequency most likely have a noticeable disability. Sounds at 4 kHz appear on all versions of the speech banana. Pure tone thresholds at 4 kHz have been shown in studies to correlate with difficulty in speech intelligibility, and are used in some assessments of disability, though this does not necessarily indicate that hearing loss at 4 kHz causes disability. However, the studies of the effects of low-pass filtering by the Moore Group and others suggest that information at 4 kHz is indeed useful for speech intelligibility.

It should be borne in mind that designing a study to directly investigate the usefulness of 4 kHz in everyday speech is difficult. Given the amount of variation in the audiogram, it is difficult to select study groups for direct comparison. None of the studies mentioned in this report have the sole or specific aim of determining effect of loss of 10-15 dB at 4 kHz. The usefulness of information at 4 kHz may be inferred, but has not been measured directly. The low-pass filtering technique involves cut-off of all information above a particular frequency, rather than removal of information over a small frequency bandwidth, the latter of which is the more likely scenario in those with minor NIHL. With a cut-off of 4 kHz, a listener will most likely find it difficult to hear the ’s’ sound; however if the hearing impairment only involves a narrow frequency band around 4 kHz, they will be able to hear ’s’ from most speakers, as the frequency of the ’s’ sound can vary significantly between speakers, and most of the time will fall outside the impaired frequency range.
Similarly, there are no studies that directly measure the effect of loss of hearing at 6 kHz on speech recognition performance, and thus inferences must be made from studies with other objectives. There are studies that may infer that information at 6 kHz contributes to speech intelligibility, though any contribution is considered by the SII to be less significant than that of 4 kHz, and sounds at 6 kHz only appear on a few versions of the speech banana. Though there is a lack of evidence directly suggesting that information at 6 kHz is not useful for speech intelligibility, there is a similar lack of evidence suggesting that such information is useful.

Next week we continue this series by looking at the different methodologies of calculating the NIHL component in NIHL claims.

Methodologies For Calculating NIHL (BCDN Edition 112)

Introduction

We have so far, in this series, discussed the historical adoption of frequencies when assessing a claimant’s hearing loss/disability and the importance of the frequencies of 4 and 6 kHz in relation to speech intelligibility. This week we provide a critical review of 4 different methods commonly used to calculate the extent of NIHL.

Conventional Method

What we term the ‘Conventional Method’ of assessing the NIHL component in a deafness claim has been in existence (or at least variants of it) from 1973. This is the method of determining the ‘better ear’ and applying a 4:1 weighting for that ear in assessing the overall binaural hearing loss.

It was first adopted in 1973 with the then DHSS statutory compensation scheme for occupational deafness but was first set out explicitly in the Social Security (Industrial Injuries) (Prescribed Diseases) Amendment (No. 2) Regulations 1983 at Schedule 2A Part III.

The conventional method first calculates the overall binaural hearing loss at 1, 2 and 3 kHz (with a 4:1 weighting for the better ear) and then deducts the estimated median age associated hearing loss (AAHL) for the same age / gender as the claimant. Assuming there are no other causes of hearing loss then what remains is the NIHL.

For example, if the claimant is a male aged 50 with hearing thresholds over 1, 2 and 3 kHz as follows:

<table>
<thead>
<tr>
<th>FREQUENCY</th>
<th>HEARING LOSS dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIGHT</td>
<td>LEFT</td>
</tr>
<tr>
<td>1 KHZ</td>
<td>25</td>
</tr>
<tr>
<td>2 KHZ</td>
<td>25</td>
</tr>
<tr>
<td>3 KHZ</td>
<td>25</td>
</tr>
<tr>
<td>TOTAL</td>
<td>75</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>25</td>
</tr>
</tbody>
</table>

Applying the conventional method you:

1. First assess the total and average hearing loss at 1, 2 and 3 kHz and determine which is the ‘better ear’ (has the lower hearing thresholds). In this example the left ear is the ‘better ear’.
2. Calculate the OBHL applying a ‘weighting’ for the better ear as follows:

\[
\frac{[4 \times \text{average of loss in better ear}] + [1 \times \text{average in worse ear}]}{5} = \frac{(4 \times 20) + (1 \times 25)}{5} = \frac{105}{5} = 21\text{dB}
\]

3. Deduct the estimated AAHL data from ISO 7029 at the 50th percentile. For a male aged 50 this is 10dB (averaged over 1, 2 and 3 kHz). Therefore the NIHL would be calculated as follows:

\[
\text{OBHL} - \text{AAHL} = \text{NIHL}
\]

\[
21 - 10 = 11\text{dB}
\]
This method was also broadly supported in the ‘Black Book’ Assessment of Hearing Disability 1992.

The principle criticism of this method is the use of ISO 7029 which is a ‘better than actual’ database for AAHL and also its reliance on median AAHL data without any ‘best fitting’ of the claimant to a range of what would be considered normal or typical hearing.

It is crucial that the most representative age data is used as a baseline against which to compare the claimant’s hearing thresholds so that we neither over-diagnose nor under-diagnose NIHL. Using a data set which is not truly representative of normal / typical hearing will simply serve to inflate the apparent NIHL where diagnosis is made.

The Conventional Method modified

Use of the conventional method still exists but has declined in recent years. More commonly it is modified by medical experts such that the claimant is ‘best fit’ to AAHL data in ISO 7029 according to the middle 50% of the range of that data-so best fitting at the 25th, 50th or 75th percentiles. This still fails to address fundamental issue of the data being over-optimistic for a normal / typical population and inflating any NIHL component.

The Coles Bulge Calculation

In this method the NIHL component is assessed using the ‘bulge calculation’ (row f) as set out in the Coles Guidelines 2000.

In simple terms to carry out the bulge calculation under the Coles Guidelines you:

1. Look at the claimant’s hearing thresholds at the ‘anchor points’-typically at the frequencies of 1 and 8 kHz-to roughly establish the claimant’s AAHL but for exposure to noise;
2. There are some further adjustments made to ‘best fit’ the AAHL to the claimant;
3. This best fit AAHL is then deducted from the claimant’s measured hearing thresholds and what is left is the claimant’s NIHL-the row f bulge calculation. So in the figure below where a Coles Calculation has been performed the red shaded area represents the NIHL as determined by the row f bulge calculation.

The bulge calculations in both ears are then used to determine the average bulge over the frequencies 1, 2 and 3 kHz for each ear (after setting any negative values to zero) and the binaural average is again computed using a 4:1 weighting ratio for the better: worse ears respectively as per the above ‘conventional method’.

The AAHL data used within the Coles Guidelines is a modified version of ISO 7029. The table below compares the median AAHL data in ISO 7029 with the modified age tables in the Coles Guidelines at ages of 50, 60 and 70 and across the frequencies 1-4 kHz.
It can be seen across all ages and all frequencies that the modified tables in the Guidelines shows worse hearing than within ISO 7029. This modified data is broadly representative for a typical young population not exposed to noise but arguably over-optimistic in terms of its estimates for the older population. It will show better than typical hearing thresholds thereby inflating the NIHL component (and over-diagnosing NIHL).

Using the bulge calculation within the Coles Guidelines does however generally result in less NIHL than when applying the conventional method of assessment (or modified version of it).

The modified Coles Bulge Calculation

There is recent and increasing criticism from the claimant community that the Coles Guidelines underdiagnoses NIHL and underestimates the genuine NIHL, see for example a recent 2014 review by Ali et al in Clinical Otolaryngology, where doubt is raised as to the legitimacy and validity in the use of ‘anchor points’. Briefly, the argument is that the typical anchor point frequencies are damaged by noise and therefore are not valid predictors of the claimant’s likely AAHL. As the thresholds at the anchor points have a component of noise damage then the estimated AAHL values are likely to be worse than would be the case if the claimant had not been exposed to noise. It therefore results in less cases being diagnosed with NIHL and a false reduction of the NIHL component where there is still diagnosis.

On the face of it there may be some logic to this argument. As is widely recognised in a number of medical authorities elsewhere and cited within the Ali et al paper, noise will typically have its maximal impact on hearing at 4 kHz, or 3 or 6 kHz, but with on-going exposure adjoining frequencies may come to be effected. However all these authorities emphasise that this is dose dependent and typically happens with exposures extending over a number of decades. So for example Alberti states that ‘it may take 30 years of ongoing noise exposure to involve the frequencies of 1,000 Hz and below’.

Using the estimates for NIHL within the ‘NPL Tables’ or ISO 1999 it would take around 50 years’ exposure at a daily noise dose of 96 dB(A) Lep,d before 5 dB of NIHL arose at 1 kHz. So does this argument on the anchor points really carry any weight in the many NIHL cases we see today with modest exposures - both in terms of the daily noise dose and duration of exposure?

We are however anticipating that this argument of noise damage at the anchor points will be used to validate the application of a ‘1.33 correction factor’ to the bulge calculation within new diagnostic guidelines authored by Professor Mark Lutman (one of the authors of the Coles Guidelines 2000 and also Clinical Director of Audiological Measurement & Reporting Plc) which are due for publication sometime towards the end of this year. We are already seeing this methodology applied within reports produced by Audiological Measurement & Reporting Plc. This correction factor uplifts the bulge calculation by a 1/3rd. Although a matter of speculation at present, we wonder whether a similar argument will be made within the guidelines not only to increase the NIHL component by a 1/3rd but also increase the number of cases of which will satisfy the diagnostic criteria for NIHL?

Conclusion
An accurate baseline of hearing against which to compare a claimant’s hearing thresholds is a fundamental requirement for any proper diagnostic criteria for NIHL and also the proper assessment of any NIHL component.

Whilst arguably the current Coles Guidelines do not satisfy this fundamental requirement and result in over-diagnosis of NIHL and all the above methods of assessing the NIHL component will result in inflation of the NIHL, do not be surprised if worse is to come.

We should be prepared for future claimant challenges to both the current Coles Guidelines and the above methodologies of determining the NIHL component which, if accepted, will result in more diagnostic claims and more NIHL.

We anticipate over the next 6-12 months:

1. New age tables which will show improved hearing compared to the modified ISO 7029 tables within the Coles Guidelines;
2. A ‘correction factor’ of 1.33 applied to the bulge calculation which will increase the number of cases which satisfy a diagnosis of NIHL and also increase the assessment of the NIHL component by a 1/3rd;
3. Arguments about the non-additive nature of AAHL+NIHL - such that a simple deduction of the estimated AAHL component will under-estimate the NIHL component;
4. Claims for ‘hidden hearing loss’ - disability arising in the absence of any measurable NIHL on an audiogram and / or used to inflate the contended NIHL disability where NIHL exists;
5. More assessments of the NIHL component / disability based on the frequencies 1,2 & 4 kHz rather than the conventional range of 1-3 kHz.

The crucial issue of the appropriate baseline of hearing against which to compare a claimant is considered in the next part of this series of features on NIHL.

Hidden Hearing Loss (BCDN Edition 113)

Introduction

It is a fundamental principle of NIHL claims that one of the diagnostic requirements for NIHL is audiometric evidence of the same - namely a notch and/or bulge showing deterioration of hearing thresholds somewhere between 3-6 kHz as compared against a ‘baseline’ of hearing estimated for someone of the claimant’s age and gender not exposed to noise.

Diagnosis cannot be made on the basis of a history of exposure to potentially damaging noise in the absence of the required audiometric evidence. Or can it? As we encounter more and more NIHL claims involving modest exposures and minimal notches and bulges will we see a natural extension of this trend to claims for so called ‘hidden hearing loss’?

Hidden hearing loss is a clinically recognised phenomenon in which individuals complain of difficulties hearing speech in a noisy environment, but who prove to be audiometrically ‘normal’. Hidden hearing loss is also known as ‘obscure auditory dysfunction’ (OAD) or ‘King-Kopetzky syndrome’, after it was first described by Kopetzky in 1948 and King in 1954. It is apparently a relatively common condition reported in 5-10% of those attending clinics complaining of hearing problems.

There has been increasing media coverage of hidden hearing loss in the last few years in popular sources, such as New Scientist, hearing health websites and news websites. Much of the coverage discusses the possibility of noise being a possible cause of the phenomenon following recent animal studies. The studies suggest that the consequences of noise exposure may be more widespread than revealed by conventional audiometric testing and may give rise to hidden hearing loss.

Mechanism for hidden hearing loss
In order to understand the differences between hidden hearing loss and conventional hearing loss, the anatomy of the inner ear must be considered. The cochlea contains an elastic partition, known as the basilar membrane (BM). Attached to the membrane are outer and inner hair cells. Sound vibrations cause wavelike motions of the BM, which are amplified by the outer hair cells and then transformed into electrical signals by inner hair cells. Electrical signals pass across the synapses (junctions between hair cells and nerve cells), and are then carried to the brain by the auditory nerve. Each nerve fibre of the auditory nerve responds to a particular frequency and has a particular threshold, sounds above which produce a response. Most NIHL is caused by damage and death of the hair cells.

It is suggested that hidden hearing loss is due to a different mechanism. Loss or damage of synapses, or of the nerve fibres themselves, is believed to be responsible. But how can damage to the nerve fibres that form part of the auditory pathway not be reflected by reduced audiometric thresholds? A suggested hypothesis based upon animal studies is that certain nerve fibres that encode information at medium to high sound levels, and in background noise, may be affected, though the animals can still hear quiet sounds. The hair cells and nerves that encode information for quiet sounds are unaffected. Audiometry is a measure of loss of sensitivity to relatively weak sounds. Therefore in hidden hearing loss the audiometric thresholds are preserved.

The questions are (i) can cochlear nerve damage lead to hidden hearing loss in humans, and (ii) can noise exposure cause this cochlear damage? Or in other words is there such a thing as noise-induced cochlear neuropathy causing hidden hearing in humans?

A 2014 review by Plack suggests that some studies of tinnitus may indicate that hidden cochlear neuropathy (disease or dysfunction of nerves) can also affect hearing in humans. But can noise cause the neuropathy?

**Can HHL be related to noise in humans?**

Recent animal experiments found that noise can cause damage to auditory nerve fibres. One study exposed mice to 100 dB sound pressure level noise for 2 hours, and found that they lost up to half of the hair cell-auditory nerve synapses in high-frequency regions permanently, though they fully recovered the ability to hear quiet sounds. Following exposure, the function of the auditory nerve was found to be normal at low sound levels but impaired at higher sound levels, which suggests that nerve fibres with high thresholds are affected. These fibres are less sensitive to background noise, and thus are believed to be important for encoding information within background noise.

Another study found nerve damage, but no change in thresholds, in mice that had been exposed to 84 dB for a week.

In humans there is some evidence that groups of listeners with a history of noise exposure perform worse in sound discrimination tasks than those without a history of noise, despite both groups having normal audiograms. However, in one study, though all of the control and patient group members had ‘normal’ audiograms, the noise-exposed group had a mean threshold at 4 kHz of 10 dB higher than the control group, which may account for their poorer performance, and in another, the absolute threshold values of the groups are not reported. The review by Plack points out that, “though these findings are broadly consistent with the expected effects of noise-induced cochlear neuropathy, the evidence is patchy and as yet there has been no direct link made between noise exposure and cochlear neuropathy in humans with normal hearing thresholds”.

A 2003 review, found no clear evidence that listeners that report hearing difficulty in spite of a normal audiogram have a greater history of noise exposure than controls. Plack interprets this finding as, “While a group selected on the basis of noise exposure may have hearing difficulties, it is not clear that the converse is true”. In other words, if we were to select groups with and without hearing difficulties, those reporting hearing difficulty would not necessarily have had greater noise exposure. This means that, for an individual with hearing difficulty, noise may not have been the causal factor.

As there is little direct evidence that hidden hearing loss can be caused by noise, what other factors may determine why some individuals develop HHL and others do not? A mouse study found that aging, without significant noise exposure, was associated with a decline in auditory nerve function, which may be a reflection of high threshold fibre loss, and occurred before any loss in threshold sensitivity or of hair cells. Post-mortem studies of humans without hair cell loss found that the number of nerve fibres declines at a rate of about 100 per year on average (this amount is significant, as the total mean count at age 0-10 was 33,679, so by the age of 90, on average, close to one third
of the fibres present at birth have been lost). A human study found that auditory nerve function diminished with age, which may indicate that auditory nerve fibres are lost with age. It has also been suggested that the condition represents a genetic disorder and/or is personality related and more frequently associated in those individuals exhibiting anxious or depressive personalities.

Claims for the future?

Currently there is little evidence to support a mechanism by which noise could cause cochlear neuropathy and so lead to hidden hearing loss in humans. However the 2014 Plack Review states that ‘Within the next few years it is likely that we will be able to provide concrete evidence for or against the hypothesis that noise-induced cochlear neuropathy is a major cause of suprathreshold hearing difficulties in humans’.

It would appear that this prediction may have been correct as The University of Manchester are currently carrying out a five-year MRC funded project which will estimate the prevalence of hidden loss in young adults, the impact of hidden loss on everyday tasks and provide an initial investigation of potential diagnostic tools for future detection of this hearing condition which could affect millions of people in the UK.

If the findings of this study support the claim that noise could cause cochlear neuropathy the next issue would be finding a suitably reliable diagnostic test with some measure of objectivity and which would not be prone to abuse and go beyond largely subjective tests of hearing in noise tests (though a hearing test package has been proposed by Saunders).

Given that some UK hearing aid providers with involvement in medico-legal clinics are already offering testing for hidden hearing and treatments for disability we suspect that claims will not be too far away.

Delayed Onset Hearing Loss (BCDN Edition 115)

Introduction

It has historically been assumed and accepted that NIHL is a non-progressive condition — in other words once noise exposure ceases then so does any NIHL. Therefore any NIHL we see today is the same as existed at the time that historic exposure to noise ceased.

There are recent indications that claimants are challenging this medical convention and contending that NIHL can continue after the exposure ceases — so called ‘delayed onset hearing loss’ (see for example the flyer for an inaugural NIHL symposium hosted by Pure Legal and Fusion Law in February 2016 here).

But what would be the advantages to claimants for advancing such argument? There are 2 immediately apparent — firstly it can be used to overcome potential limitation hurdles where there is significant and long-standing NIHL and delay in the claimant pursuing a claim, and secondly it can be used to inflate the value of a claim. So age related and other losses occurring after cessation of exposure are now attributable to NIHL.

The convention: NIHL is non-progressive

The issue has been examined by various expert groups over the years. A 1997 review, chaired by Sir Kenneth Calman, the government’s chief medical officer, considered the latent effects of noise on hearing loss in the context of war pensions. Its primary findings were:

“(a) There is no progression of noise induced permanent sensorineural hearing threshold shift following removal from the noise injury; and

(b) that the existing evidence does not show that the combination of noise induced permanent sensorineural hearing threshold level shift and subsequent permanent sensorineural hearing threshold level shift due to age is more than additive.”

The 1998 report of the Irish Expert Group found that:
“The maximum loss in the higher frequencies occurs over the first ten years of exposure to noise. Damage to the lower frequencies progresses with continued noise exposure. Once exposure ceases, NIHL does not progress further. There is no reason that early indications of high-tone hearing loss should lead to disabling NIHL, in individuals who exhibit an early NIHL, provided they are protected from further excessive noise exposure.”

In 2002, a review of the Department of Work and Pensions found:

“Currently, for prescribed disease A10, a claimant who has left a prescribed occupation must make a claim within 5 years of leaving that occupation. The reason is that permanent hearing loss due to noise exposure at work does not improve or deteriorate after ceasing work. In the period after a person ceases work, there may be other noise exposures due to new work, recreation and community noise such as traffic. Concurrently, the person will be ageing. These confounding effects are likely to increase with time, making it difficult to ensure focus on occupationally related permanent sensorineural hearing loss.”

The US department of Veteran Affairs reported in 2005:

“There is little evidence available to address whether noise-induce hearing loss or tinnitus progresses after noise exposure ends or whether noise-induced hearing loss can develop several months or years after the noise exposure has ended. No longitudinal studies have examined patterns of hearing loss in noise-exposed humans or laboratory animals who did not develop hearing loss at the time of noise exposure. The committee’s understanding of the mechanisms and processes involved in the recovery from noise exposure suggests, however, that a prolonged delay in the onset of noise-induced hearing loss is unlikely.”

The position was summarised neatly by HJ Inglis in the Nottinghamshire and Derbyshire Deafness Litigation at paragraph 104 where he said:

‘The effect of noise induced loss interacts over time with the effects of presbyacusis. Noise induced loss increases faster in the early years of exposure, and then the rate of loss tails off. When the noise is stopped, the development of the noise induced loss also stops, though the damage suffered remains’.

**Challenging the convention**

If one challenges the convention that NIHL does not continue to develop after noise exposure ceases, there are several questions to address. By what physiological mechanism would noise cause the latent loss to occur? If hearing loss progresses in someone who has been but is no longer exposed to noise, how do we distinguish whether that hearing loss is latent NIHL or simply age-related loss that would have occurred anyway?

Theories for the physiological mechanism of delayed onset NIHL are being developed primarily from animal studies, and are outlined below. Answering the second question would require consideration of whether the effects of noise and age related loss are additive, sub-additive or super-additive. Most of the studies suggesting a latent effect of noise do not strictly separate the amount of hearing loss after noise cessation into an age component and a noise component; rather, they suggest that noise exposure increases the amount of age-related loss.

In last week’s feature article on ‘hidden hearing loss’ we provided a brief overview on cochlear anatomy; this is also useful here. Traditional hearing loss, or permanent increase in pure tone thresholds, is believed to be due to the loss of hair cells. It has been suggested that damage to the fibres of the auditory nerve, and the synapses (junctions that connect the nerves to the hair cells) may occur earlier than that of hair cells. Damage to nerve fibres or synapses can cause reduction in ability to hear noise in sound without affecting pure tone thresholds. The proposed mechanism by which noise exposure can cause exacerbation of age-related hearing loss also considers damage to nerve fibres and synapses.

**Animal studies**

There are limited evidence and physiological theories, primarily from animal studies, regarding the mechanism of latent effects. Kujawa and Liberman found that mice exposed to noise showed damage to nerve cells that was delayed by months and continued for many months, and that age-related changes primarily involved the inner
hair cells or auditory nerve function. Age-related hearing loss was much greater in exposed ears than in unexposed ears. Another study found permanent loss of synapses immediately following noise exposure, and delayed and progressive loss of cochlear neurons over many months, with no loss of hair cells. It is pointed out in the discussion of this study that the US Department of Veterans Affairs report 2005 came to its conclusion that noise does not cause delayed effects by consideration of threshold increases only. A recent study by the same research group compared mice exposed to noise sufficient to cause synaptic damage (100 dB) but no hair cell loss with mice exposed to noise that caused neither synaptic damage nor hair cell loss (91 dB). As the mice in the high exposure group aged, the synaptic damage increased, followed by nerve damage, and threshold shifts appeared after a year. The lesser exposure group showed no acceleration of cochlear dysfunction as animals aged. Another study, of guinea pig, found similar neurological responses, but the animals were examined only 2 weeks after exposure.

The results from the animal studies should be treated with caution. They implemented high exposures for short periods of time (100 dB for 2 hours, 100 or 91 dB for 2 hours), and it is questionable whether the effects of acute exposures in animals may be extrapolated to chronic exposures in humans. It is also noted that the particular species of mouse chosen was selected due to its excellent cochlear sensitivity and limited age-related threshold elevation, which suggests that cochlear sensitivity and age-related hearing loss can differ between species. Indeed, one study points out that “important between-strain differences in vulnerability to NIHL and AHL have been identified”, referring to mice, and provides 6 references to illustrate this point. In addition, earlier animal studies found no evidence that age-related hearing loss is exacerbated by prior noise exposure. Kujawa and Liberman attribute the heterogeneity in results to variation in the study design, including differences in parameters such as length, frequency and loudness of noise exposure and age of animals at exposure time. One of these studies was performed on gerbils, making the species studied another source of variation between studies. The fact that factors such as these can influence study results suggests that drawing conclusions regarding the effects of long-term noise exposure in humans from acute exposures in mice is non-trivial.

Age-related loss and previous noise exposure in humans

The animal studies suggest that the latency effect of NIHL is that age-related hearing loss is exacerbated in those with prior noise exposure; in other words, that those who have in the past been exposed to noise are more susceptible to age-related loss, or that their age-related loss may progress more rapidly.

A recent study in humans by Stamper and Johnson reported similar findings to the animal experiments, in terms of the function of nerve fibres. However, noise exposure was quantified by self-report of exposure during the previous 12 months, so this is not strictly a study of degeneration that occurs over time once noise exposure has ceased. In addition, there were differences in the findings when the auditory nerve function was measured using a second method; the results using the second method were not statistically significant.

A human study by Gates in 2000 compared audiograms of 203 men with large audiometric notches, small notches and no notches at 3-6 kHz (indicative of NIHL). It is reported that the size of the notches correlate with histories of noise exposure and self-attribute of hearing loss to noise. It was presumed but not documented that there was no occupational noise exposure between two audiograms taken an average of 15 years apart. The study found a greater threshold increase at 1 and 2 kHz (i.e. frequencies outside the original noise damage region) and a smaller threshold increase at 3-6 kHz in the ‘large notch’ group over time than in the ‘no notch’ group. The mechanism of the increased hearing loss at 1 and 2 kHz was unknown (this study was published prior to the animal studies), and it was suggested that the smaller loss at 3-6 kHz was due to the idea that, once lost, hair cells cannot be ‘re-lost’ by another mechanism. Potential weaknesses in this study are the grouping of individuals by audiogram, rather than by actual noise exposure, and the assumption that there was no noise exposure between the two audiograms. In addition, there are statistical issues surrounding the grouping of participants by threshold data, when the response variable (parameter whose value is dependent upon the variable we control) is also threshold data. In 2003 Rosenhall found that hearing at 2 kHz deteriorated at a higher rate between the age of 70 and 75 in those exposed to noise earlier in life than in those unexposed, but that hearing at 4 kHz deteriorated by a similar amount in the exposed and the unexposed groups. However, the difference between the groups at age 79 was considerably smaller. This study has the advantage that participants were grouped according to (self-reported) noise exposure.
Summary

In summary, there is some evidence from recent animal studies that auditory nerve function may decrease many months after noise exposure. However, these studies involved short exposures to intense noise, and it is questionable whether the effects of acute exposures in animals may be extrapolated to model chronic exposures in humans. There have been few studies of the effect of prior noise exposure on age-related hearing loss in humans. A recent study found similar nerve function to the animal studies, but the participants’ noise exposure had not ceased. Longitudinal studies in humans also yield limited evidence.

Claimant challenges to the convention that NIHL is non-progressive and arguments that noise can somehow result in delayed onset hearing loss should be robustly resisted.

New CLB Guidelines For The Diagnosis and Quantification of NIHL (BCDN Edition 117)

Introduction

The CLB 2000 Guidelines are routinely used in the diagnosis of NIHL. However the guidelines did not present a method for quantification of NIHL.

The same authors have now produced new guidelines on the quantification of NIHL thereby overcoming the shortcoming of the original guidelines. These new guidelines are proposed as an extension to the original guidelines but also provide 3 modifications to the method of diagnosis under the original guidelines.

[Note: The new guidelines are only published on-line by the medical journal. Whilst accepted for publication by the medical journal and citable and having undergone full peer review, they have not yet gone through a proof-reading process and so there may be differences between the current on-line version and the final published Version of Record].

The Rationale to the guidelines

The new CLB guidelines assume that the ‘anchor point’ threshold values-typically at 1 and 8 kHz-will to some extent be affected by NIHL. To assume that the thresholds at the anchor points are purely down to AAHL will under-estimate the NIHL component. The new guidelines offer a method for estimating the NIHL at the anchor points and obtaining AAHL data against which to better compare the claimant’s hearing thresholds and most accurately quantify the NIHL.

The current methods of quantifying NIHL were considered in our feature article in BC Disease News edition 112 and can be assessed here. For the sake of brevity the contents of the feature are not repeated but the reader may well find this useful background reading.

The methods under the new guidelines

The new guidelines propose a ‘simple method’ and a ‘full method’ to quantify NIHL. The simple method can be used in the vast majority of cases unless the maximum NIHL is at 3 kHz or there is a deep notch (undefined in the guidelines) at 4 kHz. In these cases the full method should be used.

Modifications to the existing diagnostic guidelines

The authors also make 3 important modifications to the existing diagnostic guidelines:

Interpolation

A ‘logarithmic interpolation’ (and not linear interpolation) should be used to calculate the ‘line e’ interpolated misfit values within the CLB calculation.
Selection of AAHL values
Within the original guidelines it was recommended that AAHL data up to 10 years above or below the claimant’s actual age could be consulted in determining the best fit with the thresholds at the anchor points.

Now it is recommended ‘that the range of selected AAHL statistics should be restricted. The selected AAHL statistic should be for the claimant’s age at the time of examination or the nearest age on the chosen database, which may be in intervals of 5 years, as in the original Guidelines’.

Note that the new guidelines now reference AAHL data from ISO 7029 (2000) rather than the 1984 version in the original guidelines (generally there is little difference between the datasets).

Use of 6 kHz as an upper anchor point
Within the original guidelines 6 kHz could be used as the upper anchor point where there was a ‘precipitous fall-off’ in hearing at 8kHz.

Use of 6 kHz as an alternative anchor point is no longer recommended. Instead the threshold at 8 kHz is now estimated by the user by extrapolating out from thresholds at lower frequencies. So you plot the audiogram results up to 6 kHz against a best fit percentile curve for AAHL and then best predict what the 8 kHz threshold should be.

Other points

Over-diagnosis where constitutional losses
The new guidelines state at the top of page 4:

‘…..there may be additional hearing loss over and above AAHL that is not attributable to NIHL and needs to be allowed for. For example, not infrequently there is a component of sensorineural hearing loss at low and mid frequencies that is greater than AAHL (which is minimal at low and mid frequencies); it cannot be attributable to NIHL as the frequencies are too low to be affected by noise when there is only mild or moderate NIHL. Such additional low-mid-frequency hearing loss appears to occur commonly in older people. Using standardised AAHL curves would fail to allow for such additional hearing loss; if standardised AAHL values were simply subtracted from the measured hearing thresholds to estimate NIHL, the magnitude of NIHL would be inflated in the low-mid-frequency region.’

Are the new guidelines accepting a failing within the original diagnostic guidelines that resulted in over-diagnosis of NIHL where the audiometric pattern was more likely one of constitutional losses rather than NIHL? It is not uncommon that the ‘row g’ CLB calculation shows a diagnostic bulge somewhere between 3-6 kHz but that bulge also extends below 3 kHz into the lower frequencies which are less affected by noise. Arguably such losses are not due to NIHL but a common pattern of constitutional loss.

What are the effects of the new guidelines?

On first consideration it appears that the impact of these new guidelines will be modest albeit with more cases having a positive diagnosis of NIHL and a creep on quantum PSLA awards.

In a forthcoming review we look more fully at the impact by analysing 100 claimant audiograms under the old and new CLB guidelines and traditional methods of quantifying NIHL and seeing the effect on:

(i) diagnosis rates
(ii) Quantification of NIHL and PSLA awards
(iii) candidature for hearing aids

Finally a word of caution

We should remember that these new guidelines represent nothing more than the viewpoint of the 3 authors.

The guidelines have not been reviewed and critiqued by the medico-legal community. They have not been judicially considered and approved.
It is not immediately apparent that the basic rationale behind the new guidelines is correct—namely noise damage at the anchor points. ISO 1999: 2013 Acoustics—Estimation of noise-induced hearing loss (referenced within the new guidelines) suggests that at daily noise exposures of 85 and 90 dB(A) Lep,d there is no noise damage at 1 kHz—even after 40 years of exposure. Noise damage at 1 kHz only arises with noise exposures of 95 dB(A) Lep,d after 10 years and above. If that is correct than these new guidelines would appear to have no application in the vast majority of NIHL claims we see today which involve minimal and modest noise exposures.

We should not automatically move towards acceptance and application of the new guidelines although we are already seeing their application within some medical reports.


We have previously discussed the law on obtaining expert medical evidence in disease cases in Edition 32 of BC Disease News [link here]. We revisit this in the context of NIHL claims and the increasing resistance of claimant solicitors to agree to the defendant obtaining its own audiometry/medical evidence and consider how the courts have addressed the issue in 3 recent decisions of Smith v Atkinson Holdings Ltd (Leicester County Court, 16 December 2013), Daglish v Forest Gardens (Property) Limited (Worcester County Court, Friday 2nd and Sarek Joinery v Maplesden (Middlesbrough County Court, 27 April 2015).

We ask ourselves what arguments can best be deployed by defendants in NIHL claims to obtain its own medical evidence—or at the least obtain repeat audiometry to validate the claimant’s hearing thresholds?

Firstly let us look at the protocols and rules which govern expert evidence for both pre-litigation and litigated cases.

**Pre-Action Protocol on Disease and Illness Claims**

Paragraph 9.4 of the Pre-Action Protocol on Disease and Illness Claims provides that where the claimant obtains a medical report prior to writing the letter of claim, the defendant will as a matter of course be entitled to obtain their own medical report. In other cases, paragraph 9.4 notes that a ‘flexible’ approach must be adopted to obtaining expert evidence. Paragraph 9.13 provides that further guidance can be found in CPR 35, suggesting the principles applicable there are also relevant. Moreover, paragraph 1.2 provides the aim of the protocol is to, amongst other things, settle claims ‘fairly’. The combination of these rules results in almost identical principles to those that are relevant to claims in litigation under the CPR. Consequently, broadly similar arguments can be utilised where claimants resist expert evidence at the pre-litigation stage and / or when a claim enters litigation.

**The Civil Procedure Rules**

The relevant rules are set out in Parts 1 and 35 of the Civil Procedure Rules.

The overriding objective is contained in Part 1 of the CPR and provides that the court must deal with cases **justly and at proportionate costs.** CPR 1.2 states that this includes, so far as is practicable:

(a) ensuring that the parties are on an **equal footing:**

(b) **saving expense**

(c) dealing with cases in ways which are **proportionate:**
   -to the amount of money involved
   -to the importance of the case
   -to the complexity of the issues

(d) ensuring that the case is dealt with **expeditiously and fairly.**
CPR 35.4(1) provides that no party may call an expert or put in evidence an expert’s report without the court’s permission. Accordingly permission is a matter for the court alone. CPR 35.1 provides that expert evidence shall be restricted to ‘that which is reasonably required to resolve the proceedings’. According to Bandegani v Norwich Union Fire Insurance Society Ltd [2001] CLY 1550, the particular policy objective underlying this rule is that of ‘reducing the incidence of inappropriate use of experts to bolster cases’.

Part 1 then emphasises the need to deal with cases justly, fairly and with parties on an equal footing. Against this there is however the need to deal with matters at proportionate costs, saving expense and expeditiously.

Part 35 restricts the use of inappropriate or unnecessary evidence simply to bolster a case but allows evidence where this is reasonably required.

How do these rules play out in an NIHL claim where there may be genuine issues in dispute on diagnosis / causation but the claim is of limited value? What are the arguments that can be used by the defendant to obtain repeat audiometry and / or its own medical evidence?

Firstly a defendant should show the requirement that repeat audiometry / its own medical evidence is reasonably required.

Medical evidence reasonably required

In disease cases it is desirable, indeed often necessary, for defendants to obtain expert medical evidence as part of their case. This should not be surprising. Much of a disease claim concerns medically centred issues that can only be answered by experts in the field. It is beyond the scope of this feature to detail the numerous reasons and arguments as to why further audiometry / medical evidence may reasonably be required by a defendant in an NIHL claim. However in the annex to this feature we summarise some of the common reasons with links to previous features in BC Disease News where the issues are considered in greater detail.

In the recent appeal judgement of Sarek Joinery v Mary Maplesden, Roberts Jackson solicitors objected to the defendant obtaining its own medical evidence where the claimant relied upon a report of Mr Showkat Mirza finding NIHL, albeit that her hearing at 1, 2 and 3 kHz were well preserved and actually better than might be expected of someone her age not exposed to noise. Part 35 questions had been put to Mr Mirza but replies were unsatisfactory and the defendant had ‘concern about the cogency’ of Mr Mirza’s evidence (although the nature of the concerns are not discussed in the judgment). On the issue of the underlying policy objective of CPR 35.1 to restrict expert evidence where it is not reasonably required, HHJ G Matthews QC in his judgement allowing the defendant its own medical evidence stated at paragraph 21:

‘The underlying policy objective of CPR 35.1…was intended to reduce the incidence of the inappropriate use of experts to bolster cases. I do not consider that bolstering a case was what was being attempted here. In my judgement the Defendants are seeking to test the opinion of the Claimant’s expert and provide the court with another perspective’.

At paragraphs 28 and 29 he further stated:

‘Is the evidence ‘necessary’ rather than merely ‘helpful’ in order to resolve a particular issue?…The DJ should have carried out an assessment of how those issues could be fairly dealt with if the defendants were not allowed their own expert. In addition, there is no consideration as to how the tribunal at trial would have to approach those issues in the absence of any potentially contrary expert view. There is a substantial dispute here in relation to the approach applied by Mr. Mirza.

‘The Judge at trial will have to resolve this matter. There is often a respectable spread of opinion in deafness cases where medical experts take ultimately different views in the context of interpretation of clinical data.’

The Judge was not persuaded by the claimant’s argument that any issues with the claimant’s report could simply be raised by defence counsel at trial-the obvious rebuttal at trial being that the criticisms are ill founded and not based on any expertise.
Another recent NIHL appeal decision of *Daglish v Forest Gardens (Property) Ltd & others*, again involving Roberts Jackson solicitors, also considered the issue of whether alternative medical opinion was reasonably required. Issues of diagnosis / causation were disputed given what essentially appeared to be normal hearing in the claimant albeit with significant and unexplained asymmetry. Again Part 35 questions had been put to the expert (Mr Hisham Zeitoun in this case) and the defendant then sought permission from the court for its own medical evidence which was rejected. The decision was successfully appealed and at paragraph 15 HHJ Pearce-Higgins QC stated:

‘He [DJ at 1st instance who rejected the defendant’s application for own evidence] was alive to all the issues on causation, but in my judgment, although in theory, at a hearing, a trial judge could reject the evidence of Mr. Zeitoun without the need for hearing from another expert opinion, in reality it would be extremely difficult for him to do that. The effect of that is that, without the benefit of their own independent expert, issues of causation have been, effectively, resolved by the opinion of Mr. Zeitoun…’

Similarly in the NIHL case of *Roy Smith v Atkinsons Holdings Ltd* the defendant was allowed, on appeal, its own audiometry where the claimant’s medical evidence of Dr Iqbal was in dispute with audiometry having been performed in the Liverpool Holiday Inn. Part 35 questions and replies about the circumstances and environment in which the audiometry was performed where inadequately answered by Dr Iqbal such that the defendant’s own audiometry and medical evidence became reasonably required.

**Is Granting Permission Supported by The Overriding Objective?**

Dealing with cases justly, fairly and ensuring parties are on an equal footing

In *Sarek Joinery* it was found at paragraph 27 that courts:

‘should have regard to the overriding objective but should not be over-zealous in excluding evidence in order to save time and cost. A judgement as to whether expert evidence should be commissioned and admitted should be made in every case. There should not be a blanket policy because that would not allow the court to examine the relevance and reasonableness in the individual circumstances of the case’.

Crucially at paragraph 29:

‘I consider it is a denial of justice and entirely contrary to the overriding objective to simply say that he who instructs first effectively wins’ [emphasis added].

Further at paragraph 32:

‘If the audiology is unusual and there is very good reason for supposing that there is a respectable contrary opinion on the audiograms, which will have a significant impact upon whether this is more likely age related and therefore goes to whether liability is established and/or loss or damage, they should generally be tried in the multi-track. The defendants should not be deprived of their defence nor railroaded into accepting the opinions and interpretation of the claimant’s expert, whose answers to their questions they find deficient, the appointment of whom they were neither consulted or informed about’[emphasis added].

In *Roy Smith* the Judge whilst taking into account that cases are to be decided promptly and with expedition and at proportionate cost under the overriding objective, was persuaded [at paragraph 6] that ‘they must nonetheless be decided fairly’.

In *Daglish* it was held that [paragraph 16] ‘if there is to be a fair hearing, the defendant must have the opportunity of at least relying upon its own expert evidence, it is the sort of case, where, if there is to be a proper and fair hearing, I would expect the matter, at trial, to involve the hearing of evidence from both experts’.

**Is Obtaining further medical evidence proportionate?**

If the defendant does show that its own evidence is reasonably required and supported by the overriding objective that the case be dealt with justly and fairly with parties on an equal footing, how does this sit with other considerations of cost and proportionality under the objective?
Surely given the very modest value of many NIHL claims arguments of disproportionate costs will 'trump' the requirements of further evidence and win the day?

All 3 of the appeals considered in this feature involved NIHL claims of very modest value where arguments on costs and proportionality were considered.

In *Sarek Joinery* HHJ Mathews QC said at paragraph 5:

‘...It is a trite observation but nonetheless appropriate to state that the fact that a case is of low value does not mean that it should be dealt with in any less just or fair way by the court. Such claims should not be bounced through by the court, simply as a result of their likely low value in damages' [emphasis added].

Further at paragraph 26 he said that the DJ at 1st instance in rejecting the request for further evidence:

‘...adopted what is effectively, with respect, a rather simplistic party line: small value should equal low cost means no additional expert. Such an approach can be appropriate, however, it can also result in a railroading of the claim through on basis that the claimant’s expert says the claimant has some hearing loss and therefore it must be connected to her employment’.

In *Daglish* the Judge said at paragraph 16:

‘...although the costs to be incurred may very well be disproportionate to the sums involved, justice in my judgement demands that there be an equality of arms, and both parties should have the benefit of the expert evidence upon which they wish to rely. There is no prejudice to the claimant from the delay. It is a modest claim in any event, his condition is not deteriorating and there is no pressing need for any financial payment to be made to him. There are, in my judgement, no wider issues save that, in all cases, defendants need to know that if the fairness of the trial issues demands the instruction of expert evidence then the court will indulge that, although extra costs may be incurred, I am afraid the reality is that, in many small personal injury cases, costs far exceed the sum being disputed' [emphasis added].

Conclusion

It can be concluded then that where the defendant reasonably requires expert evidence issues of fairness and equality of arms will override issues of increased costs and proportionality.

Defendants should always be astute to the identification of inadequate expert evidence and where this is resisted by the claimant then clear reasons should be given for why repeat audiogram/our own medical evidence is required. It may be the case that a repeat audiogram alone is insufficient and in order to positively put their case or challenge the claimant’s evidence, the defendant will need to instruct their own expert.

If claimant solicitors unreasonably object to such requests then legal arguments as to why such evidence should be allowed are the same whether the claim is pre-litigation or in litigation. Whatever the exact nature of the medical argument to obtain permission, they all rely on similar elements: that the evidence is reasonably necessary, that fairness requires the admission of the evidence and that the parties would not be on an equal footing if such evidence was not allowed. It should not be the case that the party who first instructs a medical expert effectively wins the argument on diagnosis with the defendant deprived of opportunity of defending the claim.

Whilst we have discussed these issues in the context of NIHL claims much of the argument used here equally applies to other disease claims.

Updated template letters and submissions to support defence requests for repeat audiometry and own medical evidence will be available to download from our Knowledge Centre next week.
Summary of Some Common Reasons Why Repeat Audiometry/Defendant’s Own Medical Evidence Reasonably Required in NIHL Claims (Annexed to BCDN Edition 118)

Below are some of the common reasons in NIHL claims for the defendant to seek repeat audiometry and / or its own medical evidence:

(i) Diagnosis of NIHL cannot be reliably and reasonably made on the basis of single audiometry-particularly so in cases where notching / bulging is modest and could disappear with small 5 dB changes in thresholds at one or more frequencies. The basis and evidence behind this argument is considered in BCDN edition 2 [link] and our template letter. As stated in 2015 by the Institute of Sound and Vibration Research of Southampton University (ISVR) within their Technical Report Number 336 ‘a single audiogram is an unconfirmed determination of an individual’s state of hearing in both ears. Put more starkly, a single audiogram is a guess’;

(ii) The courts have repeatedly emphasised that the CLB Guidelines on diagnosis of NIHL are no more than a ‘framework’ for diagnosis. There are ambiguities within the guidelines and different ways to interpret and apply them which can lead to different outcomes on diagnosis;

(iii) There are differing and opposed medical viewpoints as to the appropriate ‘baseline’ for normal hearing against which to compare a claimant’s hearing thresholds and determine whether a ‘loss’ exists. This is discussed further in BCDN edition 112 [link]. Use of these differing databases may produce different outcomes on diagnosis;

(iv) The CLB Guidelines allow diagnosis of NIHL based on bulging / notching at 6 kHz alone. Recent authorities question whether such a diagnosis can reasonably and reliably be made. Claims based on 6 kHz notching / bulging alone should be repudiated and the issue is discussed further in our template letter;

(v) Non-organic hearing loss (NOHL-feigned or exaggerated hearing loss) is prevalent in NIHL claims. Our current estimates suggest it is present in close to 40% of cases. Medical authorities have estimated its prevalence at up to c. 30% of cases (based on historic NIHL claims and not today’s market). This is discussed further in BCDN edition 2 [link]. Where there are audiometric indicators of NOHL such claims should be questioned and resisted;

(vi) Incompatibility of losses with noise exposures. The CLB Guidelines recommend a comparison of the claimant’s hearing losses against databases (NPL Tables and ISO 1999) which estimate noise damage from given noise exposures to test for ‘compatibility’-see under ‘Modifying Factor MF2’. Where the claimant’s losses far exceed the predicted damage then (assuming the noise exposure estimate is broadly accurate) this may indicate (i) poor quality audiometry and / or (ii) exaggerated responses to audiometry and / or (iii) additional cause(s) of hearing loss other than ageing and NIHL;

(vii) Poor audiometry which does not perform to BSA recommended procedures for PTA. Poor quality audiometry will generally result in worse than actual hearing thresholds and is discussed in BCDN edition 2 [link];

(viii) Where there is a loss then an issue may arise as to whether the same gives rise to injury for which compensation can be paid? Is the claimant ‘appreciably worse off’-the de minimis issue discussed in more detail in BCDN editions 3,39,75,97 and 108 [links];

(ix) There is no agreed or uniform method of quantifying NIHL-see BCDN edition 112 [link] and see now the most recent CLB Guidelines on quantification of NIHL discussed last week in BCDN edition 117 [link]. In many cases differing methods may not make substantial differences to quantification of PLSA awards. They may however be of vital importance when it comes to cases where there are de minimis issues.

The Increase in Non-Organic Hearing Loss (Edition 121 of BC Disease News)
What is Non-Organic Hearing Loss?

Non organic hearing loss (NOHL) is used to describe conditions where audiological tests give rise to doubt regarding the presence of a genuine (or organic) hearing loss. NOHL may be a form of psychogenic hearing loss or arise from deliberate feigning or exaggeration of hearing thresholds. Also known as Exaggerated Hearing Loss (EHL).

Various studies have shown the incidence of NOHL (exaggerated or feigned) in NIHL claims as ranging between 9% - 30%.

In the ‘Black Book’ Guidelines for the Assessment of Hearing Disability it is noted that ‘in about 20 or 30% of compensation cases there are spurious hearing threshold levels’. The Guidelines state that ‘A spurious hearing threshold level (SHTL) may deviate in either direction from the genuine hearing threshold level, but is more often in the direction of greater apparent hearing loss.’

Indications of NIHL

There are various indicators for NOHL including:

1. Inconsistency in the hearing thresholds shown by a claimant within the same hearing test where repeat measurements are conducted (intra-test unreliability) or between different hearing tests carried out relatively close in time (inter-test unreliability). Audiometry is not a precise science and there are numerous sources of error that can arise between tests such that differences of +/-10dB in hearing thresholds between tests (perhaps as much as +/-15 dB at 6 kHz which is a very variable frequency for measurement) is not unexpected. Differences in hearing thresholds greater than this may indicate NOHL.
2. Inter-test inconsistency e.g. threshold for speech is significantly better than for pure tones;
3. Significant asymmetry between the ears;
4. Discrepancies between PTA test results and the examiner’s observations of the patient’s performance and behaviour e.g. a patient with an audiogram showing severe bilateral hearing loss responding appropriately to speech presented by the examiner at low intensity levels, without visual or contextual clues during the hearing examination & test;
5. An unexpected air bone gap with bone conduction appreciably better than air conduction;
6. A pre-existing history of psychiatric/psychological/emotional disorder;
7. Audio-Configuration - Whilst no audiometric configuration is unique to NOHL, it has often been suggested that flat and saucer configurations are seen, but these are also seen in some true losses. If a patient with normal hearing exhibits NOHL, these configurations are typical. When there is NOHL superimposed on a genuine loss, the effect of exaggeration is often to produce a ‘flatter’ or more gently sloping audiogram than would other wise have been recorded. This flattening of the audiogram occurs because patients who exaggerate usually respond not when the test tone is first audible, but only when its level reaches a particular loudness level.

The single and best audiometric indicator for NOHL is probably the hearing thresholds levels at 500 Hz being 25dB+ and outside the range of ‘normal hearing’ for that individual’s age/sex2-and as indicated in the graph below.

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Scrutiny for NOHL may be particularly relevant in those cases where there is a minimal hearing loss at the high frequencies (less than 10dB) and / or short durations of noise exposure (less than 10 years) where the noise exposure may not be of sufficient intensity to give rise to NIHL in most individuals exposed to such noise. Comparison should be made between a claimant’s measured hearing thresholds and predicted losses for AAHL+NIHL using various data-for example ISO 1999: 1990.

If claims are suspected of potential NOHL what then?

**Combating NOHL**

In addition to the medical examiner comparing a claimant’s response to speech presentations and measured hearing thresholds, repeat testing at various thresholds (as set out with the BSA Recommended Guidance on Pure Tone Audiometry 2011) should be carried out to ensure consistent and reliable responses. In addition the BSA Guidance describes a ‘descending / ascending’ method of presenting the pure tone to further ensure consistency in responses. Those with NOHL may have considerable difficulty producing a consistent response when an ascending test threshold is compared to a descending test threshold. It has been however noted that some claimants with NOHL (usually those most experienced due to prior testing) have an almost phenomenal ability to repeat test results at least during a single test session. Where there occurs it is recommended that test / re-testing sessions are separated by a few days.

**Repeat Audiometry**

There are raft of voice, tuning fork and PTA techniques described to identify NOHL. Ultimately for volume NIHL claims a programme of good quality, repeat audiometry is probably the easiest and most cost effective method for confirming and combating against NOHL. Repeat tests carried out relatively closely in time should be consistent with the first test. Threshold tests for pure tones should be replicated at +10dB and definitely suggest NOHL if there is a 15dB+ difference at the same measured frequencies.

**Cortical Evoked Response Audiometry (CERA)**

In cases where there are significant differences in multiple audiograms which cannot be explained, then cortical evoked response audiometry (CERA) testing may need to be carried out. This is a more objective method of measuring thresholds than pure tone audiometry. The results of such objective testing should be within +/-10dB of...
audiometric thresholds. If greater than +/- 10dB then there is a high probability of NOHL and the CERA thresholds should be taken as the definitive ones for the diagnosis of any NIHL/disability.

What is the incidence of NOHL in today’s NIHL claims and is it on the increase?

In 2012 based upon a dataset of c. 4,000 claimant and using the single indicator of hearing thresholds at 500 Hz being greater than 25 dB and outside a range of normal hearing audiograms we found suspected NOHL in c. 28% of cases.

Today, our ABCNoise tools screen for potential NOHL in multiple ways—not just using the 500 Hz indicator. Based upon a larger dataset of almost 11,500 claimant audiograms and more extensive screening for NOHL, just over 40% of NIHL claims today give rise to suspicions of NOHL.
Conclusion

Our analysis of NOHL within NIHL claims indicates that its incidence may have increased from 28% of claims in 2011 (based upon a dataset of c. 4,000 audiograms) to just over 40% in 2015 (based upon c. 11,500 audiograms). Alternatively the ‘increase’ may just reflect more robust methods of screening for potential NOHL which we employ today.

In next week’s feature we explore further trends within this large dataset of claimant audiograms and explore how the new CLB Guidelines on NIHL may impact upon diagnosis and quantification of NIHL claims.

New CLB Guidelines For The Diagnosis & Quantification of NIHL (Edition 124 of BC Disease News)

Introduction

The CLB 2000 Guidelines are routinely used in the diagnosis of noise induced hearing loss (NIHL). However these guidelines do not present a method for quantification of NIHL.

The same authors have now produced new guidelines on the quantification of NIHL thereby overcoming the shortcoming of the original guidelines. These new guidelines are proposed as an extension to the original guidelines but also provide 3 modifications to the method of diagnosis under the original guidelines. This feature will focus on these 3 modifications and will look at the new guideline’s method of quantifying NIHL, with worked examples. This is the first in a two part feature, next week we will provide an analysis of over 10,000 audiograms to see how the new guidelines would affect NIHL disability assessment, quantum and, if they were also extended into diagnosis, the percentage of claims which would satisfy a finding of NIHL.

The Rationale to the Guidelines

The new CLB guidelines assume that the ‘anchor point’ threshold values—typically at 1 and 8 kHz—will to some extent be affected by NIHL. To assume that the thresholds at the anchor points are purely down to AAHL will under-estimate the NIHL component. The new guidelines offer a method for estimating the NIHL at the anchor points and obtaining
AAHL data against which to better compare the claimant’s hearing thresholds and most accurately quantify the NIHL.

The current methods of quantifying NIHL were considered in our feature article in BC Disease News edition 112 and can be assessed here. For the sake of brevity the contents of the feature are not repeated but the reader may well find this useful background reading.

The Methods Under the New Guidelines

The new guidelines propose a ‘simple method’ and a ‘full method’ to quantify NIHL. The simple method can be used in the vast majority of cases and is as follows:

The simple method

1. Carry out the row f bulge calculation as per the original CLB guidelines but with certain modifications - see worked example in appendix below;
2. At the frequencies 1, 2 & 3 kHz correct any negative row g bulge values to zero;
3. Having corrected any negative values calculate the average thresholds at 1, 2 & 3 kHz for each ear;
4. Uplift the averages in each ear by 1/3rd;
5. Apply the results in 4 above to determine the average binaural loss using the ‘DHSS formula’ - i.e. \( \frac{4 \times \text{average in better ear} + \text{average in worse ear}}{5} \).

The authors state that the simple method should not be used where:

(a) the maximum NIHL is at 3 kHz;
(b) there is a deep notch (undefined within the guidelines) at 4 kHz.

In these cases the full method below should be used.

The full method

1. Carry out the row f bulge calculation as per the original CLB guidelines BUT WITH CERTAIN MODIFICATIONS - these are considered below;
2. Estimate the NIHL damage at the anchor points:
   - At 1 kHz the NIHL damage = the row g bulge calculation at 4 kHz x 0.15
   - At 8 kHz the NIHL damage = the row g bulge calculation at 4 kHz x 0.40
   [Correct any negative values to zero]
3. Subtract the NIHL damage, as calculated above, from the anchor point thresholds to work out your modified anchor point values - i.e. the true AAHL values at the anchor points;
4. Repeat a CLB analysis but now using the modified anchor point values [Note: modification of the anchor points may mean that different AAHL data best fit and are appropriate from that used in the initial CLB analysis but the best fit is still at the claimant’s age and just looks at the range of hearing for that age at the 25th, 50th and 75th percentiles];
5. Apply the new bulge calculations at 1, 2 and 3 kHz in each ear to work out the binaural average using the ‘DSS formula’ - i.e. \( \frac{4 \times \text{average in better ear} + \text{average in worse ear}}{5} \).

Full worked examples for the short and full methods are shown within the appendix.

Where the New Guidelines Cannot Be Used

The authors state that the new guidelines cannot be used where ‘exposure has involved very high noise levels (daily personal noise exposure levels greater than 105 dB(A))’.

Modifications To The Existing Diagnostic Guidelines

The authors also make 3 important modifications to the existing diagnostic guidelines:

Interpolation
A ‘logarithmic interpolation’ (and not linear interpolation) should be used to calculate the ‘line e’ interpolated misfit values within the CLB calculation.

Selection of AAHL values
Within the original guidelines it was recommended that AAHL data up to 10 years above or below the claimant’s actual age could be consulted in determining the best fit with the thresholds at the anchor points.

Now it is recommended ‘that the range of selected AAHL statistics should be restricted. The selected AAHL statistic should be for the claimant’s age at the time of examination or the nearest age on the chosen database, which may be in intervals of 5 years, as in the original Guidelines’.

Note that the new guidelines now reference AAHL data from ISO 7029 (2000) rather than the 1984 version in the original guidelines.

A comparison of the 2 versions is shown in the table within the appendix. It can be seen that generally there is little difference between the datasets.

Use of 6 kHz as an upper anchor point
Within the original guidelines 6 kHz could be used as the upper anchor point where there was a ‘precipitous fall-off’ in hearing at 8 kHz.

Use of 6 kHz as an alternative anchor point is no longer recommended. Instead the threshold at 8 kHz is now estimated by the user by extrapolating out from thresholds at lower frequencies. So you plot the audiogram results up to 6 kHz against a best fit percentile curve for AAHL and then best predict what the 8 kHz threshold should be.

Other points

Over-diagnosis where constitutional losses
The new guidelines state at the top of page 4:

‘….there may be additional hearing loss over and above AAHL that is not attributable to NIHL and needs to be allowed for. For example, not infrequently there is a component of sensorineural hearing loss at low and mid frequencies that is greater than AAHL (which is minimal at low and mid frequencies); it cannot be attributable to NIHL as the frequencies are too low to be affected by noise when there is only mild or moderate NIHL. Such additional low-mid-frequency hearing loss appears to occur commonly in older people. Using standardised AAHL curves would fail to allow for such additional hearing loss; if standardised AAHL values were simply subtracted from the measured hearing thresholds to estimate NIHL, the magnitude of NIHL would be inflated in the low-mid-frequency region.’

Are the new guidelines accepting a failing within the original diagnostic guidelines that resulted in over-diagnosis of NIHL where the audiometric pattern was more likely one of constitutional losses rather than NIHL? It is not uncommon that the ‘row g’ CLB calculation shows a diagnostic bulge somewhere between 3-6 kHz but that bulge also extends below 3 kHz into the lower frequencies which are less affected by noise as shown in the example below. Arguably such losses are not due to NIHL but a common pattern of constitutional loss.

Conclusion
We should remember that these new guidelines represent nothing more than the viewpoint of the 3 authors. The guidelines have not been reviewed and critiqued by the medico-legal community. They have not been judicially considered.

It is not immediately apparent that the rationale behind the new guidelines is correct - namely noise damage at the anchor points. ISO 1999: 2013 Acoustics-Estimation of noise-induced hearing loss (referenced within the new guidelines) suggests that at daily noise exposures of 85 and 90 dB(A) Lep,d there is no noise damage at 1 kHz - even after 40 years of exposure. Noise damage at 1 kHz only arises with noise exposures of 95 dB(A) Lep,d after 10
years and above. If that is correct than these new guidelines would appear to have no application in the vast majority of NIHL claims we see today which involve minimal and modest noise exposures.

We should not automatically move towards acceptance and application of the new guidelines.

Our second feature in this series will provide an analysis of over 10,000 audiograms to see what effect these new guidelines would have on NIHL disability assessment, quantum and, if used for diagnosis, the percentage of claims which would satisfy a finding of NIHL.

APPENDIX

1. WORKED EXAMPLES UNDER THE NEW GUIDELINES

Let us assume a hypothetical male claimant aged 65 with 20 years exposure to daily noise of 90 dB(A) Lep,d without hearing protection. The claimant’s measured hearing thresholds in the right and left ears are as follows:

<table>
<thead>
<tr>
<th>Ear</th>
<th>Hearing thresholds (dB) at frequencies (kHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.5</td>
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<tr>
<td>Right</td>
<td>10</td>
</tr>
<tr>
<td>Left</td>
<td>10</td>
</tr>
</tbody>
</table>

In this example the AAHL data at the 50th percentile for the claimant’s age is also the best fitting AAHL data but note under the new guidelines it is no longer acceptable to ‘best fit’ the AAHL data by going up or down 10 years from the claimant’s age. It is now necessary to use the data at the C’s age or the nearest age group.

Simple method

1. Carry out the CLB analysis with modifications-see below
2. Correct any negative values at 1, 2 or 3 kHz in your raw g bulge calculation to zero (none in this example);
3. The right ear is the ‘better ear’ with average raw g thresholds over 1, 2 and 3 kHz of 3.33dB;
4. The left ear is the ‘worse ear’ with average raw g thresholds over 1, 2 and 3 kHz of 5dB;
5. Uplift each of the averages by a $\frac{1}{3}$-so the average in the right ear is now 4.44 dB and the average in the left is 6.66dB;
6. Input the uplifted averages into the ‘DHSS formula’ to work out the average binaural NIHL:[4 x 4.44 dB]+[1 x 6.66 dB]/5=4.88 dB

**Full method**

1. Carry out the CLB analysis with modifications as above;

2. Estimate the NIHL damage at the anchor points in each ear (in this example the calculation is the same for both ears):
   - At 1 kHz the NIHL damage = the row g bulge calculation at 4 kHz x 0.15 = 12 dB x 0.15 = 1.8 dB
   - At 8 kHz the NIHL damage = the row g bulge calculation at 4 kHz x 0.40 = 12 dB x 0.40 = 4.8 dB
   [Correct any negative values to zero—none within this example].

3. Subtract the NIHL damage, as calculated above, from the anchor point thresholds to work out your modified anchor point values i.e. the true AAHL values at the anchor points:
   - At 1 kHz the modified anchor point = 10 - 1.8 dB = 8.2 dB
   - At 8 kHz the modified anchor point = 60 - 4.8 dB = 55.2 dB

4. Repeat a CLB analysis but now using the above modified anchor point values [Note: modification of the anchor points may mean that different AAHL data best fit and are appropriate from that used in the initial CLB analysis—albeit looking only at the different percentiles for same age bracket];

### Right Ear

<table>
<thead>
<tr>
<th>Frequencies (kHz)</th>
<th>0.25</th>
<th>0.5</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>6</th>
<th>8</th>
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<td>25</td>
<td>35</td>
<td>55</td>
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<tr>
<td>Modified HTL Anchor</td>
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<tr>
<td>AAHL</td>
<td>14</td>
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<td>11</td>
<td>19</td>
<td>28</td>
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<td>39</td>
<td>46</td>
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<td></td>
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<tr>
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<td>8</td>
<td>9</td>
<td>16</td>
<td>19</td>
<td>5</td>
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### Left Ear

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<td>Modified bulge = NIHL component</td>
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</table>

5. Deduct the modified AAHL calculation from the original hearing threshold levels. This modified bulge calculation = the NIHL component

6. Apply the modified bulge calculations at 1, 2 and 3 kHz to work out the average binaural NIHL using the ‘DHSS formula’ i.e. [4 x average in better ear] + [average in worse ear] / 5.
   - Average in right ear over 1,2 & 3 kHz = 2 + 8 + 9/3 = 6.33 dB
   - Average in left ear over 1,2 & 3 kHz = 2.8 + 14/3 = 8 dB
   
   \[4 \times 6.33 + 8 / 5 = 6.66 \text{ dB}\]
### Table: A Comparison of Modified ISO 7029 (1984) v Modified ISO 7029 (2000) Tables

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</table>
Obtaining Your Own Medical Evidence In NIHL Claims: Further Case Law (Edition 126 of BC Disease News)

Introduction

In edition 118 of BCDN our feature was a guide to success in obtaining repeat audiometry and own expert evidence in NIHL claims. Today we expand upon this in light of additional first instance appeals in Langley, Lassan and Aspinall. We also include a section on conduct and costs in light of our previous feature in relation to premature issue in NIHL claims in edition 119 of BCDN.

These articles have been written as a result of the increasing resistance of claimant solicitors to agree to the defendant obtaining its own audiometry/medical evidence. Within this feature we ask ourselves what arguments can best be deployed by defendants in NIHL claims to obtain its own medical evidence-or at the least obtain repeat audiometry to validate the claimant's hearing thresholds?

Firstly let us look at the protocols and rules which govern expert evidence for both pre-litigation and litigated cases. Although we have already outlined the relevant protocols and rules that govern expert evidence it is worth doing so again as familiarity with them is vital for success.

Pre-Action Protocol on Disease and Illness Claims

Paragraph 1.2 of the Protocol provides that its aim is to, amongst other things, settle claims 'fairly'. [Paragraph 9.4 of the Protocol provides that where the claimant obtains a medical report prior to writing the letter of claim, the defendant will as a matter of course be entitled to obtain its own medical evidence]. Paragraph 9.4 of the Protocol prescribes that a 'flexible' approach must be adopted to obtaining expert evidence. Further to this paragraph 9.13 provides that further guidance can be found in CPR 35, such that the principles applicable to litigated cases are also relevant to pre-litigation cases. Consequently, the following arguments are applicable to obtaining expert evidence whether at the pre-litigation stage and/or once proceedings have been issued.

The Civil Procedure Rules

The relevant rules are set out in Part 1 and Part 35 of the Civil Procedure Rules.

CPR PART 35

CPR 35.1 provides that expert evidence shall be restricted to ‘that which is reasonably required to resolve the proceedings’. The particular policy objective underlying this rule is that of reducing the incidence of inappropriate use of experts to bolster cases.

CPR Part 35 should be read in conjunction with CPR Part 1 as follows;

CPR PART 1

The overriding objective is contained in Part 1 of the CPR and provides that the court must deal with all cases justly and at proportionate costs. CPR 1.1 states that this includes, so far as is practicable:

(a) Ensuring that the parties are on an equal footing;
(b) Saving expense;
(c) Dealing with cases in ways which are proportionate:
   a. To the amount of money involved
   b. To the importance of the case
   c. To the complexity of the issues
(d) Ensuring that the case is dealt with expeditiously and fairly.
In short, where medical evidence is reasonably required by the defendant, cases must be dealt with justly, fairly and ensuring that parties are on an equal footing by allowing such evidence to be obtained. At the same time there needs to be considerations of proportionality and saving expense.

Applying these rules, it becomes plain that, firstly, where there are legitimate concerns about the claimant’s medical evidence, further expert evidence is reasonably required to verify or fairly challenge the case and to ensure that the parties are on an equal footing. Further expert evidence would also be necessary to fairly meet the case and ensure that it is dealt with justly.

This position is supported by recent NIHL case law and authority and we will now review these authorities in order to highlight how they support granting permission for repeat audiograms/defendant’s own expert evidence under each requirement of the CPR.

Medical evidence reasonably required

Firstly, we will turn to the requirement that the medical evidence must be reasonably required. In Sarek Joinery v Mary Maplesden, on the issue of the underlying policy objective of CPR 35.1 to restrict expert evidence where it is not reasonably required in a NIHL claim, HHJ G Matthews QC in his judgment, allowing the defendant its own medical evidence stated at paragraph 21:

‘The underlying policy objective of CPR 35.1...was intended to reduce the incidence of the inappropriate use of experts to bolster cases. I do not consider that bolstering a case was what was being attempted here. In my judgment the Defendants are seeking to test the opinion of the claimant’s expert and provide the court with another perspective’

At paragraphs 28 and 29 he further stated:

‘Is the evidence ‘necessary’ rather than merely ‘helpful’ in order to resolve a particular issue? The DJ should have carried out an assessment of how those issues could be fairly dealt with if the defendants were not allowed their own expert. In addition, there is no consideration as to how the tribunal at trial would have to approach those issues in the absence of any potentially contrary expert view. There is a substantial dispute here in relation to the approach applied by Mr Mira [claimant’s expert].’

‘The judge at trial will have to resolve this matter. There is often a respectable spread of opinion in deafness cases where medical experts take ultimately different views in the context of interpretation of clinical data’.

The Judge in this case was not persuaded by the claimant’s argument that any issues with the claimant’s report could simply be raised by defence counsel at trial as this ran the risk of rebuttal on the grounds that the criticisms were ill founded and not based on any expertise.

In another NIHL appeal decision of Daglish v Forest Gardens (Property) Limited, where the defendant sought to obtain its own medical evidence, HHJ Pearce-Higgins QC stated at paragraph 15:

‘He [DJ at 1st instance who rejected the defendant’s application for own evidence] was alive to all the issues on causation, but in my judgment, although in theory, at a hearing, a trial judge could reject the evidence of Mr. Zeitoun [the claimant’s medical expert] without the need for hearing from another expert opinion, in reality it would be extremely difficult for him to do that. The effect of that is that, without the benefit of their own independent expert, issues of causation have been, effectively, resolved by the opinion of Mr. Zeitoun’.

Similarly, in the NIHL case of Smith v Atkinson Holdings Ltd, the defendant was allowed, on appeal, its own audiometry where the claimant’s medical evidence was in dispute with audiometry having been performed in a Holiday Inn. Part 35 questions and replies about the circumstances and environment in which the audiometry was performed were inadequately answered by the claimant’s expert that it was found that the defendant’s own audiometry and medical evidence became reasonably required.

Granting permission supports the overriding objective-dealing with cases justly, fairly and ensuring parties are on an equal footing
HHJ Main QC, specifically addressed the issue in relation to the overriding objective in *Langley v Caterham Marble & Granite Limited*, at paragraph 24 in which he said:

‘Speaking for myself, I judge that when it comes to deafness cases, although they may be of relatively low value, the fact is that there are difficult medical issues that have to be resolved where there is a respectable spread of opinion, where Consultants do take different and legitimately different views, in the context of the interpretation of clinical data, which can lead to very differing results, and in my judgment, it would be a denial of justice, entirely contrary to the overriding objective, if the court were simply to say, as probably in this case the deputy judge thought – well, it is a low value claim, we have got an expert, an ENT Surgeon of high renown, we have engineering evidence that will probably speak to the facts, or the relevant facts so far as the workplace is concerned, that is all the court needs’.

This was further supported by HHJ G Matthews QC in *Sarek Joinery*, at paragraph 27:

‘[courts] should have regard to the overriding objective but should not be over-zealous in excluding evidence in order to save time and cost. A judgment as to whether expert evidence should be commissioned and admitted should be made in every case. There should not be a blanket policy because that would not allow the court to examine the relevance and reasonableness in the individual circumstances of the case’.

Further and crucially, at paragraph 29 it was stated;

‘I consider it is a denial of justice and entirely contrary to the overriding objective to simply say that he who instructs first effectively wins’. [Emphasis added].

Further at paragraph 32:

‘If the audiology is unusual and there is very good reason for supposing that there is a respectable contrary opinion on the audiograms, which will have a significant impact upon whether this is more likely age related and therefore goes to whether liability is established and/or loss or damage, they should generally be tried in the multi-track. The defendants should not be deprived of their defence nor railroaded into accepting the opinions and interpretation of the claimant’s expert, whose answers to their questions they find deficient, the appointment of whom they were neither consulted or informed about’ [emphasis added].

In *Smith* the Judge whilst taking into account that cases are to be decided promptly and with expedition and at proportionate cost under the overriding objective, was persuaded [at paragraph 6] that ‘they must nonetheless be decided fairly’.

In *Daglish* it was held that [paragraph 16] ‘if there is to be a fair hearing, the defendant must have the opportunity of at least relying upon its own expert evidence, It is the sort of case, where, if there is to be a proper and fair hearing, I would expect the matter, at trial, to involve the hearing of evidence from both experts’.

It is clear then that in order to comply with the overriding objective, where there is a dispute as to diagnosis or causation the defendant should not be refused repeat audiogram/defendant’s own medical evidence.

This was confirmed in *Lassan v BT Plc*, in which the recorder, Mr Bowdery QC at paragraph 22 held:

‘If the claimant’s expert’s report is not agreed, it is difficult to see how one can ensure the parties are on an equal footing if the defendant’s challenge the claimant’s chosen expert’s evidence but the defendant is not allowed to rely on a report to explain why that claimant’s expert’s conclusions are wrong’.

HHJ Main QC, in *Langley*, whereby the diagnosis of NIHL was disputed, specifically stated at paragraph 23:

‘There is too much here which is in issue, and I do not judge that this is a case where in the light of the engineering evidence from Dr Nelson and taking the audiogram with Professor Homer’s assessment of the ‘Guideline’ paper, the court can then simply walk to his conclusion, without in a real sense prejudicing the interests of the Defendants in being able to present perfectly reasonable and cogent contrary arguments. I do judge that this was a departure
from the reasonable ambit of disagreement here and that the judge was “plainly wrong” and the appeal against her refusal for a second expert should be allowed”.

Obtaining repeat audiometry/own medical evidence is proportionate

If the defendant does show that its own evidence is reasonably required and supported by the overriding objective that the case be dealt with justly and fairly with parties on an equal footing, how does this sit with other considerations of cost and proportionality under the objective?

It is not sufficient to refuse a repeat audiometry/medical evidence on the basis that the cost of such would be disproportionate to the value of the claim. This issue was discussed in the joint appeal of Aspinall v BT Plc and Offermans v BT Plc, against a first instance decision refusing permission for the defendants to obtain their own medical evidence. HHJ Robinson at paragraph 39 stated:

‘…too great an emphasis has been placed upon the concept of proportionality and not enough on the concept of “ensuring that the parties are on an equal footing” – see CPR 1.1(2)(a). Whilst it is absolutely correct to have proportionality very heavily in mind, as well as allotting to the individual case an appropriate share of the courts’ resources, once it is appreciated that a trial such as the ones in question can be allocated or can remain allocated to the fast track even if two experts are to give oral evidence, a refusal to permit BT permission to rely upon its own expert evidence by giving primacy to the concept of proportionality becomes difficult to justify’.

And further at paragraph 42:

‘It is possible to permit BT to approach a trial on an equal footing with regard to expert medical evidence without violating the principle of costs proportionality’.

This approach was also adopted in Daglish, Sarek and Smith. In Sarek Joinery HHJ Matthews said at paragraph 5:

‘…It is a trite observation but nonetheless appropriate to state that the fact that a case is of low value does not mean that it should be dealt with in any less just or fair way by the court. Such claims should not be bounced through by the court, simply as a result of their likely low value in damages’.

Further at paragraph 26 he said that the District Judge at first instance in rejecting the request for further evidence:

‘…adopted what is effectively, with respect, a rather simplistic party line: small value should equal low costs means no additional expert. Such an approach can be appropriate, however, it can also result in a railroading of the claim through on the basis that the claimant’s expert says the claimant has some hearing loss and therefore it must be connected to her employment’.

In Daglish the Judge said at paragraph 16:

‘…although the costs to be incurred may very well be disproportionate to the sums involved, justice in my judgement demands that there be an equality of arms, and both parties should have the benefit of the expert evidence upon which they wish to rely. There is no prejudice to the claimant from the delay. It is a modest claim in any event, his condition is not deteriorating and there is no pressing need for any financial payment to be made to him. There are, in my judgement, no wider issues save that, in all cases, defendants need to know that if the fairness of the trial issues demands the instruction of expert evidence then the court will indulge that, although extra costs may be incurred. I am afraid the reality is that, in many small personal injury cases, costs far exceed the sum being disputed’.

In Aspinall, HHJ Robinson stated at paragraph 49:

‘I think the District Judge fell into error by placing too much emphasis on the concept of proportionality, as he then understood it to be. Applying the appropriate test, it seems to be inevitable that BT should be permitted to obtain its own expert medical evidence in both cases so that the Judge can then perform a proper evaluation of the competing medical opinions as to the cause of any hearing loss’.
Conduct and Costs

It should be highlighted to the claimant that any request for further expert evidence or repeat audiometry is made in an attempt to deal with the genuine issues of diagnosis & causation at the earliest possible stage of the litigation process, quickly and at minimal cost which is entirely consistent with the spirit of the CPR and the disease PAP.

In addition to this, any refusal of a reasonable request to obtain repeat audiometry and/or defendant’s own medical evidence would mean that the claim cannot be progressed further and this will delay early resolution of the matter and will increase the costs. Such refusals are contrary to the requirement in CPR 1.3 for the parties to assist the court with the overriding objective of dealing with cases justly and at proportionate cost, which includes dealing with the case expeditiously and fairly (CPR 1.1(2)(d)).

Moreover should the claimant refuse, their behaviour would be inflexible and contrary to paragraph 9.4 of the Protocol as it fails to address and narrow down the genuine issues in dispute and is contrary to the spirit of cooperation, openness and early resolution of issues promoted by the disease pre action protocol.

In the event of the claimant’s refusal, it would be the case that the claimant had failed to properly and reasonably deal with the issue of diagnosis/causation at the pre-litigation stage and avoidably/prematurely forced this claim to enter litigation. On such basis, the defendant’s costs arising from the date of refusal to allow re-testing should be borne by the claimant in any event as per the recent decisions of Javed v British Telecommunications Plc, Kyle v Cedar Grange and Prior v Silverline International.

Conclusion

It can be concluded then that where the defendant reasonably requires expert evidence, issues of fairness and equality of arms will override issues of increased costs and proportionality.

Defendants should always be astute to the identification of inadequate expert evidence and where this is resisted by the claimant then clear reasons should be given for why repeat audiogram/our own medical evidence is required. It may be the case that a repeat audiogram alone is insufficient and in order to positively put their case or challenge the claimant’s evidence, the defendant will need to instruct their own expert.

Edition 118 of BCDN also contains an Annex which provides a summary of some common reasons for requesting a repeat audiometry/defendant’s own medical evidence. In addition to this we have created two template letters which address the medical and legal basis for requesting a repeat audiogram/defendant’s own medical evidence and these are available within the BC Legal Knowledge Centre.

A Lesson from History: The Coal Mining Scheme and Fixed Fees in NIHL Cases (Edition 128 of BC Disease News)

Introduction

In response to the increased volumes of NIHL claims (the last 3 years are likely to have seen on average around 80,000 NIHL claims p.a) on 16 June 2015 the Association of British Insurers (ABI) launched a discussion document entitled ‘Noise Induced Hearing Loss Claims: Improving the System for Everyone’. Within this report the ABI suggest that the UK’s compensation culture is driving the increase in the number of unmeritorious NIHL claims, with claimant lawyers and CMCs chasing excessive profits from disproportionately high legal fees, which in turn impacts on compensators, businesses and public sector bodies. They argue that consumers then suffer as the additional costs feed through to high insurance premiums, the price of goods and services and impacts on taxation.

So what do they propose in order to remedy this situation?

The ABI have suggested that the Government should:
- Extend the fixed costs regime outside the Claims Portal to disease claims
- Amend the Pre-Action Protocol to enable multi-defendant disease claims to be settled through the Claims Portal
- Consider extending MedCo to cover claims for NIHL
- Extend the fixed costs regime outside the Claims Portal to disease claims.

Elsewhere, the Ministry of Justice (MoJ), towards the end of 2015, asked the Civil Justice Council (CJC) to investigate noise-induced hearing loss claims to look at how a fixed costs regime might work. The working group have been instructed to make recommendations to the Government on:

- How a fixed costs regime for NIHL cases might work, with a focus on the structure of such a regime rather than values of fees themselves and;
- How the handling of NIHL claims might be improved by both claimant and defendant representatives (including how evidence is obtained and presented).

The working group are expected to produce their final report to the CJC by April 2016.

In addition to these proposals it is reported that some insurers have also entered into separate discussions with some of the major providers of NIHL claims within the claimant market to potentially handle future claims under scheme proposals.

These discussions proceed on the basis that the providers control significant market share with claims that are somehow ‘better than the rest’. Such genuine volume claims lend themselves to a scheme whereby meritorious claims are paid quickly within a fixed fee regime and so saving significant legal costs.

In this feature we seek to show that a fixed fee regime/scheme for NIHL claims will result in:
- Increased volumes
- Increased damages
- Increased profits for claimant solicitors

We seek to do this by looking at the Coal Health Compensation Scheme for COPD and HAVS for former miners.

Background

The Coal Health Compensation began after legal test cases in 1997 and 1998 found the British Coal Corporation to have been negligent in relation to vibration white finger and respiratory diseases.

In 2007 the National Audit Office reported on the outcomes of the Coal Health Compensation Schemes set up by the then Department of Trade and Industry in 1998 to compensate former miners for injuries of HAVS and COPD arising from employment with the British Coal Corporation. The 2 schemes - one for HAVS and the other for COPD - operated under a fixed fee regime with tariff damages and with medical assessments performed under an agreed matrix by independent medical assessors.

It was known that around 1.3 million men had worked underground within Corporation mines between 1954-2000 and this was the pool of potential claimants who might claim under the schemes. Initial forecasts were that the COPD scheme would generate 173,500 claims and the HAVS scheme 45,000 claims from this 1.3 million former labour pool. In fact by 2007 there were 591,000 COPD claims and 169,000 HAVS claims - so for both schemes over 3 times the predicted volumes.

Increased Damages

In respect of damages the initial assessments were that the COPD would cost £500 million-£2 billion and the HAVS scheme £50-250 million. In other words a range of £550 million-£2.25 billion. On conclusion of the schemes around £4.1 billion in damages were paid - almost double the top estimates and 8 times the bottom estimate. In addition the schemes cost a further £2.3 billion in legal and administration costs:
Increased Costs

Under the Scheme, claimants could also have their legal costs paid by the DTI, leaving 100% of the compensation money available for the miners themselves. The following table of statistics taken from the House of Commons Committee of Public Accounts report of 2007-2008, shows the top 10 claimants’ representatives fees paid under the Scheme:

Table 4: Fees paid to claimants’ representatives

| Total payments to the top 10 claimants’ representatives by coal health fee income as at 31 March 2007 |
|--------------------------------------------------|------------------|-----------------
<table>
<thead>
<tr>
<th>Ranking</th>
<th>Total £m</th>
<th>Number of partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thompsons</td>
<td>1 123.6</td>
<td>36 equity partners plus 16 salaried partners (*)</td>
</tr>
<tr>
<td>Beresfords</td>
<td>2 115.0</td>
<td>3 partners</td>
</tr>
<tr>
<td>Hugh James</td>
<td>3 90.2</td>
<td>47 partners</td>
</tr>
<tr>
<td>Raley</td>
<td>4 72.4</td>
<td>Declined to respond</td>
</tr>
<tr>
<td>Browell Smith &amp; Co</td>
<td>5 54.6</td>
<td>Information not supplied</td>
</tr>
<tr>
<td>Mark Gilbert Morse</td>
<td>6 52.4</td>
<td>Information not supplied</td>
</tr>
<tr>
<td>Avalon</td>
<td>7 35.1</td>
<td>9 partners</td>
</tr>
<tr>
<td>Union of Democratic Mineworkers</td>
<td>8 31.6</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Watson Burton LLP</td>
<td>9 31.3</td>
<td>Information not supplied</td>
</tr>
<tr>
<td>Graysons Solicitors</td>
<td>10 29.7</td>
<td>9 partners</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>635.8</strong></td>
<td></td>
</tr>
</tbody>
</table>


These astronomical earnings were in spite of the relatively low level fixed fees that were payable under the COPD Claims Handling Agreement which were initially proposed for these claims. The following table shows a comparison between costs which would be awarded following a conventional detailed assessment by a Cost Judge compared with the fixed fee under the agreement:
If we compare these fee levels to those likely to be payable under any fixed fee scheme introduced by the CJC, you can see that the fee income was much less for those running coal mining claims.

Below is the current EL/PL fixed fee figures:

<table>
<thead>
<tr>
<th>Employers Liability</th>
<th>Pre issue £1000 - £5,000</th>
<th>Pre issue £5,001 - £10,000</th>
<th>Pre issue £10,001 - £25,000</th>
<th>Issued - post issue pre allocation</th>
<th>Issued - post allocation pre listing</th>
<th>Issued - post listing pre trial</th>
<th>Trial advocacy fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>£950 + 17.5% of damages</td>
<td>£1,855 + 12.5% of damages</td>
<td>£2,500 + 10% of damages</td>
<td>£2,630 + 20% of damages</td>
<td>£3,350 + 25% of damages</td>
<td>£4,280 + 30% of damages</td>
<td>£500.00 (&lt;£3,000)</td>
<td>£1,705 (&lt;£15,000)</td>
</tr>
</tbody>
</table>

In our previous feature entitled “ABI Proposals on fixed fees- who will they benefit?” we indicated that we believe any fixed fees for NIHL claims will be higher, due to the inherent complexities and the greater time spend required of Claimant advisors. We proposed fee levels such as these might be appropriate:

<table>
<thead>
<tr>
<th>Disease cases</th>
<th>Pre issue £1000 - £5,000</th>
<th>Pre issue £5,001 - £10,000</th>
<th>Pre issue £10,001 - £25,000</th>
<th>Issued - post issue pre allocation</th>
<th>Issued - post allocation pre listing</th>
<th>Issued - post listing pre trial</th>
<th>Trial advocacy fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damages of £2,500, fixed fee of £1,500 + 17.5% damages = £437.50</td>
<td>Damages £5,500, fixed fee of £2,500 + 12.5% damages = £312.50</td>
<td>Damages £2,500, fixed fee of £3,500.00 + 20% of damages = £500.00</td>
<td>Damages £2,500, fixed fee of £4,500.00 + 25% of damages = £625.00</td>
<td>Damages £2,500, fixed fee of £6,000.00 + 30% of damages = £750.00</td>
<td>£750.00 (&lt;£3,000)</td>
<td>£1,250.00 (&lt;£10-£15,000)</td>
<td></td>
</tr>
</tbody>
</table>

There is no indication for those within the CJC that these level fees will be agreed, however it is clear that the likely fee per case will be much higher than the amount paid to Claimant firms handling coal mining claims. The time spend for Claimant lawyers will be higher on non coal claims, as they will likely be pursuing more than one Defendant/Insurer, but the potential for significant income is there.

How did the claimant solicitors manage to achieve such high levels of earnings?
There were weaknesses in the DTI’s approach to negotiating the original tariffs with solicitors. The negotiations had taken place in the midst of uncertainty over the volume of claims and the practical operation of the schemes. At the time of the original negotiation, the DTI believed that the schemes would be closed as early as 2001.

In addition to this, the estimates considered the processing of each claim as a discrete piece of work and took no account of the savings to be gained from processing large numbers of claims. As a result, the large amounts paid to some claimant firms are significantly greater than the actual costs those firms incurred. Traditional barriers to settlement were removed in favour of a streamlined, process-driven approach to settlement handled by Claims Handlers for the Coal Authority and Solicitors for the Claimants.

*Can Claimant firms achieve similar earnings from fixed fee NIHL claims?*

As the CJC move towards a fixed fee and removing the barriers to settlement that currently allow insurers to enjoy repudiation rates of between 60-80%, are insurers not at risk of failing to heed the problems the government found when trying to deal with the increase of claims for COPD and HAVS from miners? For whom does simplicity and process work? Certainly it worked for the Solicitors handling claims on behalf of miners and certainly it did not work for the tax payer.

*Lessons to Be Learnt*

The Coal Schemes clearly show that fixed fee regimes allow for an increase in volumes of work, damages payments increases and claimant solicitors profiting as a result. The data from the Coal Health Compensation Scheme, outlined above, shows the dangers of underestimating the volume and cost of such schemes at the outset.

Fixed fee + simple process = Increased volume, Claimant advisers processing that volume on economies of scale and payments vastly exceeding predictions and estimates.

Our experience of other more informal NIHL scheme arrangements entered into against some former major UK manufacturers (which mirrored the GMB-Iron Trades NIHL schemes) was that claims volumes always significantly exceeded initial estimates of the same.

The MoJ should heed the lessons of the past when it comes to fixed fees for NIHL claims. Of particular concern is any move towards agreeing a reliance on single audiometry and next week we will be producing a feature that focusses on the dangers of relying upon a single audiogram, regardless of the conditions in which it was taken.


*Introduction*

The CLB 2000 Guidelines, are routinely used in the diagnosis of noise induced hearing loss (NIHL). However these guidelines do not present a method for quantification of NIHL.

The same authors have now produced new guidelines on the quantification of NIHL thereby overcoming the shortcoming of the original guidelines. These new guidelines are proposed as an extension to the original guidelines but also provide 3 modifications to the method of diagnosis under the original guidelines. They are now commonly being referred to as the ‘LCB Guidelines’.

We considered the rationale and methodology of the LCB guidelines in our feature article in edition 124 of BC Disease News ([here](#)).

In this 2nd part feature on the guidelines we analyse just under 10,000 NIHL claims to see what impact the guidelines have on disability, quantum and diagnosis if they came to be judicially approved and commonly applied in NIHL claims.
The Claims Analysed

Gender and age

We look at 9840 NIHL claims with audiograms obtained in a medico-legal context. 93% of the claimants were males and c. 85% were aged over 50 at the time of audiometry. The peak numbers were within the 60-69 year old age bracket.

<table>
<thead>
<tr>
<th>Age at Audiogram</th>
<th>No. Of Claims</th>
<th>% of Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;30</td>
<td>130</td>
<td>1.32%</td>
</tr>
<tr>
<td>30-39</td>
<td>205</td>
<td>2.08%</td>
</tr>
<tr>
<td>40-49</td>
<td>1039</td>
<td>10.56%</td>
</tr>
<tr>
<td>50-59</td>
<td>2558</td>
<td>26.00%</td>
</tr>
<tr>
<td>60-69</td>
<td>3749</td>
<td>38.10%</td>
</tr>
<tr>
<td>70-80</td>
<td>2005</td>
<td>20.38%</td>
</tr>
<tr>
<td>&gt;80</td>
<td>154</td>
<td>1.57%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>9840</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

CLB Diagnosis and notch / bulge depth

Applying the original CLB Guidelines then 8118 of the 9840 claims—83% of claims—showed a + diagnosis for NIHL (having a qualifying notch and/or bulge of at least 10dB at 3, 4 and/or 6 kHz in the ‘better ear’—note for the purposes of this analysis we ignore any Requirement R2 NIL analysis).

Of the 8118 diagnostic claims, 4720 claims had a modest qualifying notch / bulge depths of between 10-19dB (59%) and 3398 claims had qualifying notch / bulge depths greater than 20 dB (41%).

Only the 8118 diagnostic claims only were used to determine the impact of the new LCB Guidelines on disability and quantum.
Disability Assessment

We assessed the NIHL component in the 8118 claims applying 4 different methodologies—the first 2 being variants of existing methodologies and the last 2 being the new methodologies proposed within the new LCB Guidelines—the so called ‘short cut’ and ‘full’ methods.

Before we go on to look at the results we briefly summarise each of the methods (please also see BCDN edition 112 for a fuller consideration of the methodologies—here).

The Methodologies

(i) The Conventional Method

What we term the ‘Conventional Method’ of assessing the NIHL component in a NIHL claim has been in existence (or at least variants of it) from 1973. This is the method of determining the ‘better ear’ and applying a 4:1 weighting for that ear in assessing the overall binaural hearing loss.

The conventional method first calculates the overall binaural hearing loss at 1, 2 and 3 kHz (with a 4:1 weighting for the better ear) and then deducts the estimated median age associated hearing loss (AAHL) for the same age / gender as the claimant found within ISO 7029. Assuming there are no other causes of hearing loss then what remains is the NIHL.

(ii) The Conventional Method-best fit

As above but the claimant is ‘best fit’ to AAHL data in ISO 7029 according to the middle 50% of the range of that data—so best fitting at the 25th, 50th or 75th percentiles.

(iii) LCB Shortcut Method

This is explained in detail in the previous feature—basically a row g CLB calculation at 1 to 3 kHz uplifted by a 1/3rd.

(iv) LCB Full Method

See previous feature—a more complex method used in certain circumstances—for example where the losses are maximal at 3 kHz.

The Results

Using each of the 4 disability assessment methods we split the 8118 claims into 6 NIHL disability bands of: 0-4 dB; 5-10 dB; 11-20 dB; 21-30 dB; 31-40 dB; and >40 dB.

The results are shown in the table and figures below.

Table & Figures: Analysis of claims by 6 disability bands using 4 disability methods

<table>
<thead>
<tr>
<th>DISABILITY BANDS</th>
<th>NUMBER (and %) OF CLAIMS (BY DISABILITY ASSESSMENT METHOD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DHSS Median ISO7029</td>
</tr>
<tr>
<td>4 dB or Less</td>
<td>1618 (20%)</td>
</tr>
<tr>
<td>5 dB - 10 dB</td>
<td>1679 (21%)</td>
</tr>
<tr>
<td>11 dB - 20 dB</td>
<td>2744 (34%)</td>
</tr>
<tr>
<td>21 dB - 30 dB</td>
<td>1425 (18%)</td>
</tr>
</tbody>
</table>
1. There is negligible difference in the results between the 2 conventional DHSS disability methods. Using the median or a best fit AAHL data did not materially affect disability outcomes.

2. For both conventional methods we see that around 40% of the claims have minimal disability assessment of under 10 dB. If we assume disability of 0-4 dB to be ‘de minimis’ than around 20% of all claims would arguably not sound in damages.

3. The LCB guidelines have the impact of reducing disability assessment compared to the conventional methods:
   - The LCB full method reduces disability more than the shortcut method
   - Using the full method then 35% of claims fall within the de minimis category and a further 40% have minimal disability.
   - Using conventional methods around 7% of claims have NIHL disability above 30dB. These claims virtually disappear under the LCB Guidelines-nearly all fall under 30dB disability.

Impact on Quantum

What is the impact of the LCB Guidelines on quantum?

The LCB Full Method has a greater impact on disability assessment than the LCB Shortcut Method.

We use the DHSS Median and LCB Full Methods to assess impact on quantum and how our 8118 claims fall within the 6 disability bands as shown in the 2 figures below.
Figures: Disability splits of the 8118 claims using DHSS Median ISO 7029 and LCB Full Methods

For the purpose of this assessment we have assumed claims with disability of 0-4 dB to be ‘de minimis’ and not qualifying for damages. We have correlated the remaining 5 disability bands with descriptions of loss / disability provided within the JC Guidelines and also by the World Health Organisation [please note this is designed simply to be of broad interpretive assistance to the results].
Most of our 8118 claimants fall within the 60-69 year age bracket. For our assessment we assume all fall within this age bracket and none have tinnitus.

We assume and apply broad PSLA awards as follows according to our 6 disability categories:

<table>
<thead>
<tr>
<th>NIHL disability bands</th>
<th>PSLA award</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4 dB</td>
<td>£0</td>
</tr>
<tr>
<td>5-10 dB</td>
<td>£3,500</td>
</tr>
<tr>
<td>11-20 dB</td>
<td>£5,000</td>
</tr>
<tr>
<td>21-30 dB</td>
<td>£6,000</td>
</tr>
<tr>
<td>31-40 dB</td>
<td>£8,000</td>
</tr>
<tr>
<td>41 dB &amp; over</td>
<td>£10,000</td>
</tr>
</tbody>
</table>

Based upon all these assumptions we calculate the overall and average PSLA awards for the 8118 claims are as follows:

<table>
<thead>
<tr>
<th>Method</th>
<th>Overall PSLA awards</th>
<th>Average PSLA awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHSS ISO 7029 median</td>
<td>£33.672m</td>
<td>£4,150</td>
</tr>
<tr>
<td>LCB Full Method</td>
<td>£21.994m</td>
<td>£2,700</td>
</tr>
<tr>
<td>Difference</td>
<td>-£11.678m (35%)</td>
<td>-£1,450 (35%)</td>
</tr>
</tbody>
</table>

The LCB Guidelines reduce the overall and average spend per claims by 35%.

Could this favourable and significant reduction in damages however be lost if the LCB Guidelines have a negative impact on diagnosis?

Potential Impact on diagnosis

The LCB Guidelines are specifically designed to determine NIHL disability but what is the impact of the Guidelines if they come to be adopted as diagnostic guidelines? We have already seen a number of claimant experts (mis)apply the LCB Guidelines to assist on arguments of diagnosis (we consider some individual examples in a future feature).

Will the fact that the LCB Guidelines look at AAHL data at the median for the claimant’s age only *nearest five year integer*-rather than using ‘best fit’ AAHL data +/- 10 years of the claimant’s age and at different percentiles-have a negative impact on diagnostic rates? In other words would the LCB Guidelines result in more claimants being diagnosed with NIHL?

Our assessment would suggest not significantly.
The LCB Guidelines increased the + diagnosis rate in our original 9840 claims from 83% to 86%—an increase of 335 claims. Using the Shortcut Method of the LCB Guidelines then there are minimal differences—the number of claims where there is a + diagnosis rate increases from 8118-8208; an increase of 90 claims or just under 1%.

<table>
<thead>
<tr>
<th>METHOD APPLIED</th>
<th>+ DIAGNOSIS RATE AMONG 9840 CLAIMS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>CLB ORIGINAL</td>
<td>8118</td>
</tr>
<tr>
<td>LCB FULL</td>
<td>8453</td>
</tr>
<tr>
<td>LCB SHORT</td>
<td>8208</td>
</tr>
</tbody>
</table>

Applying the LCB Full Method to diagnosis might add £1-2million on PSLA spend amongst our pool of 9840 claims—but the overall impact on quantum is still positive with around a 1/3rd reduction in PSLA damages spend.

CONCLUSIONS

What then is the impact of the LCB Guidelines in the context of disability, quantum and diagnosis?

Disability

1. The LCB Guidelines are advantageous to insurers & defendants in reducing assessments of NIHL disability.

2. Using conventional methods of NIHL assessment we see that nearly ¼ of the claims fall within a definition of ‘de minimis’—0-4dB—and a further 20% have minimal disability of between 5-10dB.

3. Across all claims the LCB Guidelines reduces the NIHL disability compared to conventional methods:

   -The LCB full method reduces disability more than the shortcut method
   -Using the full method then 50% of claims fall within the de minimis category and a further 28% have minimal disability.

Quantum

4. In our analysis the LCB Full Method reduced PSLA damages by around a 1/3rd. Please note in our analysis we assumed our claimants to be aged 60-69 and without tinnitus. Reductions in damages in cases involving any significant tinnitus may be reduced / negligible.

Diagnosis

5. However if the Guidelines develop into diagnostic guidelines then they have a slightly negative impact—increasing the + diagnosis rate by c. 3% across all claims—so in our analysis the + diagnosis rate increased from 83%-86%. Their overall impact is however still significantly beneficial.

The Way Forward

6. In most cases we believe the guidelines will be favourable to insurers and defendants and improve de minimis arguments and / or reduce PSLA damages assessments.

7. All NIHL claims going forwards should be assessed against the LCB Guidelines to determine their impact on disability and quantum. Our ABCNoise tools now include this functionality.
8. Remember however that the LCB Guidelines represent no more than the opinion of the 3 authors and have not been properly published, peer reviewed generally by the medical community, adversarially tested or judicially approved. Claimants will likely resist their application (where disadvantageous) and rely upon more conventional methods of disability assessment.

9. It should also be borne in mind when contemplating running a de minimis defence that tinnitus is an important consideration. As was seen in the case of Lomas v London Electric Wire Company & Smiths Ltd, it is possible to have hearing loss which is considered to be de minimis but for damages to be awarded for tinnitus which was deemed to be caused by his exposure to noise.

9. However what should not be lost in all of this analysis is the remarkable number of NIHL claims which today involve little apparent NIHL. If we had genuinely robust diagnostic criteria for NIHL - which properly compared claimants to typical age related data for the non-noise exposed population (explored in a future feature) in combination with reliable and repeatable audiometry - we estimate half of today’s NIHL claims would probably disappear. These claimants represent no more than normal and typical hearing in an elderly population who are currently being compensated for NIHL.

Date of Knowledge in NIHL Claims: Wignall v The Secretary of State for Transport (Edition 153 of BC Disease News)

Introduction

It is trite law that in negligence, an employer is not liable in negligence for injury which arises from dangers that are not reasonably foreseeable. The earliest NIHL claims appeared in the 1960s but were unsuccessful as a result of exposure occurring many years before the risks of exposure to excessive noise were foreseeable. This has led to the often cited question: When will an employer be held to have known about the risk of excess noise?

Additionally, there is the question of the implementation period, this is the period of time that is normally granted before an employer will be in breach of its obligations after knowledge of the risks is present. We have discussed both of these issues in editions 15 and 101 of BC disease news.

In this article we revisit the subject with reference to the recent decision in Wignall v The Secretary of State For Transport (1st July 2016, Preston County Court).

Background

It is often incorrectly thought that the seminal judgment of Thompson v Smiths Shiprepairers (North Shields) Ltd, 1984 established a default or general date at knowledge at which an employer would be held to know about the danger of excessive noise as January 1963. This date was arrived at by reason of publications such as the Ministry of Labour’s ‘Noise and the Worker’ leaflet and the Wilson Committee’s report. These documents were published in 1963 and were aimed at minimising the problem of excessive noise resulting in hearing loss in the industrial/factory context.

Following this case, an agreement came into force on 11th January 1984, between the General, Municipal, Boilermakers & Allied Trades Union (GMBATU) and other unions and the insurer Iron Trades, known as the Iron Trades agreement. For the ease of processing these bulk claims, the date of knowledge was agreed to be 1st January 1963. The agreement dominated the claims settlement environment for NIHL claims from the mid 1980’s and through most of the 1990’s as the majority of the market were signatories to the agreement and those that were not signatories tended to follow the terms it set out. As such, 1st January 1963 should not be taken as the default date of knowledge as this is flexible, reflecting developing knowledge and the availability of that knowledge to each employer across different industries.

Indeed, it was held in Stokes v Guest, Keen and Nettlefold that:

___________________________________________________________________
the overall test is still the conduct of the reasonable and prudent employer, taking positive thought for the safety of his workers in the light of what he knows or ought to know; where there is a recognised and general practice which has been followed for a substantial period in similar circumstances without mishap, he is entitled to follow it, unless in the light of common sense or newer knowledge it is clearly bad; but, where there is developing knowledge, he must keep reasonably abreast of it and not be too slow to apply it.

NIHL case law shows that different dates of knowledge can apply in different circumstances. In Kellett v British Rail Engineering Ltd, (unreported, High Court at Chester, 25th May 1984) (the same defendant in the case of Wignall we will go on to discuss), Popplewell J, held the defendant's actual date of knowledge to be 1955. The defendant had actively considered the problem of exposure to noise and had been advised by its medical officer to issue employees with hearing protection.

In Craven v Tonks Transport, the constructive date of knowledge was 1972 in line with the Department of Employment's Code of Practice on noise. The defendant was a lorry company and the court considered that the 1963 edition of 'Noise and the Worker' would not have alerted the defendant to any risk to its employees.

It can therefore be seen that all the circumstances of the case are relevant in deciding the appropriate date of knowledge and the imposition of 1963 is not automatic. It is clear from the case law that the relevant factors which must be considered include:

- The nature, extent and level of exposure;
- The type of industry in which the exposure occurs;
- The size and resources of the employer, including the number of employees;
- Whether the employer had 'above average knowledge', by way of complaints from employees or any other source;
- The publications which were available at the time and whether these were applicable to the particular industry in question.

This flexibility was affirmed by the decision of the Supreme Court in Baker v Quantum Clothing Group. There the Court held that not all employers should be fixed with the same date of knowledge in 1963. Moreover, knowledge in that year should be fixed from the middle of that year onwards thereby reflecting the publication of the two documents in the earlier part of the year. Smaller and medium sized employers, particularly in industries not associated with excessive noise, should have a later date of knowledge. This may be as late as 1972, following publication of the Department of Education's Code of Practice.

So it is established that the date of knowledge is flexible, but what can we determine from the case law up to this point about the period of implementation that employers are allowed? This period of implementation will turn an employer's constructive knowledge into 'guilty' knowledge, from which point it will be held to be in breach of its duty.

It is clear from cases such as Bowman v Harland and Wolff, Armstrong v British Coal Corporation, Smith v Wright and Beyer Ltd, Brookes v South Yorkshire Passenger Transport Executive, and Maxfield v ATS North Eastern Ltd, that the courts have traditionally held the implementation period to be 2 years. Whilst these claims too were also in the context of HAVS, the principle was followed again in Baker, in which the Supreme Court rejected the Court of Appeal's view that there should be a 6-9 month implementation period and reinstated the 2 years granted by HHJ Inglis at first instance.

However, in Baird v Latham Farms (Nottingham County Court, 2 July 2015), HHJ Godsmark QC found that there was no breach of the defendant's duty between 1962 up until 1972 when the Code of Practice for Reducing the Exposure of Employed Persons to Noise was published. The judge then went on to find that the period of

6 [1997] 8 Med LR.
7 [2001] EWCA Civ 1069.
8 [2005] EWCA Civ 452.
9 (2008) Leeds CC, unreported
implementation expected of the defendant was 8 months from the date of publication of the Code of Practice for Reducing the Exposure of Employed Persons to Noise in April 1972. We reported on this decision in edition 101 of BC disease news and we noted that the reason for this deviation in approach to the implementation period may have been due to the fact that the defendant in this case was a small farm with 1 exposed employee which could more easily have taken measures to reduce the risk of noise exposure.

Now that the background to date of knowledge and implementation periods in NIHL claims has been outlined, we can go on to consider the recent judgment in Wignall in light of these authorities.

**Wignall v The Secretary of State For Transport**

The NIHL case of Wignall arose from a former employee exposed to excessive and hazardous levels of noise whilst working as a fireman on steam locomotives for British Railways between 1957-1968. Since British Railways is no longer in existence, proceedings were issued against BRB (Residuary) Limited, being the body formed after privatisation to handle claims against British Rail. This body now no longer exists and its responsibilities have been taken over by the Secretary of State for Transport.

**Date of Knowledge**

The parties were in dispute as to limitation, breach of duty, causation, quantum and apportionment of damages and whilst this case raises interesting points as to each of these, it is the comments in relation to date of knowledge and the implementation period which we are concerned with in this article.

The claimant submitted that the defendant was in breach of its duty to the claimant for the entirety of his exposure i.e. from 1957-1968. His Honour Judge Butler, stated at para 36 that:

‘If, subject to proof that he [the claimant] did suffer noise-induced hearing loss and that it was attributable at least in part to his work with BR, if he is to recover any damages for exposure before 1963 he must prove that BR had “above average knowledge” at an earlier date’.

In proving this, the claimant sought to rely on previous claims involving the same defendant, British Rail, in particular, Kellett, where the date of knowledge was found to be 1955. However, the judge in Wignall, concluded that Kellett was not directly applicable as the claimant in that case had worked in the engineering workshops as a fitter, and there was correspondence which showed that British Rail had actual knowledge of the risk of noise in that particular job role from 1955 but nowhere in this documentation was there reference to the noise exposure of steam locomotives.

Referring directly to the HAVS case of Doherty, HHJ Butler stated:

‘Essentially, I take the view that Kellett is a decision on its own facts relating to noise exposure of those working within engineering workshops at BRE Limited and to that particular employer’s knowledge of the risks in that case. I am prepared to infer that the risks to that type of employee may have been or even were known in general terms to BR as the state monopoly responsible for the running of the railways at that time, but that does not justify the proposition that BR should have investigated the position with regard to another “particular type of work within the industry”, that is to say the work of its footplate firemen employees or “the tools used by” those employees, that is to say steam locomotives, to adopt the working of Auld L.H. in Doherty’.

As such, a date of knowledge as early as 1955 was rejected. Instead, HHJ Butler turned his attention to documents disclosed by the defendant which, it was stated, demonstrated that British Rail was actually aware of the risks to the hearing of employees driving steam locomotives by October 1961 or at the very latest December 1961. These documents related to a complaint made in October 1961 about the levels of noise produced by diesel locomotives which was then followed by advice, in December 1961, from the medical officer for British Rail recommending that noise surveys be carried out for steam locomotives.

HHJ Butler stated:
‘Clearly, in my judgment the medical investigators were satisfied that the results of the investigation into diesel locomotives led inevitably to a need to consider the same issues in relation to steam locomotives and they informed BR’s managerial and technical staff accordingly’.

As a result, a report was produced on 26th March 1962, for the purpose of ‘measuring and analysing the noise to which the firemen and drivers of express steam locomotives have been exposed for many years’. The conclusion of the investigation was that ‘noise produced even at low speeds is liable to produce permanent deafness’.

As such British Railways had sufficient knowledge by December 1961. However, this does not automatically mean that it was in breach of its duty of care from that date. HHJ Butler then went on to consider what implementation period, if any, should be allowed for the defendant before it could be held to have been in breach of its duty.

Implementation Period

HHJ Butler began his consideration of the implementation period by stating that ‘there should in my judgment certainly be no period of grace extending beyond 1st January 1963’. He then went on to say that as he was not applying the ‘conventional’ starting date for knowledge of 1st January 1963 as he had determined that the defendant had more than average knowledge at an earlier date, that he must consider whether there should have been an implementation period at all.

He noted that despite British Rail’s medical advisors in 1961 and 1962 advising that urgent action should be taken, no ear defenders were provided to firemen working on steam locomotives up to 1968. Whilst the judge accepted that there were health and safety concerns regarding the wearing of ear defenders by footplate crews, went on to say:

‘…in my judgment, it was as a reasonable and prudent employer in a position urgently if not immediately to take the step of communicating to their employees, and in particular those directly affected including footplate firemen, the results of the noise survey which had been reported by March 1962’.

The defendant submitted that it should be allowed an implementation period of two years as per Baker. However, the automatic application of Baker was rejected and HHJ Butler held that:

‘It is my judgment that BR should be held to have been in breach of duty not for failure to provide the deceased with personal hearing protection but for failure to carry out further noise surveys (if necessary) and in any event failure to provide the deceased and their other steam footplate employees, owed by them a personal duty as individuals, with information, instruction or training in respect of the relevant risk. Given the urgency with which those advising BR in 1961 and 1962 expressed themselves, I am satisfied that it has been proved on the balance of probabilities that even if BR could not reasonably have been expected to provide and enforce the wearing of ear defenders in 1962 or even as far ahead as 1965, it could and should have carried out further noise surveys and/or provided information to its employees within a further three months after March 1962, that is to say by the end of June 1962. Accordingly I find that the earliest date on which liability could arise in this claim (adopting the words pleaded in paragraph 4.5 of the defence) was 30th June 1962’.

As such, the defendant in Wignall was granted a 6 month implementation period. Whilst this decision is a deviation from the 2 year period held by the Supreme Court in Baker, it does not mean that defendants will henceforth be attributed guilty knowledge earlier than they have previously.

As in Baird, this shorter implementation period can be explained on the specific facts of the case. In Wignall, the defendant had been warned with relative urgency, in terms of no uncertainty, that action was required to be taken in order to prevent injury to those working on the footplate of the steam locomotives.

Although in Baird we noted that the short implementation period of 8 months may have been due, in part, to the assumption that a small farm could have more easily taken measures to reduce the risk of noise exposure by providing ear defenders. However, the defendant in Wignall, is a large corporation with, it could be argued, more resources to be able to implement measures and roll out the use of protective equipment for its employees. This was illustrated aptly in this case where there were several medical officers available to produce investigatory reports on the dangers of different types of locomotives.
It would appear that ultimately, as with the date of knowledge of an employer, the implementation period will also depend on the individual circumstances of the case.

Conclusion

The case of *Wignall*, is thought to be the third case related to steam locomotives brought against British Rail, as it was then. It is another useful example of the application of date of knowledge principles in NIHL claims and reflects the flexibility of both the date of knowledge and the implementation period applied to defendants.

It also supports our contention earlier in this article that 1st January 1963 should not be deemed as an automatic date of knowledge for NIHL claims.

It should be noted that as a first instance decision of the County Court, much like *Baird*, *Wignall*, is not binding and judges in the future will not be obliged to follow this decision. Additionally, defendants may have ground in future claims to argue that the implementation period is very fact specific and so therefore the current case law at present supports this being anywhere between 6 months and 2 years.


**Introduction**

In last week’s edition of BC Disease News we considered the recent NIHL judgment of *Wignall* and discussed the implications this had for common law dates of knowledge and implementation periods in NIHL claims. This week we look again at the judgment in relation to the court’s findings on causation.

**Background**

NIHL has a characteristic audiometric pattern consisting of bilateral ‘notches’ or ‘bulges’ in hearing thresholds at 4 kHz – or 3 or 6 kHz\(^{10}\) (or any combination of these frequencies). If the noise exposure continues the notches/bulges deepen and spreads to affect the adjoining frequencies.\(^{11}\) It is generally accepted that NIHL usually begins around 4 kHz. At first it may be asymptomatic but if it spreads into the lower frequencies of 3 and 2 kHz, individuals begin to complain of hearing disability.\(^{12}\) In Scott-Brown’s Otolaryngology,\(^{13}\) Dr Alberti states that the loss at 4kHz usually begins to progress at a steady rate for about 10 years and then slows greatly. However, the loss eventually spreads into other frequencies and it may take up to 30 years to involve frequencies of 1kHz and below to any great extent. This will lead to a notched sensorineural hearing loss centred about 4kHz, gradually becoming a steeply sloping loss starting at about 0.5 kHz. This is illustrated in the following audiogram:

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\(^{10}\) Arguably isolated losses at 6 kHz i.e. in the absence of any losses at 3 and/or 4 kHz are not NIHL see edition 3 of BCDN.

\(^{11}\) BC Legal, ‘Noise Induced Hearing Loss – A Short Guide 1st Edition’.

\(^{12}\) Chapter 18, Dr Alberti, ‘Scott-Brown Otolaryngology, ‘Adult Audiology’ (Vol 2, page 608).

\(^{13}\) Ibid
The 2012 Guidance Statement on the principle characteristics of occupational NIHL authored by the American College of Occupational and Environmental Medicine provides a useful outline of what NIHL typically looks like.\(^{14}\)

In relation to the frequencies affected, it states:

- It is always sensorineural, primarily affecting the cochlear hair cells in the inner ear;
- Its first sign is a ‘notching’ of the audiogram at the high frequencies of 3, 4 or 6 kHz with recovery at 8kHz;
- In early NIHL, the average hearing thresholds at the lower frequencies of 0.5kHz, 1 and 2 kHz are better than the average thresholds at 3, 4 and 6kHz, and the hearing level at 8 kHz is usually better than the deepest part of the notch.

This approach is also propounded in the Report of the Expert Hearing Group,\(^{15}\) entitled ‘Hearing Disability Assessment’, in which it states NIHL has a recognisable audiometric pattern with the maximum damage usually occurring at 4,000Hz, but occasionally it may occur at 3,000Hz or 6,000Hz.

Moreover, the CLB Guidelines,\(^{16}\) for the diagnosis of NIHL, have, as one of the requirements that must be met for a diagnosis of NIHL, that there be evidence of a high frequency sensorineural hearing impairment i.e. that the HTL at 3, 4 or 6kHz is at least 10 dB greater than the HTL at 1 kHz or 2 kHz.

Conversely, when an individual is showing maximal losses at 1 kHz and 2 kHz, this may indicate that the individual is suffering from what is known as ‘cookie bite’ hearing loss. The condition affects the mid-frequency sounds but in most cases does not affect high and low frequencies. The condition derives its name from the specific form of the hearing curve in the audiogram of a person suffering from this particular kind of sensorineural hearing loss. An audiogram carried out on a person thought to have cookie bite hearing loss can be seen below:


This condition is relatively rare and is thought to have a genetic cause. It is very rare for cookie bite hearing loss to be caused by damage to hearing. Those suffering from this condition will experience difficulty hearing the mid frequencies but not the low and high frequencies.

As such there is a general consensus that where hearing loss has been caused by exposure to excessive noise there will be maximal damage at the frequencies of 3, 4 and 6 kHz. Where an audiogram is showing maximal loss at 1 or 2 kHz, this kind of loss is very rarely caused by damage and is more likely a genetic condition idiopathic to the individual.17

However, in the recent decision of Wignall, the contrary was found.

**Wignall v Secretary of State for Transport**

We outlined, in detail, the facts of the case in *Wignall* in edition 153 of BC Disease News and as such for the sake of brevity we will not repeat those in any great detail, except to remind readers that the parties in this case were in dispute as to limitation, breach of duty, causation, quantum and apportionment of damages. The exposure in this case was said to be between 1957-1968.

The court posed two questions, firstly was the deceased’s hearing loss, revealed in 2 audiograms taken in October 2012 and February 2014, noise induced? Secondly, if it was, was the loss attributable to the defendant’s breach of duty?

The claimant relied upon the medical opinion of Mr Zeitoun discipline and the defendant relied upon that of Mr Jones, discipline. For the purposes of Mr Zeitoun’s medical report a pure tone audiogram was performed on 18th October 2012 and for the purposes of Mr Jones’ report a further pure tone audiogram was taken on 18th February 2014. The appearance of these audiograms were similar and both demonstrated a hearing loss at the 2 kHz frequency, which was greater than that at the 3 kHz and 4 kHz frequencies-particularly in the right ear.

However, Mr Zeitoun’s calculations of hearing loss were as follows:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Right Ear</th>
<th>Left Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 kHz</td>
<td>25.8 dB</td>
<td>29.8 dB</td>
</tr>
<tr>
<td>3 kHz</td>
<td>13.6 dB</td>
<td>21.6 dB</td>
</tr>
<tr>
<td>4 kHz</td>
<td>0 dB</td>
<td>5.4 dB</td>
</tr>
<tr>
<td>6 kHz</td>
<td>0 dB</td>
<td>0 dB</td>
</tr>
</tbody>
</table>

Mr Jones’ calculations also showed that the greatest loss was at the 2 kHz frequency (14.8 dB).

Both experts agreed that this was an unusual appearance for NIHL, however, Mr Zeitoun claimed that he would expect to see and had seen such a presentation in 5 to 15% of NIHL cases. In order to show that NIHL can affect the 2 kHz frequency, Mr Zeitoun relied on the text book, *Scott-Brown’s Otolaryngology*, as mentioned above, which states:

‘Noise-induced permanent threshold shift usually commences between 3 and 6 kHz, often around 4 kHz, and gradually worsens at that frequency and spreads into neighbouring frequencies. At first it may be asymptomatic but if it spreads into the lower frequencies of 3 and 2 kHz complaints begin’. 

He also pointed out that the CLB Guidelines also refer to involvement at 2 kHz in some cases.

Mr Jones disagreed and expressed the opinion that the audiograms did not show evidence of NIHL at all because, as a point of principle, hearing losses most marked at 2 kHz are not evidence of NIHL. In doing so, he relied upon the position paper, also mentioned above, of the American College of Occupational Medicine, which summarises the typical features of NIHL and emphasised the sentence ‘there is always far more loss at 3, 4 and 6 kHz than at 0.5, 1 and 2 kHz’ and ‘the greatest loss usually occurs at 4 kHz’.

Mr Jones also relied upon the publication called ‘Advances in Noise Research’ (1998), written by Dr Luxon, which he claimed endorsed the American criteria to the same general effect. However, HHJ Butler pointed out that Dr Luxon also accepts that NIHL ‘can begin in frequencies other than the 3-6 kHz region’ albeit ‘this is rare’.

Additionally, Mr Jones claimed that if one was to use the CLB Guidelines on such an atypical loss that it would result in a ‘false diagnosis’.

Mr Zeitoun did not agree with Mr Jones and insisted that whilst the audiogram was atypical it was still within the methodology of the Guidelines. However, he did accept that if the atypicality had included the 1 kHz frequency he would then not have diagnosed NIHL.

His Honour Judge Butler, did recognise that the Guidelines indicated that the normal or typical presentation is of a measurement of hearing threshold level at 3, 4 or 6 kHz which is at least 10 decibels greater than that at 1 or 2 kHz. However, he emphasised at para 64 that:

‘It is in my judgment important to bear in mind that guidelines are just that. They are guidelines not a straightjacket. The express purpose of the guidelines is said (page 281) to be:

“...to assist in the diagnosis of noise-induced hearing loss (NIHL) in medico-legal settings. The task is to distinguish between possibility and probability, the legal criterion being more probable than not. It is argued that the amount of NIHL needed to qualify for that diagnosis is that which is reliably measurable and identifiable on the audiogram. The three main requirements for the diagnosis of NIHL are defined: R1, high frequency hearing impairment; R2, potentially hazardous amount of noise exposure; R3 identifiable high frequency audiometric notch or bulge”.

HHJ Butler also acknowledged that the guidelines mainly referred to ‘uncomplicated cases of NIHL’, or ‘typical’ NIHL alongside ‘normal’ age-associated hearing loss (AAHL). However, he concluded that:

‘In my judgment, this plainly does not mean that the guidelines cannot be applied to complicated cases where the NIHL is atypical or the AAHL is abnormal, merely that the expert using the guidelines should recognise the atypicality or abnormality’.

He went on to say:

‘No doubt in some cases the atypicality and the degree of abnormality would be such as to prevent an expert using the guidelines but I am satisfied on the balance of probabilities that Mr Zeitoun did not find himself in that position. In my judgment he has interpreted the guidelines as a guide not a rigid rule’.

In conclusion, HHJ Butler pointed out that Mr Jones’ position that maximal loss at 2 kHz could never be diagnosed where there was more loss at 2 kHz in any circumstances, did not accord with the publications. He noted that in the CLB Guidelines, Dr Luxon’s publication and Scott-Brown’s Otolaryngology text book that it had been said that maximal loss at 2 kHz in NIHL claims was rare.

Additionally he stated that if the CLB Guidelines were to be accepted as the definitive approach in the medico-legal context of NIHL claims then it had to be accepted that whilst atypical, maximal loss at 2 kHz can sometimes, in a small proportion of cases will lead to a finding of NIHL.
As such, HHJ Butler found that Mr Zeitoun’s evidence was preferred stating at para 70 that:

‘For all the foregoing reasons, I found the opinion of Mr Zeitoun to be logically consistent and his use of the guidelines and his approach to the audiogram results to accord with the orthodox medico-legal approach. Each case depends on its own facts and the quality of the evidence adduced. In the context of this present case, on the evidence presented to me, I reject Mr Jones’ opinion that where the greatest loss is at 2 kHz, NIHL cannot ever properly be diagnosed. I accept the opinion of Mr Zeitoun that although the deceased was atypical and his NIHL in his case could properly be diagnosed, albeit as a rare or minority cases, subject to proof of hazardous noise exposure has been proved. The position is that, on the facts of this case, such exposure has been found proved.’

HHJ Butler, also rejected Mr Jones’ alternative argument that the cause of the hearing loss in both audiograms was idiopathic or had a genetic cause which was currently beyond scientific explanation. As such it was found that on the balance of probabilities the deceased’s employment was causative or materially contributory of part of his NIHL.

Conclusion and Comment

Most, if not all of the medical and scientific literature on NIHL concurs that where typical occupational noise exposure gives rise to NIHL, then such losses are maximal at 4 or 3 or 6 kHz. However much of the literature also acknowledges a possibility, in exceptional circumstances, of maximal loss at 2 kHz.

As was recognised in Wignall, such a dispute as this is often determined on the evidence of the experts instructed by the parties. It appears that HHJ Butler was ultimately persuaded by the approaches taken by the experts in that he felt Mr Zeitoun was flexible, reflecting the reality of the publications and he rejected Mr Jones’ insistence that loss at 2 kHz could never be indicative of NIHL.

As such it is important that when faced with such a dispute, there is a focus on providing evidence to show that the individual does not fall into the ‘rare’ category and a specific alternative causative explanation for the hearing loss is put forward.

**Can noise exposure cause latent damage? (Edition 157 of BC Disease News)**

**CAN NOISE EXPOSURE CAUSE LATENT DAMAGE?**

A judgment handed down today in the case of *Ross v Lyjon Company Limited* (23rd September 2016 Liverpool County Court) raised important causation issues in relation to NIHL and reaffirmed the basic tenant of tort law, that it is for the claimant to prove damage.

The case run by Roberts Jackson solicitors saw evidence from Professor Moore and Mr Zeitoun for the claimant and Professor Lutman for the defendant on the subject of latency in NIHL and the advancement on behalf of the claimant of a phenomenon which has previously been described as ‘hidden hearing loss’, that is, damage which cannot be seen on standard audiometric testing.

**Background**

The claimant alleged exposure to excessive noise during employment with the defendant as an Electrician between 1979 and 1992 at various large scale industrial sites including chemical plants and oil refineries in the North West. The claimant alleged that he would regularly work 12 hours a day in constant noise. He alleged exposure to noise from the operation of turbines, drill towers, presses, compressors and general heavy industry.

The claimant had alleged similar exposure which 2 other employers between 1974 and 1979 and 1993 and 1998. The claims against these employers were compromised at an earlier stage of litigation.
The remaining defendant admitted breach of duty. An audiogram in 2011, obtained as part of Mr Zeitoun’s medical report, showed NIHL. The primary issue in dispute was causation which centred upon the discovery of an audiogram dated 28.10.1993, undertaken as part of a BUPA health screening, soon after the claimant’s employment with the defendant had ended. The 1993 test showed no audiometric evidence of NIHL.

As well as the audiogram from 1993, there was reference in the claimant’s medical records to a further hearing test undertaken by BUPA as part of an earlier screening in 1987. Although no 1987 audiogram was located, the records relating to the 1987 test referred to the claimant having ‘normal hearing’.

In view of the audiometric evidence from 1987 and 1993, the remaining defendant denied causation.

**Expert Evidence**

The claimant’s expert, Mr Hisham Zeitoun, Consultant Otolaryngologist Head & Neck Surgeon, had not referred to the BUPA health records or 1993 audiometry in his initial report and had relied solely upon an audiogram undertaken at the time of his examination of the claimant in February 2011 which was compliant with the ‘Coles guidelines’ for diagnosis of NIHL.

When questioned by the defendant on the BUPA records, Mr Zeitoun initially agreed that ‘if the audiogram of 1993 is a true representation of Mr Ross’ hearing at the time, Mr Ross has not suffered noise induced hearing loss prior to that audiogram’.

Subsequently, Mr Zeitoun questioned the accuracy of the 1993 BUPA hearing test and opened the door for the claimant’s ensuing argument that even if the audiogram were accurate, the claimant had nevertheless sustained some damage to his hearing as a result of alleged exposure with the defendant notwithstanding the fact that it was not revealed on the 1993 audiometry.

The claimant was granted permission to reply upon further medical evidence from Professor Brian Moore, Emeritus Professor of Auditory Perception in the Department of Psychology at the University of Cambridge.

Professor Moore’s evidence was summarised by the judge, HHJ Wood QC, as follows:

‘His evidence was that whilst the obvious effect of noise exposure would be damage to the outer hair cells within the cochlea where such damage was usually identifiable by the thresholds revealed on audiometry, it did not necessarily follow that hair cell damage would give rise to a noticeable loss when detecting sound. He relied upon a number of animal studies to demonstrate that mild changes could be caused to the outer hair cells without any measureable change in the thresholds. Because damage to the auditory system built up gradually, reflecting the cumulative energy received by the ears, there will be a time before the damage is evident’.

The defendant relied upon the medical opinion of Professor Mark Lutman, Professor of Audiology at the Institute of Sound and Vibration Research in Southampton. Professor Lutman observed that the 1993 audiogram showed more or less normal hearing which led him to conclude that any NIHL which might have been present on the 2011 audiogram must have occurred after 1993 or alternatively any loss was due to idiopathic (unknown) causes. He saw no reason to doubt the accuracy of the 1993 audiogram. On the question of whether or not there could be latent effects of noise exposure, Professor Lutman referred to the received wisdom from expert and consensus groups that there were no such measureable latent effects.

Put simply, if the loss had not occurred as a result of alleged exposure with the defendant (in light of the 1993 audiogram demonstrating normal thresholds), then the 2011 test could only be explained by subsequent exposure or it was idiopathic, insofar as sensorineural hearing loss of unknown origin was common in the general population and could mimic NIHL.

There was an agreement between Professor Moore and Professor Lutman regarding the theoretical scientific arguments on the hidden effects of noise exposure based on various animal studies but disagreement as to how they could be applied in the claimant’s case particularly as pointed out by Professor Lutman, in view of the physiological differences between species. In the joint statement Professor Moore and Professor Lutman agreed: ‘...there are theoretical arguments and limited data that there might be certain latent effects. It is well established from animal studies that noise exposure may cause quite substantial damage to the hair cells in the inner ear without causing any hearing loss as gauged by the audiogram. It has also been shown in recent animal studies
that exposure to high levels of noise can damage the synapses between inner hair cells and neurons directly; it can lead to degeneration of neurons in the auditory nerve without measurable effects as gauged by the audiogram. Such degeneration of neurons may continue for months or years after noise exposure has ceased.

In summarising the issues to be determined, HHJ Wood identified that the first question for the Court was whether or not the 1993 audiogram was an accurate representation of the claimant’s hearing loss at that time.

The accuracy of the 1993 audiogram

Mr Zeitoun gave evidence that he was concerned about the efficacy of the 1993 audiogram on the basis that it had been confirmed by BUPA that the test would not have been conducted in a soundproof booth.

Professor Lutman took the view that the 1993 test was entirely plausible and stated that the usual concerns about testing conditions and in particular, ambient noise would serve to make thresholds worse than they actually were. As the claimant’s 1993 audiogram showed some thresholds recorded down to zero, there was no evidence that ambient noise would have been a problem, and no evidence that the audiometry had been obtained other than in an entirely proper fashion.

Mr Zeitoun accepted under cross examination that ambient noise would make thresholds worse and not better but advance a number of factors he considered could make a recorded threshold better than was actually heard. These included:
- Visual signals from the operator who may be within sight of the subject;
- An audible click from the testing machine if it had mechanical components;
- The absence of irregular intervals between the sounds tested.

Such factors, Mr Zeitoun asserted could make the subject predict when a sound was being emitted which in turn would lead to a belief that he had heard the sound when he had not.

HHJ Wood QC found that there was no shifting the burden of proof and that it was not incumbent on the defendant to satisfy the court that the 1993 audiogram was accurate. He stated:

‘The audiogram is included in a compendium of the medical records, the accuracy of which would normally be self-proving, in the absence of any significant contradictory material’.

He went on to say:

‘There is simply no evidence that the audiogram carried out by BUPA….did not properly measure hearing thresholds. By referring to audible clicks from the audiometry mechanism, visual signals, or the lack of variation in the spacing of the sound pulses, the claimant is indulging in speculation without real evidence’.

Additionally, he stated that the fact the claimant did not complain of hearing difficulties in 1993 was a further factor which undermined the claimant’s challenge to the efficacy of the 1993 test. On the subject of Mr Zeitoun’s position he remarked:

‘Insofar as Mr Zeitoun has called the audiogram into question, he has lost objectivity because of his shifting position and has indulged in litigation bias, whereby his position became harder as the issues crystalized’.

Latency of damage

Having found that the 1993 audiogram was accurate, the second question for consideration was whether the claimant had established, on the balance of probabilities, that notwithstanding the absence of any hearing loss in 1993 at the end of his employment with the defendant, he had nevertheless sustained some damage to his hearing which became evident in later years and which was not related to the ordinary ageing process.

HHJ QC declined to be drawn into making a decision which answers a generic question about occupational deafness litigation. He stated:
'This is especially so because on the face of it the question depends upon the non-expert interpretation of a complex medical/scientific debate which is ongoing based on a plethora of epidemiological studies in both humans and animals, and where there is yet to be any consensus’. It is axiomatic that every case is fact specific and a decision has to be made upon the evidence presented, of which scientific research is but a small part’.

In considering the argument advanced on behalf of the claimant by Professor Moore, HHJ Wood QC noted that Professor Moore had accepted that it was unusual that there was no recorded loss on the 1993 audiogram given the claimant’s alleged history of exposure and agreement by Professor Moore than in general, NIHL progresses more rapidly earlier on. Professor Moore had speculated that the claimant may have had an unusually large cochlear reserve however the Judge preferred the evidence of Professor Lutman that such was unlikely.

In finding for the defendant, HHJ Wood found that Professor Moore’s conclusions were fundamentally flawed because they were based on the assumption that the claimant was exposed to the same constant noise levels throughout his entire working history. There was no engineering evidence in the case and the argument presented by Professor Moore would founder if noise levels after 1993 were greater than those prior to this date.

Notwithstanding the absence of compelling engineering evidence, the Judge held that the claimant would still have faced a difficulty because there was no evidence that underlying synaptic damage not revealed on threshold had actually taken place prior to 1993 in the claimant’s case. The Judge found that in the absence of any reported difficulties prior to 1993, the court would be embarking on a highly speculative exercise were it to conclude that synaptic damage had been occurring, which meant that the claimant was more vulnerable to hair cell damage in later years.

HHJ Wood concluded:

‘It seems to me that both Professor Lutman and Professor Moore have been engaged in an honest intellectual interpretation of the research literature and it is unnecessary for this court to determine which of the theories is preferred. I conclude that whilst there was a possibility of latent damage occurring to the nerve structures in the cochlea not detectable on the 1993 audiogram, this falls significantly below being a probability in the light of all the evidence which has been made available to this court. It is unnecessary to make any further determination, or to provide any generic ruling on the scientific question although it does appear unlikely that there will be any sufficient consensus on that question, or means by which such damage could be measured for some time to come’.

New LCB Guidelines on disability considered

In previous editions of BC Disease News we have considered the new LCB Guidelines on assessment of NIHL & disability in NIHL claims.

The issue of the appropriate method for evaluating hearing disability was briefly considered by HHJ Wood who said:

‘The issue arises from a determination as to which of the centiles is appropriate to the Claimant. Professor Lutman has adopted a less than generous approach in the sense that he has followed newly published guidelines (to which he is a significant contributor) which are intended to incorporate ‘best fit’ by reference to certain anchor points. I accept his evidence that previous assessment guidelines (again to which he has contributed) provided a rough and ready approach taking an individual Claimant as averagely susceptible at the 50th centile.

It is correct in this respect that if one were to take 1 and 8 kHz the Claimant is far closer to the 25th percentile for ageing, and this would have the effect of reducing the measured thresholds at 1, 2 and 3 kHz. However, it is noteworthy that Mr Zeitoun, and indeed Mr Welsh who provided the initial report [for the defendant] had taken a more traditional line which appears to be founded on the Black Book guidance over 20 years ago, and there is some substance to Mr Zeitoun’s argument that the 2016 guidelines themselves provide scope for some flexible interpretation allowing individual variability. As I remarked in court, the issue as to whether or not the 4 kHz threshold should be taken into account remains a controversial one, because in some respects it has an effect on the disability. It remains to be seen whether or not those involved in medico-legal work adopt the potentially less generous interpretation without applying the exceptions which appear to emanate from the more recent guidelines.
However, this particular case I would have had some sympathy with the approach of Mr Zeitoun if it had been necessary to assess the disability, and to have compensated the Claimant on the basis of an approximate 10 decibel threshold hearing loss over 1,2 and 3 kHz, which was indeed the preferred approach of Mr Welsh.'

Comment and conclusion

The judgement supports the conventional view that NIHL occurs at the time of exposure and underlines the value of contemporaneous audiometry in determining issues of causation in NIHL claims. The burden is on the claimant in every case to prove that he has sustained a compensable injury as a result of alleged exposure, on the balance of probabilities. Where standard audiometric evidence does not support a finding on NIHL and the claimant does not report any contemporaneous hearing difficulties, a claimant is unlikely to discharge the burden on the basis of hypothetical scientific principles.

Some of the important issues raised in this case will be considered in further features of BC Disease News.

**Single Audiometry – A Basis For NIHL Claims Handling Schemes? (Edition 160 of BC Disease News)**

“Despite being regularly referred to as the ‘gold standard’, pure tone audiometry, as it currently stands, has a very high degree of potential error, particularly in a clinical environment.”

*Marine and Technology Faculty, Southampton Solent University, 2015*

“A single determination of hearing threshold level at any frequency must be recognised as only a guess of unknown accuracy.”

“For an individual test subject, a single audiogram is an unconfirmed determination of that individual’s state-of-hearing in both ears. Put more starkly, a single audiogram is a guess.”

*Institute of Sound & Vibration Research, University of Southampton, ISVR Technical Report No. 336, 2015*

**INTRODUCTION**

If audiometry is properly carried out in accordance with the British Society of Audiology’s (BSA) recommended procedures for pure tone audiometry, then can NIHL be reliably diagnosed based on a single audiogram?

Can NIHL claims handling schemes based upon a single audiogram simplify and speed up the claims process and reduce claim costs?

In a seminar held this week by the Manchester Law Society on NIHL claims (‘What’s all the noise about Noise Induced Hearing Loss’), Dominic Weir of Slater & Gordon, Karen Jackson of Roberts Jackson, Zoe Holland of Zebra LC and HHJ Gore QC advanced arguments in favour of a ‘single trusted audiogram’ during a panel discussion. Such arguments also appear to be finding increasing favour in the defendant community.

In this feature we consider audiometric reliability and the diagnosis of NIHL and why, in our view, single audiometry handling schemes would lead to more paid NIHL claims and re-ignite a currently declining market.

18 British Society of Audiology, ‘Recommended Procedure: Pure-Tone Air-Conduction And Bone-Conduction Threshold Audiometry With And Without Masking’ (British Society of Audiology, 9th September 2011, Amended February 2012).
20 Dominic Weir is Chair of the CJC Noise-induced Hearing Loss Working Group and Karen Jackson and Zoe Holland both sit on the Committee which we previously reported on in edition 105 of BC Disease News.
AUDIOMETRIC VARIABILITY

Pure tone audiometry has now been in use for over 90 years and has been described as the ‘Gold Standard’ for the assessment of hearing thresholds. Nevertheless it is accepted not to be a precise science - measurements are susceptible to errors, which may lead to variability in the results, and a lack of reliability. Stephens (1981) found 38 sources of error in audiometric testing.

The American Academy of Otolaryngology - Head and Neck Surgery, list the variables in 4 principle categories and we set out some examples of the sources of error below:

1. Physical variables
   a. Improper calibration of audiometer
   b. Improper placement of earphones
   c. Type of earphones and earphone cushions used
   d. Excessive ambient noise levels in test rooms

2. Physiological variables
   a. Tinnitus
   b. General health of subject, presence of fatigue, colds and ear wax
   c. Collapsed ear canals caused by earphone pressure

3. Psychological variables
   a. Motivation of subjects
   b. Attitude to testing
   c. Experience in test taking

4. Methodological variables
   a. Tester competence
   b. Testing technique
   c. Order of presentation of frequencies

Measures such as calibration of the test environment, equipment and procedure to ISO standards can reduce the risk of errors. There are both British and international standards for the test procedures. The BSA has published recommended procedures for pure tone audiometry which are in accordance with the International & British Standard BS EN ISO 8253-1. However, despite the use of these standards and recommended procedures, measurement variability is still inevitable. It is entirely normal to have 5 to 10dB differences in thresholds - in either direction - between properly conducted hearing tests.

This measurement variability has long been recognised. Chapter 5, section 5.2.3.1 of the Black Book, states that:

- Repeatability varies from person to person;
- Repeatability is best at 1 and 2 kHz and poorer outside these limits, especially at 6 kHz;
- With 5 dB measurement steps then audiometric variability within the same test (intra-test variability) may be within +/− 5 dB.

As was stated by HHJ Inglis in the Nottingham Textile Litigation judgment at 1st instance, at paragraph 103:

"The central tool in diagnosis is the audiogram. Audiograms are taken in steps of 5 dB at each frequency. They are variable and not generally exactly repeatable. Where 2 audiograms taken at about the same time vary, the results where there is variation may reasonably be averaged if the difference is not more than 10 dB. Up to 10 dB is therefore an acceptable margin of error".

24 [2007] EWHC B1 (QB)
It is important to remember that this degree of ‘acceptable margin of error’ can occur where 2 audiograms are performed entirely properly by experienced audiologists within a proper test environment and calibrated equipment and applying BSA recommended procedures in testing.

If one test (or both) is not properly conducted then the margin of error and variability in measured thresholds between tests can be far greater. Some sources of audiometric error can result in better than actual hearing - so for example where a patient can see the audiometer and when a test signal is applied or there is a lack of variation in the test signals so the patient anticipates hearing a sound rather than actually doing so. The vast majority of errors however increase the measured hearing thresholds - in other words show hearing worse than it actually is. As stated by Lawton (1991)25: ‘...systemic errors [in pure tone audiometry] usually work to elevate the threshold, to make the hearing appear less acute than it really is’.

However, a series of studies carried out by the Maritime and Technology Faculty of the Southampton Solent University between 2013-201526-28 suggest that the degree of accuracy of properly conducted audiometry is actually worse than previously thought.

One of these studies aimed to assess how measurements might vary between audiometers in a laboratory environment due to any calibration differences. Calibration requirements of audiometers are set out in various national and international standards,29 to ensure their sound outputs are within tolerances of +/-3 dB at frequencies 125Hz-4 kHz and +/-5dB at higher frequencies. Therefore 2 properly calibrated audiometers can differ in their sound outputs by up to 6 dB-10 dB dependent on frequency tested.

The study looked at the variability in sound output from 4 different types of audiometer which had all undergone proper laboratory calibration within the last 3 months. The sound output from the audiometers was measured using a Head and Torso Simulator (HATS) - as pictured below.

Picture; Bruel and Kjaer Head and Torso Simulator30

The HATS accurately replicates the size and shape of the human head and ears and allows the accurate measurement of sound which would be presented to the ear of a person undergoing audiometry - rather than the measured hearing thresholds of the person. In this way many of the environmental and the subjective sources of error which can occur are avoided.

All the audiometers which used TDH39 headphones were fitted by a qualified audiometrist to the HATS. Three of the audiometers used supral-aural (sit on the outside of the ear) THD39 earphones and one used THD39 earphones with attenuating cups. Attenuating cups are noise excluding cups which can be fitted around the earphones to exclude external noise and are particularly recommended where the ambient noise level of the test environment is not ideal and commonly used in industrial screening situations.

Sound was presented to the HATS using each of the 4 audiometers across the frequencies of 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz and 6 kHz at assumed sound outputs of 30 dB, 50 dB and 80 dB. Both ‘ears’ were tested and tests were repeated 3 times with the headphones removed and replaced between each test.

In theory each audiometer should present identical tones with the HATS recording the same outputs. Surprisingly the measured outputs of the audiometers, which were apparently presenting the same sound frequency and level to the HATS, showed a high degree of test-retest variability - both within the same audiometer, between the different audiometers and between left and right ‘ears’.

The differences between the means outputs of each of the audiometers were between 3 and 12 dB. The variation in produced tones was greatest both within and between audiometers at 6 kHz with a maximum difference of 20-21 dB - far outside the calibration tolerances of 10dB. The results are reproduced in the table below.

Table: Minimum, maximum, difference and mean measured sound outputs at test levels & frequencies
<table>
<thead>
<tr>
<th>Test Level</th>
<th>Frequency</th>
<th>Min dB Leq</th>
<th>Max dB Leq</th>
<th>Difference Min-Max dB Leq</th>
<th>Mean dB Leq</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 dB</td>
<td>250 Hz</td>
<td>25.6</td>
<td>34.9</td>
<td>9.3</td>
<td>29.9</td>
</tr>
<tr>
<td></td>
<td>500 Hz</td>
<td>24.8</td>
<td>36</td>
<td>11.2</td>
<td>29.9</td>
</tr>
<tr>
<td></td>
<td>1000 Hz</td>
<td>34.4</td>
<td>41.4</td>
<td>7</td>
<td>39.1</td>
</tr>
<tr>
<td></td>
<td>2000 Hz</td>
<td>35</td>
<td>40.9</td>
<td>5.9</td>
<td>38.8</td>
</tr>
<tr>
<td></td>
<td>4000 Hz</td>
<td>32.3</td>
<td>37.2</td>
<td>4.9</td>
<td>35.5</td>
</tr>
<tr>
<td></td>
<td>6000 Hz</td>
<td>34.1</td>
<td>54.9</td>
<td>20.5</td>
<td>44.4</td>
</tr>
<tr>
<td>50 dB</td>
<td>250 Hz</td>
<td>45.8</td>
<td>54.8</td>
<td>9</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>500 Hz</td>
<td>44.8</td>
<td>55.8</td>
<td>10</td>
<td>49.8</td>
</tr>
<tr>
<td></td>
<td>1000 Hz</td>
<td>57.3</td>
<td>64.4</td>
<td>7.1</td>
<td>59.6</td>
</tr>
<tr>
<td></td>
<td>2000 Hz</td>
<td>55</td>
<td>60.9</td>
<td>5.9</td>
<td>58.7</td>
</tr>
<tr>
<td></td>
<td>4000 Hz</td>
<td>52.3</td>
<td>57.2</td>
<td>4.9</td>
<td>55.4</td>
</tr>
<tr>
<td></td>
<td>6000 Hz</td>
<td>53.9</td>
<td>74.8</td>
<td>20.9</td>
<td>64.3</td>
</tr>
<tr>
<td>80 dB</td>
<td>250 Hz</td>
<td>75.9</td>
<td>84.9</td>
<td>9</td>
<td>80.5</td>
</tr>
<tr>
<td></td>
<td>500 Hz</td>
<td>74.8</td>
<td>86</td>
<td>11.2</td>
<td>80.3</td>
</tr>
<tr>
<td></td>
<td>1000 Hz</td>
<td>84.4</td>
<td>91.2</td>
<td>6.8</td>
<td>88.9</td>
</tr>
<tr>
<td></td>
<td>2000 Hz</td>
<td>85</td>
<td>91.2</td>
<td>6.2</td>
<td>88.8</td>
</tr>
<tr>
<td></td>
<td>4000 Hz</td>
<td>82.3</td>
<td>87.2</td>
<td>4.9</td>
<td>86.2</td>
</tr>
<tr>
<td></td>
<td>6000 Hz</td>
<td>83.9</td>
<td>104.9</td>
<td>21</td>
<td>94.1</td>
</tr>
</tbody>
</table>

The audiometer using attenuating cups had greater variation than the other audiometers in the study. It also had a significantly higher output level than the other audiometers at a number of frequencies. The authors suggest that a reason for this might be that the use of attenuating cups creates a calibration error. The attenuating cups themselves are likely to introduce a degree of resonance, which will change the frequency response of headphones to the ear.

Further identified causes of variation were the different headband designs and tensions. The audiometer that performed the most consistently was the audiometer with the tightest headphones. These effects are likely to be greater in real world environments due to variability in the sizes and shapes of human heads. In addition, the artificial head used in this study remained still, whereas human heads will probably move during testing, which could cause greater variations.

The authors also commented on the difficulty of positioning the attenuating cups over the ears, due to reduced visibility of the transducer part of the headphone. This variation is also likely to occur in real subjects, which demonstrates a difference between the ‘calibrated’ set up and the ‘clinical’ set up. It is suggested that the position of the headphones is particularly significant at 6 kHz.

The authors concluded that:

(i) To improve the accuracy of audiometry, headband tension needs to be sufficiently high to ensure good coupling between the ear and headphone and different headphones or tensions may be appropriate to different sizes of head;

(ii) Attenuating cups significantly increase variability and should be avoided;

(iii) The high proportion of people with threshold shifts at 6 kHz could be linked to the variation in performance of the headphones when placed slightly differently or with insufficient tension on the ears;

(iv) You can expect variations of up to 21 dB in hearing thresholds at some frequencies if tested in different clinics. You can also expect a high degree of variation for different tests within the same clinic using the same audiometer. ‘Real world’ differences are likely to be greater than shown in the study;

31 See not only study but Letter to Editor in, Barlow CA et al. Concerns with amplitude variation in calibrated audiometer systems in clinical simulations Noise Health 2015;17:384-5.
(iv) The degree of variability found within the study is sufficient to cause misdiagnosis of NIHL on a single audiogram;

(v) Despite being regularly referred to as the ‘gold standard’, pure tone audiometry, as it currently stands, has a very high degree of potential error, particularly in a real world environment.

The same authors then followed this study by looking at the variation of measurements in both laboratory conditions and real world/clinical conditions. The methodology for testing laboratory conditions was as described above using the HATS. To test in a clinical/real world environment 13 people were recruited from the University community - some with normal hearing and some with hearing problems. Testing was carried out by a qualified audiometrist in accordance with the BSA recommended procedures for PTA using 3 different audiometers and TDH39 headphones. As expected the variation in clinical conditions (for the 13 test subjects) was even greater than for a laboratory conditions (using the HATS).

At the key frequencies of 3, 4 and 6 kHz the mean differences were between 5-12 dB but the maximum differences were 15 dB, 20 dB and 30 dB respectively. The results are reproduced in the table and figure below.

Table and figure: Maximum and mean variations in sound outputs

<table>
<thead>
<tr>
<th>Frequency Hz</th>
<th>Test-retest variation dB</th>
<th>Max</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td></td>
<td>15</td>
<td>6.0</td>
</tr>
<tr>
<td>1000</td>
<td></td>
<td>20</td>
<td>5.0</td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td>15</td>
<td>6.0</td>
</tr>
<tr>
<td>3000</td>
<td></td>
<td>15</td>
<td>4.8</td>
</tr>
<tr>
<td>4000</td>
<td></td>
<td>20</td>
<td>8.1</td>
</tr>
<tr>
<td>6000</td>
<td></td>
<td>30</td>
<td>11.3</td>
</tr>
<tr>
<td>8000</td>
<td></td>
<td>35</td>
<td>10.4</td>
</tr>
</tbody>
</table>

The authors stated:

‘All frequencies had a maximum error of at least 15 dB in the clinical tests, which brings into question the accuracy of clinical pure tone testing as the primary mode of hearing screening, as this degree of error is sufficient to cause misdiagnosis’.

CONCLUSIONS

When using the CLB Guidelines as a diagnostic framework for NIHL, small differences in hearing thresholds matter. A 5-10 dB difference at a single threshold can change a +diagnosis to a –diagnosis.

The Institute of Sound & Vibration Research in a 2015 Technical Report, summarised the position on diagnosis of NIHL based on a single audiogram as follows:

“A single determination of hearing threshold level at any frequency must be recognised as only a guess of unknown accuracy.”

“For an individual test subject, a single audiogram is an unconfirmed determination of that individual’s state-of-hearing in both ears. Put more starkly, a single audiogram is a guess.”

The recent studies by Southampton Solent University suggest that the typical variability of pure tone audiometry is greater than previously thought. Differences far greater than the 10 dB ‘accepted margin of error’ may in fact be typical. These differences arise even where the audiometry is performed in accordance with BSA Recommended

procedures for pure tone audiometry. Where audiometry is sub-standard then expect the differences to be even greater and showing worse than true hearing thresholds.

Let’s consider the findings of these recent studies in the context of the current NIHL market:

1. Claims volumes have been falling over the last 12 months - see 144 of BC Disease News (here) and the UK Deafness Working Party Report. Anecdotally all insurers appear to be reporting significant falls in claims volumes;

2. The hearing of many claimants is difficult to distinguish from those typical of an aged population which has not been exposed to noise - see our analysis of some 10,000 claims in edition 124 of BC Disease News (here), where around 50% of claimants arguably had no more than normal hearing for a non-exposed/aged population;

3. Nearly 60% of claims involved notches/bulges of between 10-19dB. Or, expressed another way, 60% of claims are diagnosed based on notches/bulges that are within the range of normal audiometric error which could disappear on repeat testing;

4. In many cases, if there is any NIHL is it sufficient to give rise to damages? Applying the new LCB Guidelines on disability, then up to 1/3 claims arguably have such NIHL that is so small as to be considered de minimis. (Full details on the LCB Guidelines and their impact can be found in the BC Legal Guide here);

5. Analysis of claimant audiograms shows that + diagnosis of NIHL applying the CLB Guidelines has increased from c.50% in 2011 to c. 90% today. Simple CLB diagnostic tools offer little safeguard to defendants in today’s market-analysis must be far more sophisticated. A defendant’s ability to obtain repeat audiometry and its own medical evidence is a key mechanism to control the market and ensure the current high repudiation rates are maintained.

In our view, single audiometry handling schemes would:

(i) result in over-diagnosis of NIHL;
(ii) lead to reduced repudiation rates and more claims paid;
(iii) provide much needed cash flow to claimant organisations, and:
(iv) re-ignite a currently declining market.

Ask yourself what are the benefits of adopting a single audiometry handling scheme in the current market?

In a future feature we look at the results of repeat audiometry obtained by BC Legal. In what % of claims is the audiometry consistent and reliable such that diagnosis can be validated? In what % of claims does repeat audiometry show thresholds significantly different from the claimant audiometry? In how many of such claims does the repeat audiometry provide a defence on causation?

34 UK Deafness Working Party, 'Summary Data – 2015(Q4)' (Institute and Faculty of Actuaries).
Handling Multiple Audiograms In NIHL Claims (Edition 161 of BC Disease News)

INTRODUCTION

In last week’s feature we looked at the potential dangers of reliance upon single audiograms for the diagnosis of NIHL. We concluded that single audiometry is likely to result in over-diagnosis of NIHL, lead to reduced repudiation rates and more claims paid which would provide cash flow to claimant organisations and in turn re-ignite a currently declining market.

This week, we consider the approaches adopted in NIHL claims where multiple audiograms have been available.

IS THE AUDIOGRAM ACCURATE?

Where there is more than one audiogram in a NIHL claim the first question to ask is whether the audiograms are reliable. It may be that one (or both or more) of the audiograms is not a genuine measure of the claimant’s hearing thresholds.

We considered the numerous factors which may cause an audiogram to be inaccurate in last week’s feature and which may lead to errors and variability in hearing thresholds. Medical convention accepts variability of 10dB in hearing thresholds between 2 hearing tests carried out closely in time as audiometry is not a precise science even when properly conducted.

Where there are multiple audiograms, where one (or both) is not properly conducted then the margin of error and variability in measured thresholds between tests can be far greater than the ‘acceptable margin of error’ of up to 10dB. [In last week’s feature we examined the recent ‘Solent University Studies’ which suggest that variability between even properly conducted tests may in fact be greater than 10dB].

Whilst some sources of audiometric error can result in better than actual hearing, the vast majority of errors however increase the measured hearing thresholds i.e. show hearing worse than it actually is. As stated by Lawton (1991):³⁶

‘…systemic errors [in pure tone audiometry] usually work to elevate the threshold, to make the hearing appear less acute than it really is’.

So where you have 2 audiograms carried out closely in time it follows that it is the audiogram which shows the best hearing thresholds which should be accepted as being more accurate and the best measure of a claimant’s hearing thresholds. Identifying inaccurate audiograms can be more troublesome where those audiograms are conducted many years apart. This was the case in Ross v Lyjon Company Limited (23rd September 2016, Liverpool County Court), which was featured in edition 157 of BC Disease News here.

We illustrate this in our scenarios below involving a hypothetical claimant exposed to excessive noise in breach of duty with exposure ceasing in 1990. In both scenarios the claimant undergoes audiometry on cessation of exposure in 1990 and again in 2015 when presenting a NIHL claim.

In scenario 1 the 1990 audiogram shows no NIHL but the 2015 audiogram shows audiometric evidence of NIHL.

In scenario 2 the 1990 audiogram shows NIHL but the 2015 audiogram shows no NIHL. Let us now consider these scenarios.

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SCENARIO 1

1990
Noise Exposure
Ceases

Audiogram 1: NO NIHL

2015

Audiogram 2: NIHL? Or AAHL + other losses?

Despite there being no more noise exposure between 1990 and 2015, the 2015 audiogram shows audiometric evidence of NIHL but the 1990 audiogram shows normal hearing on cessation of exposure. Medical convention is that NIHL is non-progressive. It doesn’t get worse once exposure ceases. The claimant might argue, as they did in Ross, that the earlier audiogram must be inaccurate and, in fact, the claimant had NIHL in 1990 (or argue for latency of onset of NIHL). However, it is often difficult to show that historic audiometry was not properly conducted in the absence of any proper evidence. This is even more so where an audiogram shows normal hearing. If the audiometry was not properly conducted one would expect audiometric errors to show worse than actual hearing.

If a poorly conducted audiogram does not show NIHL then a claimant certainly doesn’t have NIHL. Instead, one should consider whether the 2015 audiogram, which purportedly shows NIHL, is inaccurate and therefore showing hearing worse than it actually is. Alternatively, it could be that the audiogram is accurate but there are other causal factors-and not NIHL - resulting in losses worse than expected for age.

SCENARIO 2

Audiogram 1: NIHL?

Worse

Audiogram 2: No NIHL

Better

We now reverse the position in scenario 2 with the 1990 audiogram apparently showing NIHL and the 2015 showing normal hearing. NIHL is a permanent condition. If it was present in 1990 it must be present today. If the 2015 audiogram does not show NIHL then it is either unreliable, or if it is reliable, then the 1990 audiogram must be unreliable (or there was a temporary cause of conductive hearing loss) and the claimant did not (and does not) have NIHL then.

AVERAGING AUDIOGRAMS?

The above scenarios relate to audiograms spaced widely over time and one of the audiograms being patently inaccurate or losses which cannot be attributable to NIHL.

How do we deal with audiograms which are performed closer in time-say within 1 to 2 years of each other and which, in theory, should show hearing thresholds within margins of acceptable audiometric variability and 10dB of each other at corresponding frequencies?

Can the results of these audiograms be averaged to provide a composite audiogram with the thresholds being the average of the two?

‘If an average of two, several or many hearing threshold measurements at the relevant frequencies in a particular ear can validly be used, the “at least 10dB or greater” guideline may be reduced slightly, by up to about 3dB. In borderline cases, an average of all the audiograms available and acceptable for averaging should be used in assessing the evidence for or against the presence of a high-frequency hearing impairment, notch or bulge.’ [Emphasis added].

Therefore the guidelines state that if you are able to average the results of more than one audiogram then the diagnostic threshold in R3a i.e. that there be a notch or bulge in the audiogram of 10dB, may be reduced to 7dB. Naturally then, this issue is intrinsic to diagnosis.

As can be seen from the extract of Note 3 above, averaging of audiograms is only recommended in certain circumstances and unfortunately, the guidelines do not explain when audiograms ‘can validly be used’ or are ‘acceptable for averaging’.

There has been and remains much debate regarding when averaging of audiograms may be utilised. We will now go on to consider these issues and then consider the impact this has on the diagnosis of NIHL.

Professor Lutman (one of the principle authors of the CLB Guidelines), in open correspondence to questions arising from the ambiguity of averaging, initially indicated that audiograms should only be averaged if they agree closely with one another. He further stated that it would be unlikely that audiograms obtained on different occasions, especially if they were obtained under different test conditions and with different equipment, would agree closely enough to make averaging meaningful and this is what is meant by the phrase ‘acceptable for averaging’ in Note 3. Therefore, his approach was that Note 3 should not normally be applied to the average of audiograms obtained on different occasions or by different examiners. In other words averaging was restricted to audiograms obtained at the same sitting and presumably designed to identify any intra-test variability.

However, his approach since appears to extend to allow averaging of audiograms which are carried out at different times, as long as the audiograms are similar and are not ‘intrinsically different’. By this we assume that hearing thresholds between the audiograms should be within 10dB of each other.

Professor Cole, again as a principle author of the original guidelines, has stated in open correspondence, that it is acceptable to average audiograms over a period of ten years provided there has been ‘no major audiometric changes over the period concerned’. Again, there is no definition of ‘major audiometric change’. We assume this means that the hearing thresholds have not deteriorated beyond what would be accepted for normal AAHL over the period.

Other experts such as Mr Jones and Mr Parker appear to be more circumspect about the principle of averaging on the basis that errors between tests tend to be largely systemic rather than random and the use of averaging lowers the burden of proof required for a diagnosis of NIHL. Alternatively, if averaging is to be considered then it should be restricted to tests with the same sitting and where these closely agree.

Errors in an audiometric measurement can be either systematic or random. A systematic error is an error that is constant or proportional across all measurements, for example, if an instrument is not calibrated correctly, all measurements may be 5 units larger than the ‘true’ values. ‘True’ readings may be calculated if the size and nature of the systematic error is known. A random error will be different across all measurements, sometimes resulting in lower or higher readings (and they will be higher or lower by different amounts) than the ‘true’ reading, and the ‘true’ reading may be determined by taking averages of multiple measurements. The greater part of the random error is usually attributable to judgement variability on the part of the person being tested.

38 Lawton as above
The impact that this has on averaging is illustrated by the review carried out by Lawton, which found that both systematic and random errors are present in the determination of auditory thresholds. Though random errors can result in thresholds appearing either higher or lower than they actually are, the authors report, systematic errors usually elevate the threshold, making the hearing appear poorer than it really is. So effectively in averaging you are at risk of simply combining the results from an accurate test with the elevated results from an inaccurate test-with the average also being greater than a true average. To compound matters that inaccurate average is then compared against a reduced diagnostic R3a threshold of 7dB to establish a diagnosis. There is little guidance within the case law on averaging.

In Aldred v Cortaulds Northern Textiles Limited, the court was asked for the first time to consider the concept of averaging hearing threshold levels from different audiograms where minimal notching / bulging was present on some and not on others.

Mr Zeitoun for the claimant and Mr Parker for the defendant, disagreed on the meaning of ‘an average of all the audiograms available and acceptable for averaging’ as per Note 3. Mr Parker did not accept that this could apply to historic audiograms or those which were separated by distance in time. He claimed that he had discussed the approach with some of the authors of the guidelines and felt that re-testing was intended to be a reference to further cycles through the frequencies at the same sitting or test, rather than subsequent audiograms.

Mr Zeitoun also claimed to have discussed the approach of averaging audiograms with one of the authors and was of the firm stance that the use of audiograms from different days was perfectly acceptable.

HHJ Wood QC found that he preferred the approach of Mr Zeitoun as he felt it was ‘both logical and sensible that the guidelines should be interpreted to allow, within reason, the use of audiograms take at different times, and not within the same test setting’. He went on to say at para 26:

‘Apart from the obvious point made that the guidelines would have specified the exclusion of tests taken at more than one sitting (and elsewhere the advice is specific and proscribed), as one reads note 3, there are key indicators as to why this should be the case. First of all there is a reference to “many hearing threshold measurements”. It is difficult to see how this could contemplate such measurements being taken at one sitting. Second the qualification for providing a retest comes after a conclusion that a case is borderline and provides a specific process for repositioning the headphones. If the guideline authors have intended that this should be the reference to one or more of multiple tests then in my judgment it would have been stipulated’.

It should be noted that the audiograms in Aldred 2 audiograms spaced only 3 months apart and which were significantly similar were relied upon to find a diagnosis of NIHL. What is the approach to be taken when this is not the case?

In the de minimis decision of Harbison v The Rover Company Limited, discussed earlier in this edition of BC Disease News, it is probable that the averaging of 2 significantly different audiograms allowed a diagnosis of NIHL to be established where it did not in fact exist.

The claimant had undergone two audiograms, the first in May 2014 and the second in September 2015. The first audiogram showed a Coles compliant notch at 4kHz, however, the second audiogram did not with the hearing threshold level at 4kHz improving from 40dB to 20dB. However, to diagnose NIHL Mr Sharma averaged the results for the right ear of both audiograms. After doing this, NIHL was found per Coles with a resulting 12dB audiometric bulge at 6kHz satisfying a reduced R3a requirement of 7dB.

The defendant submitted that averaging of the audiograms was inappropriate as the hearing thresholds between the two differed by 20dB which was significantly more than the margin of acceptable audiometric variability of 10dB. The later 2015 audiogram demonstrated a significant improvement in thresholds which was not consistent with NIHL.

40 (February 6 2013, Liverpool County Court).
However in the absence of any medical evidence from the defendant, HHJ Carmel Wall stated:

‘In considering the strength of this argument I have regard to the fact that Mr Sharma was not challenged as to the appropriateness of averaging the two audiogram results; and that he had justified this method by reference to the CLB guidelines. His approach was thus a recognised mainstream approach to multiple audiograms designed to improve reliability of outcome. In those circumstances I conclude that I should be slow to reject his approach where there is no expert evidence to suggest that he was wrong to take that approach in this case’.

The judge found that when averaging the results at 6 kHz this satisfied the CLB requirement and so the claimant has proved the diagnosis of NIHL.

Although averaging multiple audiograms was accepted in this instance, it should be noted that the defendant did not have its own expert evidence to counter the use of averaging where it appeared to be clearly inappropriate to do so.

CONCLUSION

As mentioned above, audiometric error may be random or systematic. Random error is helped by averaging, systematic error is not, and most audiological error is systematic and tends to exaggerate hearing loss.

Averaging would certainly seem more appropriate for audiograms obtained at the same test to reduce intra-test errors - such repeat testing is advocated within the BSA Recommended Procedures for Pure Tone Audiometry41.

There seems to be some disagreement amongst experts as to whether it is appropriate to average results from different tests performed at different times - albeit still relatively close in time. However, there does seem to be some consensus that it would only be appropriate to do so where those audiograms closely agree.

Surely averaging cannot be appropriate where thresholds between audiograms performed closely in time – say within 1 or 2 years of each other-differ significantly and show differences greater than 10dB at corresponding frequencies. This method was adopted in *Harbison* and probably resulted in mis-diagnosis of NIHL.

In such cases it is arguably more appropriate to disregard the worse audiogram, as being less accurate, and rely on the better audiogram alone for diagnosis.

Finally it would appear to be even more fraught with difficulties to apply averaging of audiograms performed wide apart in time given how and why hearing thresholds might have deteriorated over time between the two.

**Asymmetrical Hearing Loss And Noise Exposure (Edition 165 of BC Disease News)**

**INTRODUCTION**

We first looked at asymmetry in noise-induced hearing loss (NIHL) claims in edition 24 of BC Disease News. This week, we revisit the issue in the context of recent medical studies which consider whether asymmetry is a consequence of noise exposure and if so when.

Next week we look at how the courts have dealt with asymmetry with a review of the relevant NIHL case law.

**WHAT IS ASYMMETRY?**

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41 British Society of Audiology, ‘Recommended Procedure: Pure-Tone Air-Conduction And Bone-Conduction Threshold Audiometry With And Without Masking’ (British Society of Audiology, 9th September 2011, Amended February 2012).
Differences in thresholds at corresponding frequencies between the ears is inevitable as a consequence of the variability of pure tone audiometry. Small differences in thresholds are bound to occur simply as a result of the imprecise nature and errors of audiometry, as was outlined in the recent feature on audiometric variability in edition 160 of BC Disease News here.

However where the hearing thresholds between the ears of an individual differ significantly at corresponding frequencies than is referred to as asymmetrical hearing loss with the audiograms displaying asymmetry. What is a significant difference? As defined by Alberti\(^42\) if the threshold differences are greater than 10dB between the ears - the generally accepted level of normal audiometric variability - then this can be defined as asymmetry.

NIHL on the other hand has been described as being typically bilateral and is usually considered to cause similar amounts of damage to both ears\(^5\), since most occupational noise is symmetrical.\(^43\)

How common is asymmetry in the non-exposed population and what are its causes? How does the presence of asymmetry sit with a diagnosis of NIHL? Can noise exposure give rise to asymmetry and if so in what circumstances?

GENERAL INCIDENCE OF ASYMMETRY

A 2009 study by Lutman and Coles,\(^44\) sought to determine the incidence of asymmetry in non-noise exposed individuals. Audiograms from 2679 participants were analysed. Lutman and Coles estimated that around 1% of the UK population aged 18-80 years have an asymmetry of 15 dB or more, based on the average of 0.5, 1, 2 and 4 kHz and the prevalence of asymmetry was greater in older people than in younger people.

CAUSES OF ASYMMETRICAL HEARING LOSS

Frequent ear infections, Ménière disease and ear surgery may result in asymmetry.\(^45\)

The causes of asymmetry were identified in the CLB Guidelines 2000 at Section 12 and Note 11 of the Guidelines as follows:

- Exposure to firearms noise – with the ear closest to the muzzle of the gun having worse hearing (so called firearms or head shadowing effect)
- Acoustic trauma or blast, such as the use of explosives in mining or construction or tyres exploding
- Unilateral or greater conductive hearing loss in one ear having a ‘protective effect’ against exposure to excessive noise. For example the presence of wax may reduce the transmission of noise across the ear and so reduce its damaging effects.
- Unilaterally poorly fitted hearing protection
- Genuine asymmetrical noise exposure

The Guidelines also recognise that in some cases the cause of asymmetry will be unknown.

In their 2009 study by Lutman and Coles on asymmetry, for participants with the largest asymmetry, detailed examination of the original data, and consideration of factors such as family history of deafness, head injury, ear injury, administration of ototoxic medication, general health factors including hypertension and history of infectious diseases, failed to reveal a potential cause of the asymmetry. This led Lutman and Coles to conclude that many hearing asymmetries in the general population can be expected to be of unknown causation.

42 Noise and the ear, Scott-Brown’s Otolaryngology, Butterworths, Chapter 18, page 627. P.W. Alberti.
It seems then that unknown causation of asymmetry in a population is common and so it’s presence alongside NIHL does not mean that it has been caused by asymmetrical noise exposure - unless there is good evidence to show otherwise.

**ASYMMETRY AND FIREARMS NOISE**

Many studies support the conclusion that exposure to firearms noise often results in asymmetry with the left ear worse affected than the right. This is said to arise from the ‘head shadowing’ effect and the right ear being ‘protected’ within the shoulder of the person using the firearm.

Cox and Ford assessed the asymmetry of 225 soldiers exposed to a variety of weapon noise who had deterioration of hearing. At 0.5 and 1 kHz the asymmetry was 10 dB or less in 90 % of cases, and the hearing thresholds rarely exceeded 25 dB. However, the degree of hearing loss and asymmetry increased as the frequency increased, and the average loss at 2, 3, 4 and 6 kHz was significantly greater in the left ear.

Chung and colleagues also analysed audiograms of 29,953 workers with histories of shooting in addition to occupational noise exposure and they found that shooting was associated with AHL. In this study asymmetry was significant only at 2 kHz and above and most prominent at 4 kHz. The difference between the ears increased with longer shooting history.

Additionally, Prosser found that among 133 railway workers who also hunted for sport outside of work and 82 workers who did not, hunters had significantly worse hearing than non-hunters in the ear closest to the barrel of the gun.  

**ASYMMETRY AND OCCUPATIONAL (NON-FIREARMS) EXPOSURE**

Alberti et al., 1979, looked at 1,873 consecutive patients referred for compensation assessment for presumed industrial hearing loss, and found that 281 (15 %) had an average difference in hearing threshold between the ears of 15 dB at 0.5, 1, 2 and 4 kHz.

Chung et al, 1983, considered 1,461 audiometric records of claims for NIHL, it was found that 69 (4.7 %) had a well-defined pattern of hearing loss, in which only 2 kHz is asymmetrical by 20 dB or more.

Barss et al., 1993, analysed the audiological tests of 246 workers who underwent otologic and audiologic testing as part of a worker’s compensation claim for work-related NIHL and asymmetric hearing loss was found in 28 patients (20%) with asymmetry being defined as an average difference of at least 15 dB at 0.5, 1, 2 and 3 kHz.

More recent studies also suggest that asymmetry can be a consequence of general occupational noise exposure and can arise without the ‘head shadowing’ effect suggested in firearms exposure studies. The competing theory put forward in the recent studies is that the left ear is simply physiologically more susceptible to noise damage than the right ear.

Broste found that hearing loss at higher frequencies was also observed more often in the left ear of farming high school students. He suggested this was due to drivers habitually observing their work by looking over their right shoulder.

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50 Ibid at 20.
shoulder and therefore shielding their right ear from the noise of the engine. This ‘head shadowing’ theory and has been doubted by Berg and colleagues in their 2014 paper in which they highlighted that there is little published evidence to support the theory.\(^{53}\) Instead they conclude that the physiological explanation of a left ear being more susceptible to NIHL is a more credible alternative.

A study by Fenandes and Fernandes in 2010 claims the incidence of asymmetric hearing loss in the unexposed population is significantly lower than that incidence among the noise-exposed population it must therefore be the case that noise exposure causes asymmetrical hearing loss. (We consider the Fernandes and Fernandes study in more detail next week).

**SO DOES OCCUPATIONAL NOISE EXPOSURE CAUSE ASYMMETRY?**

This was revisited recently by Dobie, in a study published in 2014, which aimed to determine whether occupational noise exposure increases audiometric asymmetry.\(^ {54}\) The paper notes that asymmetry is common in both clinic samples and the general population, particularly at higher frequencies and when both ears tend to have higher thresholds.

Data for this study were taken from the Occupational Noise and Hearing Survey (ONHS), carried out by the National Institute for Occupational Safety and Health (NIOSH, United States). Audiometry was obtained for 2044 men, mostly from printing and steel fabrication plants, who were divided into four groups:

1. Screened non-noise-exposed (NNE): with a current daily time-weighted average (TWA) exposure of less than 80 dBA, screened to ensure no significant previous noise exposure or history of ear disease, and normal otoscopy;
2. Screened noise-exposed (NE): with a current time-weighted average of 80 to 102 dBA, screened as above;
3. Excluded NNE: current time-weighted average of less than 80 dBA, but placed in this group because they failed one or more of the screening criteria listed above;
4. Excluded NE: current time-weighted average of 80 to 102 dBA but failed one or more screening criteria listed above.

It was found that there was more asymmetry when average thresholds were higher. Also, age was a strong predictor of average thresholds, but had little if any effect on asymmetry.

Both the noise exposed men and those who failed the screening criteria had significantly worse binaural average hearing than those who were not noise exposed, with left ears being worse than right ears in all four groups by around 1 to 2 dB across the frequencies 0.5, 1, 2 and 3 kHz and 2 to 4 dB worse across 3, 4 and 6 kHz.

The most important finding from this paper is that there were no significant differences in asymmetry related to occupational noise exposure. There were no significant differences between NE and NNE groups after controlling for overall average amount of hearing loss. Though asymmetry increases with greater overall hearing loss, when this was taken into account, men with occupational noise exposure did not have more asymmetry compared with that in men in the same workplaces who were not exposed to noise.

The author offers several examples to demonstrate how occupational noise could feasibly affect audiometric asymmetry, in spite of the findings of this study. A worker who originally had asymmetry might suffer more NIHL in the better ear than the worse ear, and thus his audiogram would become more symmetrical. Another worker with very asymmetric noise exposure may develop an asymmetrical NIHL. However, the findings from this study suggest that, for most workers in general industry, occupational noise does not cause or contribute to asymmetrical hearing loss.

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54 Ibid at 18.
A 2016 review by John Phillips and colleagues aimed to collate the overall prevalence of unexplained asymmetrical hearing loss in subjects with NIHL and to provide a balanced argument regarding causality. The analysis suggested that 2.4 to 22.6% of subjects with NIHL had asymmetrical hearing loss, with the left side having the greater deficit in the majority of reported cases (around 60-80%). The two theories of asymmetry development, a physiological increased susceptibility to NIHL in the left ear and preferential protection of the right ear, were discussed. It is of interest that the majority of subjects exhibiting greater loss in the left ear occurred even when taking handedness into account i.e. which was the dominant hand. The reviewers suggest that this casts doubt on the “head shadowing effect”. (However, “head shadowing could occur independently of handedness, such as turning the head over the right shoulder in a tractor because the controls for trailing equipment are on the right of the driver as shown in Broste).

Studies included in the review showed that asymmetrical hearing loss increased with advancing age. According to the reviewers, this finding may be related to the influence of AAHL, which will act to exacerbate asymmetry. It was not possible to undertake a meta-analysis of the data from the included studies, because different definitions of asymmetry were used. Unsurprisingly, the study with the most generous definition of asymmetry-the 2010 Fernandes & Fernandes gave the highest prevalence. For most studies, no data existed for number of years of employment, use of hearing protection and other risk factors such as leisure time noise exposure, smoking, hypertension, ethnicity and diabetes. Therefore, poorer hearing in noise-exposed groups may be attributed, at least in part, to these factors. If any of these factors can also contribute to asymmetrical hearing loss, another source of bias is introduced. The authors concluded that the studies reviewed provide limited evidence for the existence of asymmetrical hearing loss in subjects with occupational noise exposure. This is particularly apparent when adjusted for significant variables such as age, sex and high frequency binaural hearing loss.

CONCLUSION

Asymmetry may have a number of causes or simply be unexplained. Unexplained asymmetry seems to be fairly common within the non-noise exposed population and so there is no reason to assume that it should be uncommon within cases of NIHL—particularly where the population is older and the incidence of asymmetry is likely to increase.

Recent studies and reviews do not support the proposition that general occupational noise exposure—as opposed to unilateral firearms exposure—is a likely cause of asymmetry.

Next week, in part 2 of this feature, we consider how the courts have considered the issue of asymmetry and compatibility with a diagnosis of NIHL.

Asymmetrical Hearing Loss and Noise Exposure: The Judicial Approach (Edition 166 of BC Disease News)

INTRODUCTION

Last week we considered asymmetrical hearing loss (AHL) in the context of recent medical studies which consider whether asymmetry is a consequence of noise exposure and if so when.

This week we turn to look at how the courts have dealt with asymmetry with a review of the relevant case law.

THE COLES GUIDELINES

Unexplained cases of asymmetry are considered in the guidelines at Note 11 which states: ‘In yet other cases, there is no apparent explanation for the presence of a significant NIHL-like notch or bulge on one side only. These cases are compatible with the presence of NIHL but with varying degrees of probability’.

Some examples of each of the 4 types of asymmetry are presented below:

**Asymmetry Type 1**

‘...if one ear meets R3(a) or R3(b), and the other ear also shows a notch or bulge but it is smaller than the 10 dB or 20 dB required, then the probability of NIHL is still high’.

We show such a case in the figures below. The first figure shows the thresholds in both ears and compares these with a range of ‘normal hearing’ for the non-noise exposed population (for the claimant’s age / gender) as shown by the grey shaded area. The left ear is clearly the ‘better ear’. The red shading in figures 2 and 3 show worse than expected hearing applying the calculation within the Guidelines. The left ear in figure 2 demonstrates a clear audiometric bulge greater than 10 dB [for the purpose of this example assume R2(a) is satisfied under the Guidelines with a NIL of at least 100 dB(A)]. The worse right ear in figure 3 shows a bulge of 7dB-so not qualifying as a bulge within the Guidelines (see paragraphs 7.5, 7.6 and 8.2).

The Guidelines are ambiguous in that:

- They do not state that the ear meeting R3(a) or R3(b) must be the ‘better ear’
- They do not define the extent of the notch / bulge in the non-qualifying ear which would allow a claim to fall within this category.

**Asymmetry Type 2**

‘If one ear is markedly better at high frequencies and shows a significant notch or bulge, but the worse ear shows little or no trace of such, then there is still a more-likely than-not probability of NIHL’.
The Guidelines explain that ‘the greater impairment in the worse ear may be due to some unidentified cause additional to NIHL and ordinary AAHL, that additional disorder having hidden or obliterated the noise-induced notch or bulge’.

We show such a case in the figures below—the green shading in figure 3 denotes better than expected hearing after applying the calculation within the Guidelines.

Asymmetry type 3

“In other cases there is not much difference between the two ears at high frequencies but, without apparent explanation, only one ear shows a significant notch or bulge and the other shows little or no trace of one: such cases should be regarded as very borderline and be decided on the strength of other evidence (e.g. severity of noise exposure or of temporary postexposure symptoms).

Such a case is shown in the figures below—although again there is ambiguity within the Guidelines as to what is meant by a ‘little’ notch or bulge.
Asymmetry type 4

'Finally, if only the worse ear at high frequencies shows a significant notch or bulge, and there is little or no trace of NIHL in the better ear, then there is only a possibility of NIHL, not a probability.

Again there is ambiguity as to what is meant by 'little'.

An example of such a case is shown in the figures below where there is a notch/bulge in the worse left ear but no evidence of the same in the better right ear.
HOW HAVE THE COURTS DEALT WITH ASYMMETRY?

Perhaps the case in which asymmetry is most discussed is that of Cran v Perkins Engines Company Limited (14th December 2012, Norwich County Court). The defendant in this claim accepted breach of duty and as such the critical issue between the parties was whether the claimant’s hearing loss was caused by occupational noise exposure.

The evidence was confined to expert medical evidence from the two expert witnesses, Mr Lancer for the claimant and Mr Parker for the defendant.

The claimant had undergone audiograms in 1984, 1986, 1988 and 1990 (the audiograms carried out in 2010 and 2011 were disregarded as both experts agreed that they did not show features typical of NIHL and so had no evidential value in relation to the claim). The table below displays the results of the audiograms:

<table>
<thead>
<tr>
<th>Year</th>
<th>Left Ear (worse ear)</th>
<th>Right Ear (better ear)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>40-50dB at 6kHz. Notching.</td>
<td>10-15 dB at 6kHz.</td>
</tr>
<tr>
<td>1986</td>
<td>Significant notch at 6kHz with recovery at 8kHz.</td>
<td>No notch at 6kHz or any other higher frequency.</td>
</tr>
<tr>
<td>1988</td>
<td>Notch at 4kHz but not at 6kHz.</td>
<td>No notching.</td>
</tr>
<tr>
<td>1990</td>
<td>Very deep notch up to 8kHz.</td>
<td>Some notching at 3-4kHz.</td>
</tr>
</tbody>
</table>

It can be seen from these results that the claimant’s hearing loss would fall into asymmetry type 4, as outlined above i.e. only the worse ear at high frequencies showed a significant notch or bulge, and there was little or no trace of NIHL in the better ear. According to the Coles guidelines, this presents only a ‘possibility’ of NIHL.
Both experts relied upon the approach to asymmetry in the Coles Guidelines, they also considered many of the studies that we outlined in last week’s feature in edition 165 of BCDN here.

Mr Lancer in particular, argued that the claimant’s hearing loss fell within Note 11, showing that NIHL was shown on the balance of probability, or alternatively, that the asymmetrical pattern of the hearing loss could justify a finding of NIHL. This conclusion, he said, was based on the study of Fernandes and Fernandes (2010), which suggested that asymmetry did occur when there was ‘all over noise’. We touched on this study briefly last week as part of a wider examination of research purporting to link asymmetrical hearing loss with occupational noise exposure.

Fernandes (2010) investigated 208 clients referred by legal practitioners for assessment of hearing loss for compensation purposes. A total of 47 clients (22.6%) had asymmetrical hearing loss. AHL was defined as loss of 10 dB or greater for two consecutive frequencies, or of 15 dB for any one frequency between 0.25 and 6 kHz. Diagnosis of NIHL was based on the requisite history of ‘substantial noise exposure at work’, audiogram results showing a hearing shift at high frequencies with a typical notch at 4–6 kHz and elimination of competing diagnoses. This study concluded that most compensation claims with asymmetry could be attributed to noise exposure. Within the paper, the researchers also referred to the Lutman and Coles study, in which it was found that 1% of non-noise-exposed individuals had a defined asymmetric hearing loss. The argument presented by Fernandes is that incidence of asymmetric hearing loss in an unexposed population is therefore significantly low and incidence among noise-exposed groups is much higher, and thus the noise exposure causes the asymmetrical hearing loss.

In Mr Lancer’s opinion, this and other studies such as Alberti (1979), Chung et al (1983), Barrs (1994) and Segal (2007), supported his view that despite the asymmetry shown on the claimant’s audiograms, he had suffered NIHL (these studies were discussed in last week’s feature here. With the exception of Segal which is outlined in further detail below). This is because, he said, in a workplace there might appear to be all over noise but in fact there might be reverberations of machines which can lead to one ear receiving more noise than the other ear and the ears not recovering equally from exposure to noise.

Mr Parker, expert for the defendant, however, referred to the earliest audiogram test in 1984 which showed ‘distinct notch formation’ at 6kHz in the left ear (the worse ear) but not repeated on the right. He contended that the presence of asymmetry meant, in his opinion that this was not NIHL. Further to this, he said that as time went on the audiograms showed increased hearing loss in the left ear with an asymmetric notch at 4–6kHz not being present on the right side which meant that the hearing loss was ‘not representative of occupational noise exposure’.

Mr Parker said that his opinion was supported by the Coles guidance and Note 11 specifically which said that if only the worse ear at high frequencies showed a significant notch or bulge and there was little or no trace of NIHL in the better ear then NIHL was a ‘possibility’ not a ‘probability’.

When considering Mr Lancer’s reliance on the Fernandes paper Mr Parker submitted that the definition of asymmetry used within the Fernandes paper, loss of 10 dB or greater for two consecutive frequencies, or of 15 dB for any one frequency between 0.2 and 6 kHz, was not really asymmetry and that they had a very low hurdle for describing an audiogram as asymmetric which would explain the high levels of AHL in the noise-exposed population. Whereas Coles and Lutman’s definition of asymmetry, a difference of 15 dB in the average of thresholds at 0.5, 1, 2 and 4 kHz, is far more exclusive than the definition used by Fernandes and thus Lutman and Coles’ criterion would be expected to give a smaller prevalence. He therefore remained of the opinion that asymmetry had nothing to do with noise. He referred to the Fernandes study as a ‘bad report’ and suggested that 200 cases or so had been pulled off the shelf by the authors who had decided that the individuals had been noise deafened. Further to this, he said that the claimant’s situation was very different from truck drivers (the sample group in the Fernandes paper) who were a well-accepted group who suffered asymmetrical exposure while driving a truck where the engine emitting significant noise had been in the cab next to the driver.

Mr Parker then went on to consider the studies of Alberti (1979), Chung et al (1983), Barrs (1994) and Segal (2007). All of these studies, suggest that asymmetry can be a consequence of general occupational noise exposure. Segal

comprised a random selection of 429 patients with mild to moderate sensorineural hearing loss of at least 30dB at one frequency. The authors found that age, handedness and sex were not found to be correlated to asymmetric hearing loss. However, a correlation was found between noise exposure and asymmetrical hearing loss which favoured the right ear (lower hearing threshold loss). The left ear hearing threshold was consistently found to the higher than the right ear hearing threshold level with hearing asymmetry of more than 10db found in 35% of these patients. However, noise exposure was the only factor which was found to correlate with asymmetric hearing loss in these patients with mild to moderate sensorineural hearing loss.

Mr Parker claimed that, the authors of the papers had concluded that there had been NIHL based on inadequate consideration of the individual characteristics of those who had participated in the surveys including the incidence (or otherwise) of unilateral exposure. The better methodology, he claimed, would have been for a panel of experienced clinicians to have appraised each of the work histories and then to have made a diagnosis from the audiometry. As such, the weight of evidence and research did not show the susceptibility of one ear to noise and he remained of the view that there was no NIHL unless there was bilateral exposure and bilateral deterioration of the hearing in each ear.

His Honour Judge Staite, criticised the approach of Mr Lancer to the evidence of hearing loss put before him. He stated at para 50, that Mr Lancer had arrived ‘at a conclusion on liability in relation to NIHL which was at best superficial and at worst inaccurate…’.

Further to this he stated that:

‘In my judgment, Mr Lancer, having been advised that the claimant had been exposed to excessive noise levels during his working life and having concluded that the bilateral hearing loss in 2010 was too great to be accounted for by ageing alone, proceeded to make an assumption (which I find was unjustified on the presenting evidence) that “his (the claimant’s) noisy occupations have made a contribution to the hearing loss” and furthermore that it was his “absolute belief” that excessive noise had contributed to the hearing loss’.

It was noted that during oral evidence Mr Lancer conceded that due to the absence of diagnostic factors in the four audiograms and having regard to the asymmetrical presentation of the claimant’s hearing that that evidence of noise exposure and unexplained hearing loss created a ‘possibility’ of NIHL rather than a ‘probability’. As such, the judge rejected the claimant’s submission that the audiograms complied with Note 11(1) and (2) i.e. NIHL was ‘more than likely’ or ‘very borderline’.

Instead, HHJ Staite, much preferred the evidence of Mr Parker in this regard stating at para 54:

‘Having heard both experts I was entirely persuaded by Mr Parker’s careful medico-scientific analysis of the issues in the case and his firm assertion that notches in the left ear which were not reproduced in the right ear during the exposure made a diagnosis of NIHL only one of several possible explanations for the claimant’s hearing loss’.

Turning his attention to the research papers relied upon in this case, the judge pointed out the difficulty with the Fernandes paper, in that it used the Lutman and Coles 2009 paper as a comparison but the cohorts compared were incomparable due to the differing definitions of asymmetry. As such he concluded that the comparison was inappropriate. He was also not sufficiently impressed with the other research papers relied upon:

‘I do not find therefore that the Fernandes paper [nor indeed any of the other papers] provided a sufficiently cogent analysis of asymmetric hearing loss. Nor do I find that the conclusion of the Fernandes paper was sufficiently sound for me to be persuaded that the concluded view (in the absence of other significant clinical history or evidence of otological disease asymmetrical hearing loss is caused by noise exposure and should be included in compensation claims) should be adopted by this court as evidence for the proposition that symmetrical noise exposure might, on balance of probability, cause asymmetrical hearing loss’.

As such HHJ Staite concluded that:

‘I am entirely satisfied, having regard to the Coles guidelines (which I find should inform my evaluation of the likelihood or otherwise of NIHL in this case) that the claimant has not made out his case on causation of NIHL and that save for the isolated notches on the 1986 and 1988 audiograms (which may be unreliable and are based on
an adjusted reading at 6kHz), there is insufficient evidence before the court to justify a finding of ‘probable’ NIHL as opposed to ‘possible’ NIHL. Accordingly, Note 11 (1-3) of the Coles guidelines is not satisfied and I find that the claim sits squarely within Note 11 (4)’.

Another judgment which discussed asymmetry in some detail and was handed down in the same year as Cran was, Altered v Cortaulds Northern Textiles Limited (County Court Liverpool, 2 November 2012). The claimant in this case was a 61 year old female, employed with the defendant for between 11-14 years as a ring spinner machine operator. It was not accepted by the defendant that any noise exposure during her time at the firm had caused damage to her hearing but instead they contended that it was caused by an unknown origin. One of the main foundations of this argument was that the audiograms, of which there were several, showed significant AHL.

The audiograms were taken at several stages spanning from shortly after the claimant had ceased working with the defendant and right up to trial. These audiograms were then assessed by Mr Zeitoun, medical expert for the claimant, and Mr Parker, medical expert for the defendant.

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>Left ear was worse than the right with a degree of AHL.</td>
</tr>
<tr>
<td></td>
<td>Right ear had notches at 4kHz and depicted a perfect audiogram for NIHL. Zeitoun agreed this was unreliable.</td>
</tr>
<tr>
<td>2006</td>
<td>Left ear had modest bulges at 3kHz and 4kHz.</td>
</tr>
<tr>
<td></td>
<td>Right ear had modest bulges at 4kHz and 6kHz.</td>
</tr>
<tr>
<td>June 2007</td>
<td>Some conductive loss.</td>
</tr>
<tr>
<td>Nov 2007</td>
<td>Notch at 6kHz.</td>
</tr>
<tr>
<td>Nov 2010</td>
<td>Modest bulge at 3 and 4 kHz.</td>
</tr>
<tr>
<td></td>
<td>Notches at 4kHz depicted a perfect audiogram for NIHL.</td>
</tr>
<tr>
<td></td>
<td>Zeitoun agreed this was unreliable.</td>
</tr>
</tbody>
</table>

Following these audiograms, Mr O'Driscoll, a dedicated audiological scientist, carried out a series of audiometric testing and included the use of evoked response audiometry (CERA) and two pure tone audiometry (PTA) tests. Mr Parker then tested the outcome in accordance with the requirements set out in the guidelines and found:

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2011</td>
<td>Bulge at 4kHz.</td>
</tr>
<tr>
<td>Nov 2011</td>
<td>Slightly better hearing at 3kHz.</td>
</tr>
<tr>
<td></td>
<td>Modest bulge at 3 and 4 kHz.</td>
</tr>
<tr>
<td></td>
<td>Notch at 6kHz.</td>
</tr>
</tbody>
</table>

Both experts were questioned about their interpretation of the guidelines in relation to asymmetry.

Mr Parker submitted that where he was faced with type 1 asymmetry (above) where one ear meets R3(a) or R3(b) and the other ear also shows a notch or bulge but is smaller than the 10dBs or 20dBs required but the probability of NIHL is ‘still high’ – he could not diagnose NIHL because of the incongruence of such a modest bulge in the better ear. Although he was prepared to accept that type 2 could indicate NIHL, where the ear with a significant notch or bulge had a significant degree of high-frequency recovery even though there was no evidence of either in the worse ear.

Mr Zeitoun however was strictly adherent to the guidelines and his assessment (using averaging which we discussed previously in edition xx) of the two audiograms came within asymmetry type 1.

The judge, HHJ Wood, accepted that there was asymmetry and so Note 11 was relevant. However, he rejected Mr Parker’s challenge to the probability of type 1 asymmetry in the guidelines concluding that it was reasonable to average the two tests carried out by Mr O'Driscoll which applied a slightly more generous allowance of -3dBs for the determination of the bulge and so the claimant did fit within type 1 and accordingly he found that there was a ‘high probability of NIHL’.

As such, he preferred the evidence of Mr Zeitoun and held that the claimant had satisfied him on the balance of probabilities that she has a modest hearing loss more pronounced on the left-hand side than the right hand side.

This decision was followed shortly by Sutton v BT (County Court Cardiff, 14 June 2013) in which asymmetry was one of several contentious issues relating to the diagnosis of NIHL of the claimant.
The claimant in this case submitted in oral evidence that his right ear was the more exposed ear during his time working with the defendant. However, the criteria set out in the guidelines were not met in the right ear and were only met in the left ear at 3kHz with 'minimal notching. It was therefore submitted by the defendant’s expert, Mr Yeoh, that given the claimant’s pattern of use of the equipment, that this loss was unlikely to be the result of noise exposure. Additionally he said, the pattern was one which the guidelines, particularly Note 11, would regard as ‘very borderline’. HHJ Curran QC, preferred the approach of the defendant and found that not only was the claimant’s evidence unreliable but the bilateral condition for NIHL was not fulfilled, even allowing for an acceptable degree of asymmetry.

More recently in the decision of Briggs v RHM Frozen Food (Sheffield County Court, 30 July 2015) the topic was given some consideration. The audiograms showed a loss in the right ear of 10dB at 1kHz, 15dB at 2 kHz, 5dB at 3 kHz and 30dB at 4 kHz. In the left ear the figures were 15dB, 5dB, 5dB and 45dB.

<table>
<thead>
<tr>
<th>Frequency (kHz)</th>
<th>Left Ear (better ear)</th>
<th>Right Ear (worse ear)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1kHz</td>
<td>15dB at 1kHz</td>
<td>10dB at 1kHz</td>
</tr>
<tr>
<td>2kHz</td>
<td>5dB at 2kHz</td>
<td>15dB at 2kHz</td>
</tr>
<tr>
<td>3kHz</td>
<td>5dB at 3kHz</td>
<td>5dB at 3kHz</td>
</tr>
<tr>
<td>4kHz</td>
<td>45dB at 4kHz</td>
<td>30dB at 4kHz</td>
</tr>
</tbody>
</table>

Professor Homer, medical expert for the claimant, concluded that all the basic criteria for a diagnosis of NIHL were met by reference to the guidelines and that there was no significant asymmetry overall. He acknowledged that there is a commonly accepted margin of error of 10dB (plus or minus 5dB) but noted that the difference in this case at 4kHz was greater than that. He also pointed out that the generally accepted clinical definition of significant asymmetry is 15dB in two or more contiguous frequencies. Professor Homer was therefore adopting Fernandes’ definition of asymmetry (as outlined above).

Mr Jones, medical expert for the defendant, concluded that the hearing loss in the left ear could not be due to noise because it was too severe and because of the marked asymmetry. He disagreed with the suggestion that 15dB is not significant and found that asymmetry of 15dB is too significant to be attributable to symmetrical noise exposure and there would have to have been an idiopathic cause for the hearing loss.

HHJ Coe QC, agreed with Professor Homer and found that on a balance of probability that:

‘…whilst the asymmetry at 4 kHz is very much at the upper end of what is acceptable it is not beyond that and does not constitute “significant asymmetry”. Of itself, therefore, I do not consider that it is either inconsistent or so inconsistent with that expected in NIHL as to negate the diagnosis’.

CONCLUSION

The recent studies of Dobie (2014) and Phillips (2016) (as discussed last week) undermine the association between AHL and occupational noise exposure and show that typically asymmetrical hearing loss has other causes such as age, or even unknown causes.

The most comprehensive judicial review of the material in relation to asymmetry and occupational noise exposure is found in Cran. The decision shows that the available research when properly analysed, supports the argument that an NIHL diagnosis is strongest where there is bilateral hearing loss.

Whilst the decisions of Briggs and Aldred seem to contradict this conclusion in both cases the degree of asymmetry was modest and arguably could fall within the parameters of expected audiometric variability between the ears. It must also be remembered that individual findings on medical issues are fact specific and dependent on the nature and quality of medical evidence and authorities present in each case. As was cautioned in Childs v Brass & Alloy Pressings (Deritend) Ltd (21 December 2015), a de minimis case, where DJ Kelly made the following statement regarding the reliance on previous de minimis decisions:
It is apparent from those three cases that the conclusion as to whether or not the loss is de minimis is very fact specific to an individual case.

We warned in edition 133 of BC Disease News, that first instance decisions are of no precedent value as county court decisions are not binding. Further to this each decision is based on the particular evidence of each case. Findings on the evidence in one case is not a proper basis for the same finding in another case where the evidence is different. As such, it is difficult to extract any generally applicable principles from these first instance decisions on asymmetry and so defendants (and claimants) should not simply rely on previous favourable decisions without evidence to challenge those areas in dispute.
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