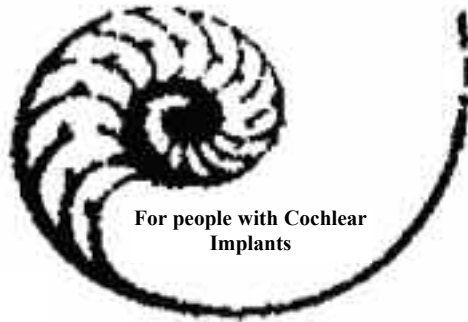


# ReSound

MANCHESTER COCHLEAR IMPLANT NEWSLETTER





Winter 2009

Issue 32



*Christmas Tree and Snow Flakes*

	<h2>Manchester Cicada</h2> <p>A fellowship of people with cochlear implants from the Manchester Cochlear Implant Centre</p>	
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This newsletter has been produced on behalf of the  
Manchester Cochlear Implant Programme the Cicada Club and the Hear Charity



## Cicada News from the Chairman

Cicada is thriving this year with over 70 members and a number of events. The Bowls day in Chester went very well and the walk in the Peak District although it had a low attendance was very enjoyable for those who were able to take part.

See photos on our web site  
[www.manchestercicada.org.uk](http://www.manchestercicada.org.uk)

Our visit to Liverpool and tour of St George's Hall with lunch at the Adelphi Hotel was held on a Monday as an experiment and surprisingly had better support than weekend events.

The committee worked hard for all these outings and are now looking forward to the Christmas lunch in Prestwich on Saturday December 5th. We

are also working hard on the planning for the next AGM/Conference to be held on March 20th at Manchester Metropolitan University on Oxford Road, Manchester. We have an excellent speaker, Amanda Howard, a social and support worker for deaf and hard of hearing people in Manchester. We will have our usual communication support and all implant users are welcome to come and gain useful information from Amanda. Contact Hon.Secretary Jonathan Salas for information and how to book for any of our future events: friends and non-members are always welcome.

Best wishes for Christmas and New Year to all implant users and their families.

### Norah Clewes

Congratulations to committee member James Rylance who did a 40 mile bike ride and raised over £400 for the "Save the Children Fund".

## Newsflash

Cochlear implant users may be interested to know that Medel have an interactive listening activities section on their website specifically aimed at teenagers and adults. It is accessible on:  
[www.medel.com/soundscape](http://www.medel.com/soundscape)

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### Editorial

A most grateful thank you to everyone for all the contributions you have sent for this issue of ReSound. Many thanks for the talk by Andy Burrows from Red Bee Media see pages 4 to 6 and pages 7 to 8 for the questions and answers all about subtitling. It was very interesting and we certainly learned an awful lot from him, and maybe we might have a better understanding in future when mistakes are made!

The walk from Haddon via Youlgrave seemed to have been very good and the weather was good for them see page 9. I'm sure that Bill Allen will be planning some more walking events in the coming new year.

On page 16 there is an invitation to join Cicada Club or you can find a form at the web address  
[www.manchestercicada.org.uk/membfm.htm](http://www.manchestercicada.org.uk/membfm.htm)

The more members we have the more we can do to help CI users, the more events we can have and we can all learn from others experiences.

## MERRY CHRISTMAS EVERYONE

### Hedy Williams Editor

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## **NCIUA meeting in Nottingham - A reply from June Neale**

In answer to Deborah Mawman, Christine Melling and Lisa Henderson's letter in ReSound Issue 31.

I would just like to affirm the brilliant personal rehabilitation service I received at Manchester Uni after my CI nearly twenty years ago, since then and both at Nottingham and Addenbrookes I have received the same concerned and individual attention from the Implant Teams.

I now live in the rural wilds of Norfolk and the so-called article was written as such by me but said after I attended a NCIUA meeting in Nottingham as a light hearted summary of our new service on offer by Link and innocently picked up on...

At no time was it implied as a criticism of the excellent existing services and I apologise unreservedly for any wrong impressions - and wish them well.

**June Neale**

## **Calling all Twitter and Facebook Fans**

For those who were not able to join MED-EL UK and celebrate the premieres of the brand new musicals for CI users. "The Farmer's Cheese" and "Deacon" in Scotland in September, there is the chance for you to savour some of the atmosphere by joining the Facebook groups "We love the Farmer's Cheese" and "Deacon" for the Edinburgh Festival.

Why these group names? Well there wasn't a single person who didn't love the Farmer's Cheese - from the very youngest audience member to the oldest (see the Facebook photos to spot the youngest...) and perhaps not surprisingly, with a premiere in Deacon Brodie's home town of Edinburgh. On leaving the auditorium many of the audience were proclaiming that the show would be a natural Festival event!

Apart from great photos there are also links to audio-visual clips on Youtube and of course, you will be kept abreast of future performances in other parts of the UK !! So join us on Facebook and keep your diary open...

Are you a twitterer? Well follow the tweets of the Farmer's Cheese — username FarmersCheese.

Finally, remember to check out [www.ci-music-scene.co.uk](http://www.ci-music-scene.co.uk) for the latest music news for cochlear implant users and join our Facebook group "CI Music Scene". It is all happening on-line!

## **Breaking News**

Discussions are underway for further live performances of the "Farmer's Cheese" and "Deacon" in 2010 — dates and venues are yet to be confirmed. For the latest information click onto <http://www.ci-music-scene.co.uk>, the music ezine for the CI community for future event details, reviews and features.

Finally if you want to hear excerpts from Deacon these are now available on Youtube, easily found by searching Zack A. Moir.

## **Poetry in Motion**

I've just discovered a web site which has recordings of poets reading their own poems and also work of other poets.

The words are on the screen at the same time so good practise.

Robert Frost is reading "The Road Less Traveled" but there are a lot of other modern living poets reading.

<http://www.poets.org/page.php/prmID/361>

## Andy Burrows talk on "The perils and pitfalls of live subtitling"

I want to give a basic idea of the process involved in live subtitling and the situations that come up. I have been subtitling for 20 years having started with Intelfax subtitles for Channel 4 programmes in 1990.

I now work at Red Bee Media - we used to be BBC Broadcast but we were sold off a few years ago. We are responsible for over 60 TV and radio channels and promotions and trailers for various TV programmes. The main thing I am interested in is Access Services. We provide audio description for blind users, signing and subtitling for BBC channels, 100% of BBC1,2,3,4. CBBC, CBeebies and the BBC News Channel and also provide subtitles for the Channel 4 family of channels and UKTV channels.

When a programme is live we can't have pre-recorded subtitles and there are a few different ways a broadcaster can sort this out. They could first of all not subtitle it; that has happened quite a lot in the past, now it's not an option. For the BBC every programme is subtitled.

A fast QWERTY keyboard used to be used for live subtitling quite a long time ago - it's not used anymore because we now use either stenography or re-speaking using voice recognition software. There are certain programmes we subtitle live - the obvious one is the News. We cover national news, BBC News Channel, Network news, and regional news for the BBC. There are 17 different regions to cover every day and all sorts of sport on the BBC - everything from Olympics and the World Cup final to regional sport such as curling in Scotland - we cover quite a lot of bowls in Wales.

We also subtitle other live magazine type programmes like the BBC Breakfast Show and Question Time. There are some programmes, often documentaries, which for some reason, possibly legal reasons, don't turn up with us until close to transmission time so there is no time for us to prepare subtitles and in that case we have to do it live.

You may be aware that stenography deals with syllables. This means that combinations of keys represent different sounds. Some stenographers work up to 250 words a minute. Many of them have hundreds of personal abbreviations they use in their personal dictionary and one stenographer told me to do the job you need a good memory, quick reactions and nerves of steel!

I am a re-speaker so I work with voice recognition software and the way we do this is to listen to what the speaker is saying, and while they

are talking we edit it in our heads. For most people we can't subtitle verbatim, it is simply too fast and the faster you speak the more mistakes come up. We aren't just subtitling the words; we are also putting in all the punctuation. So you listen, edit in

your head, speak it clearly into the microphone, at the same time as you are listening to the next bit and editing that in your head.

It's a bit like the simultaneous translation used at the UN only it is

using the same language. A lot of people ask me will voice recognition work automatically in the future and I think it will improve certainly but I don't think it can ever work without some human input.

We each have a voice dictionary. The software comes with its own dictionary with a large vocabulary including a lot of common first names - surnames, place names that sort of thing - but you will always get words that are not in the dictionary and they won't come out unless we have trained them in. For example the other week I covered some athletics and there were hundreds of athletes, mostly foreign. When you talk about somebody like Steve Lewis there is no problem - the software will know the name - but there is a Czech discus thrower called Vera Pospisilova-Cechlova! The software dictionary will have the name Vera in it but it won't have Pospisilova-Cechlova. She is actually very good in her disciplines of discus and the shot-putt so her name will come up quite often. So I would say the name into the software and the software will come up with what it thinks I said, which will obviously be very, very wrong so I type in the spelling of the name say it a few times and the software should remember it for future use. We take a few months training up because you need to train the software to recognise your voice. We have subtitlers working on voice recognition all over the UK from Belfast to Scotland to Cornwall, all sorts of regional accents. It doesn't matter if you have a regional accent as long as you have trained the software to recognise it. The difference between stenography and re-speaking is that in stenography can spell out words - it's slow to spell out words one letter at a time but it can be done. With re-speaking you are relying on your voice dictionary, the dictionary that came with the software, and the extra words and names you trained in.

*They could first of all not subtitle it; that has happened quite a lot in the past, now it's not an option.*

The other evening I spent an hour training in all the names of the members of the Welsh Assembly because I was covering politics. I think I have pretty much all the Premier League footballers in my voice dictionary, and you build up a very, very large vocabulary covering something like Match of the Day or the BBC News Channel as any sort of name can come up.

There is a way of telling whether the subtitles on a news programme are being provided by re-speaking or by stenography - it comes up through the mistakes. If you see a word that is not a word it's just a random selection of consonants put together it could be because the stenographer has had a slip of the fingers and hit the wrong key slightly and the word comes out wrong. If the mistakes are words that are proper English words then it is re-speaking you are seeing.

With a lot of programmes such as Comic Relief we like to get the material in advance from the programme makers. If they can give us short videos that are part of the programme we can prepare those subtitles. They can be prepared as text and they can be cued out sentence by sentence. It works particularly well for songs - we used to subtitle Top of the Pops and we had to have the lyrics of every song that was going to be included - subtitling songs without knowing the lyrics is particularly difficult!

So given all that, there are certain qualities which are very useful for live subtitlers. First of all you need to have good language skills and I think pretty much all the subtitlers at Red Bee Media have a degree in English, a foreign language or linguistics. You need to be editing while you are talking and while you are listening so a language skill is vital. For obvious reasons you need to be able to think on your feet and one quality that is overlooked, you need a good general knowledge to be a good live subtitler. It helps if you know what people are talking about. The more knowledge you have the better your subtitles come out and you always need to be on your toes because you never know what is coming next.

I am sure you want to know how and why mistakes come up and we appreciate they come up. Firstly as I mentioned before it's hard to subtitle

somebody verbatim: you can't get everything in. The quicker you talk the more garbled it becomes and mistakes come out and there are a few reporters who speak very quickly indeed.

There is one particular reporter on the BBC News Channel who is very quick and unfortunately his reports are often quite technical, and have lot of details in them and a lot of facts to get over. He reels through it and it's very difficult to keep up and to keep all the relevant facts in. But the better a reporter is the less waffle they have in the reports and the harder it is to get it all completely accurate. As I mentioned before, you need to have the names trained in. A colleague mentions she was once subtitling a Tour de France, she had trained in the names of all the major bike riders, the names of the British riders who are bound to be mentioned even if they are

quite obscure, all the names of the previous winners of the race, the names of places they will pass through and all the bike technology. There was a huge pack of riders and two of them burst away into the lead and of course they were both very, very minor riders nobody had heard of and she hadn't trained the names in. There was nothing she could do then really!

Some programmes are quite hard to prepare - a magazine style programme or say Question Time - you may know what the questions are going to be but you are never sure what the speakers are going to say in reply and what diversions they might make. I had one piece on a children's literature festival. I didn't know what was coming up so I trained in the names of all the major authors of children's literature I could think of. This is where having a good general knowledge comes in. One name I trained in was Lemony Snicket, he I believe writes books for teenage girls. He was not mentioned so I forgot about it.

The next day I was covering regional news and covering sport and there was a footballer manager talking about his team's recent form and out of the blue he mentions Lemony Snicket. He said his team's form recently had been up and down recently a bit like Lemony Snicket. I was relieved I had trained it in the other day otherwise it wouldn't have come out.

Often you will find when you are working at

*There was a huge pack of riders and two of them burst away into the lead and of course they were both very, very minor riders nobody had heard of and she hadn't trained the names in. There was nothing she could do then really!*

speed words will merge together. Last week a woman was talking about her great grandchildren and she was saying 'my great grandchildren' it came out as 'migrate grandchildren' as in those who fly South for the winter! It doesn't look good so you try and keep those to a minimum.

Finally I would like to talk about the three worst and three best things to subtitle live. There is one dreaded phrase I hate to re-speak - when somebody says 'there is just one word to sum up this situation' and you think 'I just hope whatever the word is, it comes out right or this will look really stupid'. We cover BBC Parliament and you can have an MP who has a long list of figures in replying to a question usually from a member of their own side. The MP wants to get through the list of facts and figures to get on to the meat of their argument. He stands up and he brandishes a piece of

paper, puts his head down and he reels off a list of facts and figures' from 1984 there were 350,000, this a rise of 14% and the previous years total of...!' and he reels

through it at great speed to get it over with. One thing the software doesn't like is numbers. There are certain things software has problems with. One is numbers, another, strangely, is the phrase 'thank you'. Virtually every re-speaker I know has problems with the phrase, nobody knows why - it's a glitch of the software.

The worst thing I have had to subtitle was an Irish comedian. She was almost the perfect storm of problems for live subtitlers. First of all she had a very broad Northern Ireland accent - quite a rural accent somewhere near Belfast. She mumbled and she constantly used dialect words I am not familiar with. She also used the names of a lot of local minor celebrities referring to them by their first name, last name or their nickname. This was the hardest 15 minutes of subtitling I had ever had to do. All I could do was to pick up anything I could and put it out verbatim.

Now for the best things to subtitle - perhaps surprisingly, BBC Parliament, I don't mean the major debates. What I like are the quieter debates that I sometimes cover towards the end of the Parliamentary day. They have a few experts in the field and they will talk engagingly about their subject. The House of Lords is another good one, there was an excellent debate the other night on the theory of evolution. These experts know a lot about their subject and it's fascinating to listen to them and re-speak them and often you will find you are happily going along and you realise your colleague has hit a button to request a handover and you think 'Oh I was enjoying that'. The second best thing is football - that's a personal choice but I love football and the possibility of actually subtitling it is a wonderful thing for me. British football, European football, and world football

anything, I enjoy it. On the other hand I have covered motorbike racing and I have no interest in motorbikes - I don't really know the technical terms and the commentary on motorbike racing tends to be quite technical. The allocations team will always try and match up programmes with people who are interested but with so much different output we have to subtitle that is clearly not always possible. The best thing of all about live subtitling, from a personal point of view, is

when you are subtitling the BBC News Channel. The caption comes up at the bottom of the screen saying breaking news and you think right this could be anything, has somebody important died? Have aliens landed in the middle of London (now that could cause problems), or perhaps it could be because the Prime Minister of Azerbaijan has been assassinated. It could be a video coming up which has his name mentioned a lot. I have no idea of the name of the Prime Minister of Azerbaijan and I am pretty sure he is not in my voice dictionary! Similarly the capital is Baku but Baku sounds a lot like a lot of other phrases so would that come out right. It really keeps you on your toes and in conclusion it sums up everything difficult and good about live subtitling. The motto for live subtitlers should be 'you can never be sure what is coming next'!



## Questions and Answers Session

**Norah Clewes:** Thank you very much Andy for a very interesting talk.

**James Rylance:** Andy, as a user of your subtitles may I first thank you and your colleagues for the excellent services you provide. I think it's absolutely marvellous. What I am interested in is the technical way you do it. There are so many channels being broadcast simultaneously, how do you monitor and do the interpretation and where do you do it from?

**Andy Burrows:** Well we have offices in London, Newcastle, Cardiff and Glasgow. I think most subtitlers like me work from home as it's an ideal job for working from home. You don't need to be in a soundproof room but you do need somewhere very quiet. You can't have two people working on voice recognition in the same room so I work from home.

We have a list of different channels such as BBC regions, Channel 4 which we can log on to with the software, and once we start subtitling it will come out automatically on that channel.

**Question:** So you can lie in bed?

**Andy Burrows:** You could if you wanted to with your pyjamas if you like.

**John Newton:** I am interested in the actual labour expended. Can you give me some idea of the man hours required for a particular programme like for example BBC breakfast I think runs from 6:00 to 9:30 - how many people do you have working on that?

**Andy Burrows:** For the network Breakfast programme we will have, I think, 4 subtitlers. You work 15 minutes on 15 off over an hour period. When you are not working you are on standby in case there are problems with the other subtitler. The most you would do is 2 hours of 15 minutes on 15 off. Because it is so labour intensive you couldn't do much more than that.

We will prepare for a programme before we start - for say the news channel you will prepare for an hour before hand, that's all really on research for the names you are going to need for the stories, picking up the spellings making sure they are all trained into your dictionary.

**Question:** Do you have a lead to your producer to the home computer that gives you that information?

**Andy Burrows:** We have assistants who are researching each story and they will produce a word list for each story or event. For example for the football match you will have a list produced for you of all the players plus the managers, stadium everything like that. I try and get a little bit more

in if I possibly can as you never know what is going to be mentioned.

For a shorter piece, say one of the regional news spots in the breakfast news lasting just 3 minutes, you will start at 6 am for the 6.25 broadcast. That will obviously take a lot less preparation. Also you are preparing your voice doing vocal exercises to get ready for speaking - it's hard to go from cold to speaking clearly enough for the software to understand you. So a lot of time is taken in preparation - it is quite labour intensive.

**Question:** How many people do you employ all together then roughly?

**Andy Burrows:** I would say there are up to about 100 subtitlers in all the offices plus the people who work from home. The main thing is we cover the 17 BBC regions for half-hour programmes every night you need 2 people. That is where most of our work is put in.

**Liz Mulholland:** I am a hearing person but I obviously watch television with my husband so the subtitles are always on. The subtitles are wonderful but why don't you put them at the top of the screen. I can't stop reading the subtitles - I don't need to but if they were at the top as I think as they are possibly when there is a football match on it wouldn't obliterate the face and lips for me.

**Andy Burrows:** Well, yes you are right a lot of sports programmes we put subtitles at the top of the screen to avoid covering up any of the action. All I can say is the BBC have asked us to put subtitles towards the bottom of the screen just above the border so they don't cover up any captions that come up. That has been found with the research to be the best place to put them.

It is sometimes a problem - we always have a balancing act. We can change the position of subtitles when doing it live. We also found if you move them up and down constantly that is equally annoying to people so we try and find the right balance between keeping them in a constant place and not covering up anything that shouldn't be covered up.

**Question:** Can I add to what's been said that the subtitles almost inevitably cover up the block on the bottom of the screen on news programmes that tells you who the fellow is who is speaking, almost all the time that happens.

**Andy Burrows:** That shouldn't happen - the subtitles should be just above the place where the captions will come up. I know some programmes have their own individual captions that are larger than normal and therefore you will inevitably cover up some of the names. Generally they shouldn't be

at the very bottom obscuring names they should be just above.

**Comment:** If you watch Question Time people on the panel, the name comes up below but this gentleman is quite right the subtitles go across and if you don't know who he or she is it does obliterate it.

**Andy Burrows:** Maybe Question Time has its own particular captions that they use.

**Comment:** That happens very often, what the first speaker drew your attention to. I use subtitles so I have to resort to switching them on and off. If I want to know the name and appointment of this particular speaker who is not usually a BBC presenter but is an outside person.

**Andy Burrows:** Okay I am not sure why. I will take it on board.

**Question:** I think your job is difficult and it's made harder by the fact that most presenters seem to speak at twice the speed of ordinary people, but can you comment on the business of us people reading subtitles. I read that the best way to read subtitles is to concentrate on the top line, because the bottom line moves up into the higher position and so I take it that you are confirming that.

**Andy Burrows:** I agree with you. When I talk to other re-speakers and we mention presenters everyone has their favourites and their least favourites and it's always the same names coming up. Gordon Burns in Manchester is a particular favourite he is slow and measured he speaks well and we like him a lot. There are others who I won't name but when you see their name as the presenter your heart sinks; you know they will go at 200 miles an hour.

On your other point about how you read subtitles, I would be interested to know how you actually read subtitles and what you think of our method of putting them out. I think the more we know about that the better service we can provide - I would be interested to hear any comments on that.

**Alan Corcoran:** I am surprised at how much work you put into doing these subtitles and I am now amazed that they are so accurate. What I find

difficult is that when you try to put a correction in. I would prefer there to be no corrections put in, a correction further down seems to distract and it's harder to read in fact.

**Andy Burrows:** I understand it is tricky. Again it's a balancing act; if you make a mistake while you are doing all your listening and editing you also look at the mistake and think 'does that make sense to a viewer?' Will they know what I mean or do I need to go back and try again?' Of course you can try again and it still might not come out right. I had one MP the other day who used a French phrase and a

German word. I speak French and German so I understood him. I could translate the French part into English, that was fine, but the German word doesn't really have an accurate translation. I couldn't edit it out, so I had to say the word and hope it would come out in a recognisable form so people could understand what I meant.

**Alan Corcoran:** I think most people would understand and accept errors.

**Andy Burrows:** Sometimes you need to go back and make sure it's clear what you meant.

**Andy Burrows - Red Bee Media**

**Ross Trotter:** One person did ask about monitoring the BBC output. I know they do keep very good logs especially of errors and I know that there is a daily report log and the people at the main Red Bee offices in London look at those logs every single day. If there have been errors the previous day they will note those errors, find out why they have happened and try and to take steps to avoid them. This in fact is because we are the bane of their existence because we are always sending them e-mails to say why did the subtitles not appear for the first 10 minutes of the news on BBC 1 last night and then we know they will go to their logs and they will say oh that was because..... So therefore they do do a lot of work on this.

**Andy Burrows:** I would rather say you are constantly pushing us to improve our service to you rather than being the bane of our existence.

*I think your job is difficult and it's made harder by the fact that most presenters seem to speak at twice the speed of ordinary people, but can you comment on the business of us people reading subtitles.*

### NADP Annual Conference

NADP Annual Conference is being held at the Adelphi Hotel in Liverpool on June 26th 2010.

## CICADA CIRCULAR WALK FROM HADDON VIA YOULGRAVE

On Sunday 28th June 2009 six of us met outside the pub as arranged and began the walk from the car park at 10.30am. Sadly Hedy Williams had had to pull out at the last moment so the members present were: Alan Corcoran, Jim Rylance, Angharad Hayes, Bill Allen and his wife Suzanne, and Peter Allison.

The weather was perfect, lovely and sunny with a cooling breeze. We descended the steep winding road down to the river, proceeded up through the woods along a winding track, of which the winds kept the gradient fairly gentle. Even for CI wearers the woodland birds were very vocal and audible though it was often difficult to identify birds from their songs, exceptions being the Blackbird and Chaffinch with their very distinctive songs. Eventually we reached the top and came out into an open field with the path running down towards a farm which we had to pass through and proceed to climb gently up the other side.

*We crossed the river,  
with Peter Allison  
relieved he didn't  
have to swim across.*

From here on the walk was along a very well used path beside the river, where we caught sight of water birds and wild orchids and enjoyed the sounds of the river and woodland to our sides. We passed Youlgrave and Alport before crossing the river and then undertaking quite a steep, short climb to the top where we overlooked the river below with picnickers at its side.

The walk itself took almost exactly three hours by the time we had reached the pub. A good choice of menu was available for Sunday lunch. Some of us who were going out for a meal later on restricted ourselves to a light salad & pork pie lunch. Having eaten our food, we ordered drinks and stayed chatting for about another hour exchanging stories and jokes before going our separate ways.

Quite frankly the day couldn't have been more perfect, except to have more members sharing all this with us. I wonder if people realise that Cicada was originally set up at the instigation of Professor Richard Ramsden, with the idea in mind that the incredible surgery, and the support given to us by the Manchester CI team, in themselves were not the end of the story. He wanted to provide social opportunities for Cicada members to participate in by using their cochlear implants, and to reverse the old fears of social situations some of us may have had before receiving our cochlear implants.



Passing through these fields some of us heard the Skylark with its piercing song high above, though I completely failed to spot where it was hovering despite being able to hear it. Eventually we reached a road, crossed the road and continued down the path into some woods, then reached another road, turned right and followed it until we reached another uneven path that descended down through some more woods towards the river at the bottom. We crossed the river, with Peter relieved he didn't have to swim across.

Indeed, some of you might wish you could participate but are restricted, through no fault of your own – possibly for health or transport reasons. If we know what the problem is (transport for example) let Jonathan Salas know and he will do whatever he can to help.

Thank you, and I hope your summer is as nice as the weather we had on our walk!

### The Sound of Music

Those who miss music so much or are disappointed with music through their cochlear implant might find this comment helps them "It can be inspiring to listen to music that is so beautiful and so uplifting. It can change or alter ones emotions. Yet at the end of the day I know my life will not end if I am without it, although it would be a struggle and yes I would miss the sounds I have gained. It is not something that I take for granted, I know hearing is not a god given right. At least there are still options open to me if the worst ever happened. I sure am enjoying every sound, even now as if it is for the first time."

Quoted from Zoe's Blog. **Zoe Tomlin** who designed our ReSound logo now lives in Melbourne.

### News from Channel 4

Just in case you haven't noticed, we launched Subtitles on the C4.com 4oD Service last week. To access the service:

1. Go to Channel4.com
2. Click on 4oD
3. Select the programme you want to watch
4. Click play
5. If it is a subtitled programme, you will see an 'S' on the function bar at the bottom right
6. This button will become active once the programme starts (not available during Ads and Interstitials)
7. Once the programme starts, hover over the 'S' and click left mouse button
8. Enjoy!

**Alison Walsh** Editorial Manager – Disability Channel 4  
(information from the NADP Email Group)

### Telephones

I asked other CI users what type of phone they found best but only Jonathan replied to say he uses a Uniphone. I have one that I use for text relay calls but not for voice calls. As our old cordless phone has finally given up the ghost we have started to use the Uniphone and I am very pleased that changing has made a lot of difference to the sound for me. We've had a cordless phone for years but it was going downhill with the battery wearing out. I tried other cordless phones including one recommended by RNID but still found them fuzzy. Now I have started using the Uniphone it is much clearer. My friend phoned this morning and for the first time I was able to understand her clearly. I don't think the cordless phones are good for implant users but my husband likes one so he is able to sit in his armchair and chat to people. He can't do that any more!

**Norah Clewes**

### Keeping Up with Amanda the Photographer

I have been hearing a lot more new sound these days now my partner and myself are taking up the walking across the countryside. its lovely to hear all the birds, deers, creaking gates, the sound of our feet pressed against the twigs and all sort of things.

I will be taking photos of young teenagers for Advanced Bionic to promote what we do. I am hoping for bookings though. See my web site at [www.aegphotos.co.uk](http://www.aegphotos.co.uk)

**Amanda Glaspel**

*On the 6th June 2009, I attended the AGM of the (NCIUA) National Cochlear Implant Users Association - on behalf of ATLA and CICADA. At this meeting I approached Mr Shaida asking him if he would agree to send me a summary of his interesting talk to be shared with the members of each of these organizations, and he very kindly agreed. So here is his talk:-*

*Bill Allen; July 2009.*

**"Cochlear Implants- The Next 20 Years"**  
**Summary of presentation by Mr. Azhar Shaida, Consultant ENT Surgeon, RNTNEH to Summer Meeting 2009 NCIUG, RFH.**

To understand the future direction of cochlear implants, we need to look at the **history of cochlear implants** and how we got to our current state:-

**W**e have known from Volta's experiments in 1790 that electrical current can stimulate the auditory pathways. In 1957 Djourno and Eyries demonstrated direct stimulation of the auditory nerve produced an awareness of background sounds. In the 1960s the single channel electrode was used and in the 1970s the multichannel device was introduced by Graeme Clark. In the 1980s the cochlear implant became an accepted treatment rather than a research tool. In the 1990s there was increasing refinement of the device and application to younger children. Since the turn of the century there have been further refinements, implantation in young babies, and bilateral implants have become the norm in children.

Currently cochlear implants are an accepted treatment for severe to profound hearing loss. The cochlear implant has been evaluated by NICE and found to be cost effective. Advances in surgical techniques mean that although the surgery is still complex, it is now only takes approximately 2 hours, with a low risk of complications and a much smaller incision than in the past. Patients stay in the hospital for one night postoperatively or sometimes even go home the same day, they may be dizzy for a few days but this settles, the procedure is not particularly painful, and switch on of the device occurs after about 4 weeks.

For uncomplicated conventional patients, aided free field thresholds with a cochlear implant are between 20 and 30dB, word scores range from 70 to 100% and some patients are able to use the telephone to talk to strangers. As the outcomes from cochlear implants have improved, the patients

likely to benefit from a cochlear implant have increased. Patients with hearing thresholds worse than 70 dB and speech perception scores of up to 50% are likely to do better with a cochlear implant and hence are potential candidates.

We know that brain plasticity is maximal in the first 5 or 6 years of life, and if there is auditory stimulation during this period, either through natural hearing or with a cochlear implant, then central pathways are laid down. If the patient is deafened after these pathways have been laid down (postlingually deafened) a cochlear implant can stimulate the existing pathways and restore the sensation of hearing. After the age of 6 the brain loses its plasticity so if pathways have not been laid down by this stage (prelingually deafened), stimulation later with hearing aids or with a cochlear implant will be unable to lay down new pathways. So patients who are postlingually deafened, or who are deaf from a very early age but implanted before the age of 6, will do well with a cochlear implant.

Children who are implanted early can develop almost normal speech and language, although they still have problems in the presence of background noise or when listening to music. There is increasing evidence to show that the earlier children are implanted, the better the results. But is there a lower age limit to implantation? Even though hearing loss can be detected at a very early age through the neonatal hearing screening program, it will still take some time to be certain sure of the results. The risks of surgery and from a general anesthetic are also higher with very young children. At the moment therefore we prefer to wait until the child is between 9 months and one year of age before implantation. Of course in certain circumstances, for example with impending ossification after meningitis, it may be necessary to implant at a younger age.

**Bilateral Implants:-**

Bilateral implants have moved from the future into the present. Two ears are better than one, and the same applies to cochlear implants. There is a lot of evidence that shows two implants give better speech perception in the presence of background noise and improved spatial localization. The recent NICE appraisal guidance suggests that deaf children should be offered two implants. Parents are often concerned that by putting in two implants, the chances of their child being able to use a "miracle cure" in the future may be impaired. However, I am not aware of any miracle cure that is likely to be available soon, or even in the next 10

years. Also, if the ear is not stimulated now, the central pathways may not develop fully and any new miracle cure is unlikely to work. Bilateral implantation will increase surgical workload, place increased demands on the rehabilitation team and obviously comes at an increased cost to the NHS, and these issues will have to be resolved. For adults, NICE calculations suggest that the additional benefit from a second implant is outweighed by the additional cost, but in certain circumstances for example when there are other sensory impairments bilateral implants may be considered.

### **Hearing Preservation Surgery and Hybrid Electroacoustic devices:-**

Hearing preservation surgery during cochlear implantation is becoming increasingly important. It was thought that opening the cochlear to insert the electrode would destroy residual hearing. However, even with standard electrodes and techniques there is in some patients, preservation of some of the residual hearing. These patients report better than average results for speech in background noise, and this may be because the residual hearing tops up the hearing from the cochlear implant. There are many patients with very little hearing in the high frequencies but significant residual hearing in the low frequencies who do not do well with conventional hearing aids. For such patients, hybrid implants are being developed where a shorter and thinner electrode is used to stimulate the high frequencies electrically and a combined acoustic hearing aid is used to stimulate the low frequencies. It is important to preserve the residual low frequency hearing, so "soft surgery" techniques are used with modified electrodes. The EAS device from Med-El is only 20 mm long and has 12 pairs of electrodes and is available for commercial use in the UK. Cochlear have a variety of electrodes of different lengths and differing numbers of electrodes on the carrier itself. The Cochlear devices are still undergoing trials, to try and work out the optimum length and number of electrodes needed.

The overall results so far suggest that speech is better in the presence of background noise, and patients report a fuller sound, so they are picking up more of the cues that a cochlear implant would normally miss, and interestingly, better music perception as well. There are some caveats to bear in mind. What happens to those patients where a short electrode is used but the residual hearing is not preserved? Some studies report results "similar" to a conventional electrode, which runs counter to earlier studies which showed better

results with deeper insertion of the electrode. Different studies use different criteria to determine "preservation" of hearing, which may mean a drop of 10, 20 or 30dB depending on the study. The "preservation" rate also varies, and some studies report up to 40% of patients where the residual hearing is not preserved. What happens to these patients who now have a short electrode? In some patients, the hearing will be preserved in the early stages but may drop later. There has been a report on 87 patients where after a month 98 % of their patients had preservation of the residual hearing. Over the next couple of years 6 patients lost that residual hearing completely, and the most recent results, which haven't been published yet, suggest that up to 30 per cent of the patients have had a loss of 30 dB or more in the lower frequencies, so that lower frequencies may not be able to be stimulated with the acoustic component any more. So there may be delayed loss of the preserved hearing. Despite these caveats, hybrid devices are a very exciting development, and expect to hear much more about these.

### **Totally Implantable Cochlear Implants:-**

The holy grail of cochlear implants has been the totally implantable cochlear implant. Cochlear have now trialed a device (the TIKI) containing a rechargeable battery and a microphone mounted in the package. This can work in the invisible hearing mode where there is nothing on the outside and in the combined mode with an external processor. It has been used on 3 patients and in combined mode the results were equivalent to a standard implant but in invisible mode the results were only half as good. It seems there are still issues to be resolved with microphone placement and getting rid of background noise but this device shows it is possible to produce a safe and totally implantable device.

*The holy grail of cochlear implants has been the totally implantable cochlear implant.*

### **Where next?**

Extrapolating from previous trends, miniaturization will feature strongly with changes in computer technology leading to smaller more powerful devices with less energy consumption. Battery technology will also change, and the technology for recharging batteries wirelessly already exists for

mobile phones, so for example it should be possible to have a pillow with a built in charger which recharges your implant batteries while you sleep at night. Mobile phones are on the horizon which scavenge power from wireless and radio

*Other technologies such as hydrogen fuel cells may also come into play. Electrodes may become slimmer to minimize trauma during insertion and allow for preservation of residual hearing.*

networks while you walk around, and this technique could be used for cochlear implants. Other technologies such as hydrogen fuel cells may also come into play. Electrodes may become slimmer to minimize trauma during insertion and allow for preservation of residual hearing. We already have perimodiolar electrodes which cause less trauma and because they are close to the bipolar neurones can target neurones more specifically with less current leakage. We also have electrodes where changing the pattern of stimulation can create virtual channels between existing physical channels. Advanced Bionics are developing an electrode with 50 physical channels on the electrode, the Bionic hi-fi device.

### **Do more electrodes actually help?**

Interestingly, one company has 12 channels on the electrode while another has 22 yet the results are very similar! This does not necessarily mean that more electrodes are not better, just that we have not worked out how to get the best out of the additional electrodes, and this may be down to the stimulation patterns and processing strategies used. There is much work being carried out on impregnating the electrode carrier with various drugs. Nerve growth factors may encourage neurones to grow out towards the electrode, resulting in more specific stimulation with less current spread and energy wasting. Steroids or other anti-inflammatory drugs may help reduce trauma from surgery and aid hearing preservation.

### **Hair Cell Regeneration:-**

No talk on cochlear implants would be complete without a mention of hair cells, the sensory cells in the cochlear that convert sound energy into electrical energy, which is transmitted through the auditory nerve to the brain. In most cases of

hearing loss, it is hair cell damage that is the problem and if this could be reversed then perhaps the hearing loss could also be reversed. In the 1970s we discovered that sharks can produce inner ear hair cells throughout life. In the 1980s it was discovered that birds can also regenerate hair cells, although hearing is not restored to normal and there is usually a residual deficit. In addition the new hair cells grow in abnormal disordered patterns. From 2000 there has been increasing evidence of some hair cell regeneration in mammals. The processes involved in hair cell regeneration include:

'Mitosis', where there is duplication of existing hair cells. This occurs in birds but has not been shown in mammals so far. Therapeutic strategies included encouraging supporting cells to divide and encouraging the new cells to mature by using growth factors and gene manipulation.

Transdifferentiation, where supporting cells are encouraged to convert to hair cells. Again, this can be achieved by growth factors and gene manipulation, and early results show potential in rats.

### **Embryonic stem cell use:-**

In theory, pluripotent embryonic stem cells can be encouraged to grow into hair cells and interestingly may also be used to restore spiral ganglion nerve cells meaning more neurones to excite with a cochlear implant. However, even if successful, hair cell regeneration will only work for deafness due to hair cell loss, most researchers say it will not restore normal hearing but may allow the use of hearing aids. Also, remember that brain plasticity is gone after about 6 years so if the central pathways have not been laid down by then, restoring hair cells will not be of any use. While this is an exciting area of research, clinical applications are still some way off.

### **Other changes:-**

Advances in technology, manufacturing and economies of scale tend to bring down the costs of new technology although this does not seem to have happened very rapidly with cochlear implants. As results improve, more patients will become potential candidates. With bilateral implantation and the development of hybrid devices there will be increasing demand, but there are finite resources in the NHS so costs will need to come down or new models of funding may be required. With increasing numbers of implant patients on the books, implant units may have to see patients less frequently or only on an "as required" basis. One option is the use of Internet or remote manipulation, and there was an interesting article

recently about a patient who had surgery in the USA and the switch on was carried out a few weeks later remotely in Africa.

**"Star Wars" technology:-**

Recently there have been reports about using lasers to stimulate the cochlear neurones. By using optical rather than electrical stimulation there is no spread of energy so stimulation is highly selective and very little energy is wasted. The laser produces a small increase in temperature which causes the nerve to fire. This technique has been demonstrated to stimulate nerves in the gerbil cochlea and the rat cochlear nucleus but is still in the very early stages. Finally, significant advances are being made in the field of nanotechnology, the

technology of building and manipulating items of the same size as molecules at the atomic level. At some stage it may be possible to have nanorobots that can carry growth factors into the cochlear or gene sequences into cells. It may even be possible to inject "grey goo" nanomaterial into the cochlea and have it self manufacture the electrode!

In just 40 years we have seen a revolution in cochlear implants and the treatment of profound hearing loss. We live in an age where technology is advancing exponentially, and there will be many applications of new technology to cochlear implants. I am grateful to be living in such interesting times.



## COCHLEAR IMPLANT PROGRAMME

### CHRISTMAS AND NEW YEAR REPAIR CLINICS

The Cochlear Implant Programme at the University will be closed on Wednesday 23rd December 2009 and will re-open on Monday 4th January 2010.

If you require spares or repairs during this time, a member of the implant team will be on call and you can contact them on:

Tel: 0161 275 3364

Fax: 0161 276 3795

Email: [anne.stockbridge@cmft.nhs.uk](mailto:anne.stockbridge@cmft.nhs.uk)

Please note that this service will not be available on the Christmas and New Year Bank Holidays

*HAPPY HOLIDAYS FROM ALL THE IMPLANT TEAM!*

## Cochlear UK Graeme Clark Scholarship Award 2009

The Cochlear UK Graeme Clark Scholarship Award 2009 is open for applications and we would welcome eligible patients from your implant centre to apply for the 6,000 euros education prize.

About the UK Graeme Clark Scholarship:

Professor Graeme Clark is the Professor of the Department of Otolaryngology at the University of Melbourne. It is the pioneering work of his university department that led to the first multi-channel research implant 'bionic ear' being 'switched on' in 1978 and the first Nucleus implant in 1982. His lifelong commitment to finding a solution for the hearing impaired has resulted in a revolution not only for those with a severe to profound hearing loss, but also their family and friends.



Cochlear created this scholarship to honour both Professor Graeme Clark and those that demonstrate similar ideals in their lives. The UK Scholarship is awarded on the basis of academic achievement and a demonstrated commitment to the Cochlear ideals of compassion and benevolence.



The UK Graeme Clark Scholarship Award is open to Nucleus cochlear implant recipients who are:

- currently completing their final year of school or sixth form college and who have been accepted onto a university or other tertiary education course;
- mature students who have been accepted onto a university or other tertiary education course;

- students currently undertaking a university degree or other tertiary education.

The aim of the award is to help a recipient by supporting them financially when they continue to further their education.

There is one UK winner per year and the prize is 6,000 euros (paid in 2 instalments). The first instalment is to be paid right after the nomination, the second instalment one year after.

### ***Winner announced mid December 2009***

If applicants would like further information regarding the scholarship please contact Kate King on 0779 365 2182 or email [kking@cochlear.co.uk](mailto:kking@cochlear.co.uk)

Santa, sleigh and reindeers for children to colour



**An Invitation to join Manchester Cicada**

The Manchester CICADA (Cochlear Implant Club) was started in 1993 with the support of Professor Ramsden so that implant users could get together and enjoy social events and the encouragement of mixing with other implantees.

Cicada has four events a year including a Forum/conference with Palantype communication support, a Bowls day, a summer party, outing or barbeque and a Christmas lunch/party. The committee organises the events and also helps to produce ReSound which is the newsletter of the Manchester Cochlear Implant Programme.

For those who are not able to travel to events

membership enables them to keep up with what is going on. We encourage email contact and now have a website (<http://www.manchestercicada.org.uk/>) and possibly an email group eventually.

\*The first year of membership, following your operation, is free to the 1st of February of the following year.

For more information or if you would like to join all you need to do is send your name and address and email address (if any) and subscription to the Hon. Secretary (address below).

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