OFFICIAL PUBLICATION OF THE CANADIAN ACADEMY OF AUDIOLOGY
PUBLICATION OFFICIELLE DE L'ACADÉMIE CANADIENNE D'AUDIOLOGIE

# Canadian Hearing Report

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Vol 2 No 4

Revue canadienne d'audition

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# MESSAGE FROM THE EDITOR-IN-CHIEF

This issue of the *Canadian Hearing Report* (CHR) marks the end of the first year of publication since its adoption by the Canadian Academy of Audiology. The editorial board has been delighted to receive many positive comments from our readers regarding how much they have enjoyed the new publication and the useful content found within its pages.

The editorial board has been busy working towards establishing a format for *CHR* that will provide quarterly staples as well as occasional novel reports and features. The upcoming year for *CHR* will be certain to please the clinically inclined as much as the research-minded. Furthermore, the editorial board will be expanded to include experts from the diverse areas of today's world of audiology, including Canadian and international colleagues from industry and academia. The goal for *CHR* is to provide timely and useful information to CAA members as well as to promote Canadian audiology among audiologists abroad and to other professionals involved in hearing healthcare. Canada is at the forefront of the field of audiology and *CHR* is certainly a resource to be revealed and shared.

We encourage you to communicate with the CHR editor to share your thoughts on professional and research issues in audiology so that we may ensure we are providing you with the information you want to read. We would be happy to publish your letters along with our response to your questions or comments.

This issue of *CHR* raises the importance of including researchers in the activities of our professional association in order to facilitate a dialogue which will ensure that applicable research will make its way into our clinical environment. It is unfortunate that researchers are typically only found at our conferences when they are invited to provide a lecture. We need to create more opportunities for researchers and clinicians to meet so that research questions may be generated from the identification of clinical needs. Our patients will benefit from our mutual strengths and collaboration. To highlight the importance of original research to our work, a few pages of research presented at this year's CAA conference can be found within this number of *CHR*. The CAA is dedicated to ensuring that the presentation of original research will continue to have dedicated time at our conference and that researchers are aware of our academy's desire to incorporate research into our association activities.

Happy holidays and I hope to count you amongst our readership for the upcoming year.

Sincerely,

André Marcoux, Ph.D.
Editor-in-Chief

# MESSAGE DE L'ÉDITEUR EN CHEF

Ce numéro de la *Revue Canadienne d'Audition* souligne la fin de sa première année de publication depuis son adoption par l'Académie Canadienne d'Audiologie. Le comité d'éditorial a été enchanté de recevoir plusieurs commentaires positifs de la part de ses lecteurs en ce qui à trait à leur appréciation de cette nouvelle publication et de son contenu utile.

Le comité d'éditorial a été très occupé a travailler sur l'élaboration d'une version de la *Revue Canadienne d'Audition* qui paraîtrait à chaque trimestre avec, à l'occasion, des rapports et caractéristiques variés. L'année prochaine sera pour la *Revue Canadienne d'Audition* une occasion de satisfaire tant les professionnels plus axés sur la clinique que ceux qui s'intéressent plus à la recherche en audiologie. De plus, le comité d'éditorial tentera de prendre de l'ampleur en incluant des experts de divers domaines reliés au monde actuel de l'audiologie, incluant des collègues canadiens et de la communauté internationale travaillant au sein d'industrie et d'académie. Le but de la *Revue Canadienne d'Audition* est de fournir de l'information actuelle et utile aux membres de l'ACA en plus de promouvoir l'audiologie au Canada auprès des audiologistes et autre professionnels impliqués dans les soins de la santé auditive. Le Canada est au premier rang dans le domaine de l'audiologie et la *Revue Canadienne d'Audition* est certainement une ressource qui se doit d'être révélée et partagée.

Nous vous encourageons à communiquer avec l'éditeur de la Revue Canadienne d'Audition pour partager votre opinion sur des sujets professionnels et/ou de recherche en audiologie. Nous nous assurerons ainsi que nous vous fournirons l'information qui vous intéresse. Nous serions heureux de publier vos lettres accompagnées de nos réponses à vos questions ou commentaires.

Ce numéro de la *Revue Canadienne d'Audition* soulève l'importance d'inclure les chercheurs dans les activités de notre association professionnelle afin de faciliter le dialogue qui permettra d'assurer l'application des recherches dans le domaine clinique. Il est regrettable que les chercheurs se retrouvent presque essentiellement dans les conférences où ils sont invités à fournir un exposé. Nous avons besoin de créer plus d'opportunités pour les chercheurs et les cliniciens de se rencontrer afin de permettre aux questions de recherche de s'identifier à des besoins dans le domaine clinique. Nous patients bénéficieront de nos forces mutuelles et de notre collaboration. Afin de mettre en valeur l'importance de la recherche dans notre travail, quelques pages de ce numéro de la *Revue Canadienne d'Audition* seront consacrées aux recherches présentées cette année à la conférence de l'ACA. L'ACA est dévoué à assurer que la présentation de recherches originales continuera d'avoir du temps alloué à notre conférence et que les chercheurs soient conscients du désir de l'académie d'inclure la recherche dans ses activités d'association.

Joyeuses fêtes et j'espère vous compter parmi nos lecteurs l'année prochaine.

Sincèrement,

André Marcoux, Ph.D.
Éditeur en chef

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Revue canadienne d'audition

Vol 2 No 4, 2007

Official publication of the
Canadian Academy of Audiology

Publication officielle de l'académie
canadienne d'audiologie



***Canadian Hearing Report*** is published four times annually by Andrew John Publishing Inc. with offices at 115 King Street West, Dundas, On, Canada L9H 1V1.
We welcome editorial submissions but cannot assume responsibility or commitment for unsolicited material. Any editorial material, including photographs that are accepted from an unsolicited contributor, will become the property of Andrew John Publishing Inc.



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Publications Agreement Number 40025049
ISSN 1718 1860

Return undeliverable Canadian Addresses to:

ANDREW JOHN PUBLISHING INC.
AJPI 115 King Street West, Suite 220
Dundas Ontario L9H 1V1



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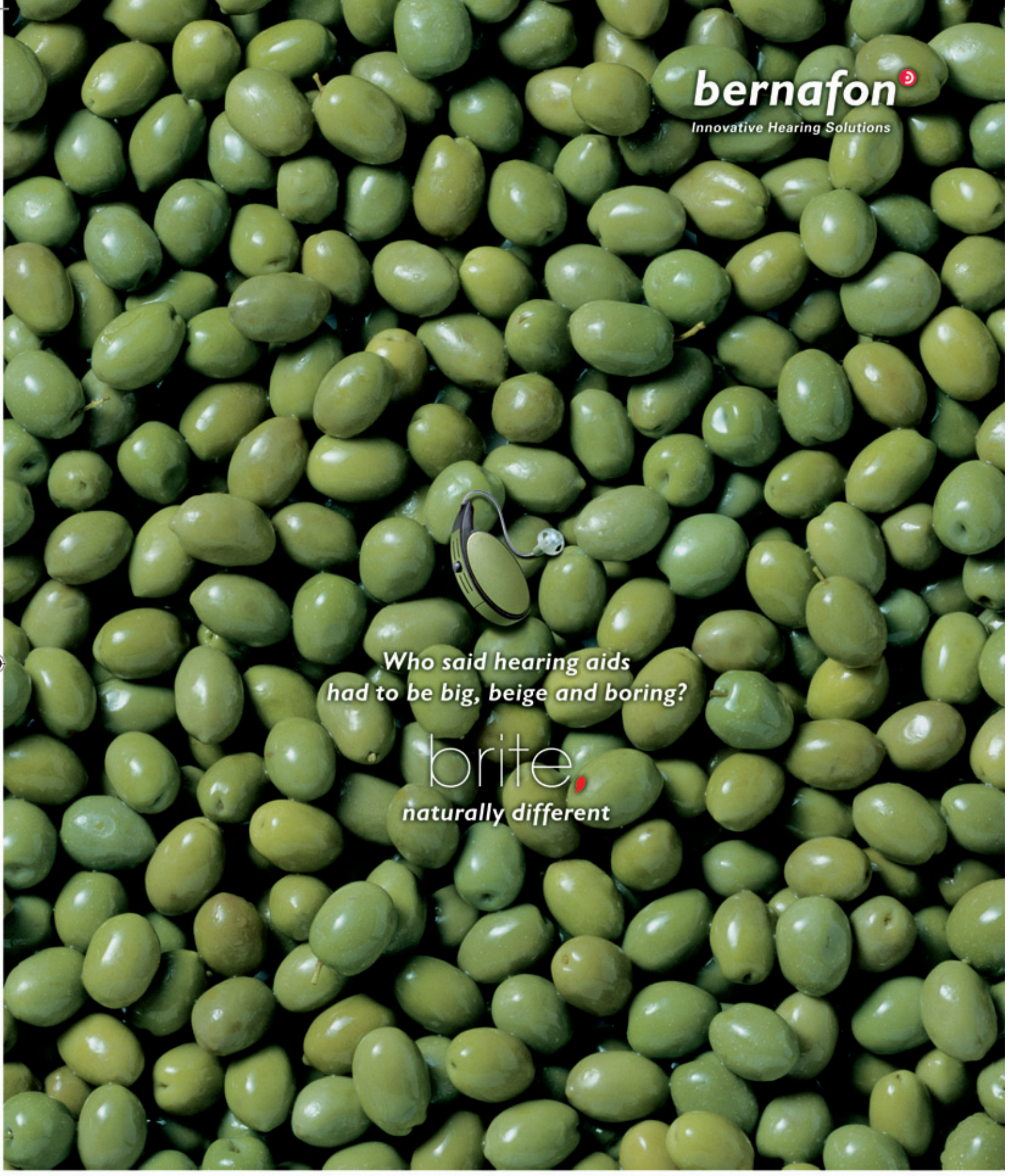


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2008 will be the 12th year of the Canadian Academy of Audiology (CAA). I've been around just long enough to be aware of the history of the Academy, and to know many of the people who were key to its success. I am proud to be serving as its president for 2007–2008, and hope to follow in the footsteps of those before me who have shaped the academy. Since 1996, the CAA has grown from a belief that there can be something better for audiologists in terms of educational opportunities and a strong representative voice. It is through this vision and persistence that we have reached the place that we find ourselves today. We have a first-rate conference, unrivalled in Canada and well known internationally. We have a stronger membership than ever before. But, despite our growth, there are still obstacles to overcome.

I've also been in this profession long enough to know that audiologists need a reason to belong to any association, and it has to be a good one. I joined CAA as a student in 1998 because a then president of CAA spoke to our class and instilled in me a reason to become a member. In many cases, membership is mandatory, as with regulatory colleges or associations. This requirement tends to take a good portion of finances available for professional membership. In other cases, it is for a specific purpose, such as the need to secure continuing education credits. Many of us join in time to attend a conference and this may be the only association activity in which we partake. Others join associations out of some specific need, be it local, provincial, or national. This is often a need that affects one's professional practice and means of employment. As audiologists, we face several challenges to practice. Regulatory changes, funding issues, and competition from other hearing health care practitioners, to name a few. If we are to flourish as a profession and to stand out as recognizable and distinct in the hearing health care field, then it is going to take the majority of audiologists to make that difference. The longer I have been in this field, the more I can see the need for a strong and distinct voice. Currently, national associations representing audiology account for approximately half of the professionals practising in Canada. This statistic is mirrored in provincial associations (those where regulations do not mandate membership). It will be a difficult climb to respectability with these numbers.

It was evident at the Town Hall meeting held at this year's conference in Niagara Falls that the issues facing our profession are multivariate and far from simple. The AuD. looms large as an example, but as was discussed extensively at the Town Hall, it is a huge challenge to mandate the AuD. as a national standard for entry to practice. As was also pointed out, unless the regulatory and funding bodies recognize the scope of practice of audiology beyond simply selling hearing aids, then even the national adoption of the AuD. as the entry level to practice will accomplish little for audiologists. The need for national standards of practice and a singular professional voice is evident. It is also evident that it will take more

L'année 2008 constituera la 12e année d'existence de l'Académie canadienne d'audiologie (ACA). J'œuvre dans le domaine depuis tout juste assez longtemps pour connaître l'histoire de l'ACA et plusieurs des personnes responsables de son succès. Je suis fier d'en assumer le rôle de président pour la période 2007-2008 et j'espère être en mesure de suivre l'exemple de mes prédécesseurs qui ont façonné l'ACA. Depuis 1996, l'ACA a évolué dans la perspective où quelque chose de mieux peut exister en termes de possibilités académiques et de représentativité. C'est grâce à cette vision et à la persévérance dont nous avons fait preuve que nous avons atteint le statut que nous possédons aujourd'hui. Nous organisons une conférence de premier ordre sans équivalent au Canada qui est reconnue internationalement. Le nombre de membres n'a jamais été aussi élevé. Toutefois, malgré notre croissance, il existe encore des obstacles à franchir.

Je travaille dans le domaine depuis assez longtemps pour également savoir que les audiologistes ont besoin d'une motivation pour appartenir à une association et que cette motivation doit en être une bonne. J'ai joint l'ACA en tant qu'étudiant en 1998 après que le président du moment soit venu faire une présentation dans notre classe et qu'il m'ait convaincu de devenir membre. L'adhésion à une association est souvent obligatoire, comme dans le cas des organismes de réglementation. Cette obligation représente souvent une part importante des fonds disponibles pour l'adhésion professionnelle. Dans d'autres cas, l'adhésion se fait pour des motifs particuliers, tels le besoin d'obtenir des crédits de formation continue. Plusieurs d'entre nous adhérons à temps pour assister à une conférence et ce peut être la seule activité à laquelle nous participerons. D'autres personnes deviennent membres pour satisfaire un besoin particulier à l'échelle locale, provinciale ou nationale, qui a souvent une incidence sur leur pratique professionnelle et leur emploi. La pratique de notre profession d'audiologiste comporte plusieurs défis à relever, comme ceux liés aux changements réglementaires, aux questions de financement et à la concurrence des autres professionnels de la santé auditive, pour n'en nommer que quelque suns. Pour que notre profession s'épanouisse et acquière un statut distinct et reconnu dans le secteur de la santé auditive, la contribution de la majorité des audiologistes est essentielle. Plus je travaille dans le domaine, plus je comprends la nécessité de se faire entendre avec force et indépendance. À l'heure actuelle, les associations nationales d'audiologie représentent environ la moitié des professionnels qui pratiquent au Canada. Cette proportion est à peu près la même pour les associations provinciales (celles dont les règlements n'imposent pas l'adhésion). Il sera difficile de gravir l'échelle de la respectabilité avec une si faible participation.

À l'assemblée publique locale tenue lors de la dernière conférence annuelle à Niagara Falls, il était évident que les défis auxquels fait face notre profession sont multidimensionnels et très complexes. Le doctorat en audiologie est un exemple probant de défi à relever, mais comme les participants à l'assemblée publique en ont longuement discuté, il est extrêmement difficile de faire en sorte que le doctorat en audiologie devienne une norme nationale d'entrée dans le domaine de l'audiologie. Toujours à l'assemblée publique, il a été souligné que si les organismes de réglementation ou de financement ne reconnaissent pas que la pratique de l'audiologie ne consiste pas seulement en la vente d'appareils auditifs, l'adoption du doctorat

## PRESIDENT'S MESSAGE

than half of Canadian audiologists to make that voice heard.

The CAA has grown significantly over 12 years. This year's conference was bigger than ever. It is becoming a challenge to find venues that can hold our annual conference, reducing the number of viable cities that can host the event. Our administrative infrastructure is sorely challenged as well. The methods that our board currently uses to register members, prepare financial statements, and handle the daily running of the CAA were developed in our infancy and we have need for significant change. However, this change is not going to happen solely on the efforts of 11 board members and some loyal volunteers which the CAA has attracted over the years. The CAA has attracted many audiologists to volunteer service. In the past, these dedicated professionals have donated valuable time and resources to make conferences happen, to recruit new members, and to develop an association that is viable and worthwhile. With our recent growth and our plans for the future, however, the CAA is going to need even more from our members. We intend to introduce web-based systems for member and event registration, financial and statistical management, and a website and on-line community for audiologists. We wish to evaluate our event strategies, looking to host local and regional workshops and seminars outside of the annual conference. Provincial arms are fast becoming a reality as members ask CAA for help in these areas. The CAA has become increasingly active in areas of national and provincial regulation and advocacy and needs strong voices in this area. And of course, our conference committee will always need assistance to ensure the top level annual event. These are only a few examples of the needs of the association. There are many ways in which members can volunteer. At the conference, I was pleasantly surprised by the number of audiologists expressing interest in the CAA and willing to volunteer. I suspect that this has always been so, but it has not been easy for a member to decide exactly what it is that they would like to do for the academy. It is my hope that we can provide a channel for you as an audiologist with interest in your profession, to find your place in the CAA; a place where you can take a professional or personal area of interest and turn it into a volunteer opportunity.

Interested in websites? A Facebook junkie? Love to do the books at work? If you would like to volunteer, contact a board member (see the website, www.canadianaudiology.ca) or call the national office. Keep watching the website, we intend to set up a volunteer section where we can post open positions within the association. It is our members that make the CAA strong and it is our members that will help us grow.

*William Campbell, MCISc, Audiologist*
*President*

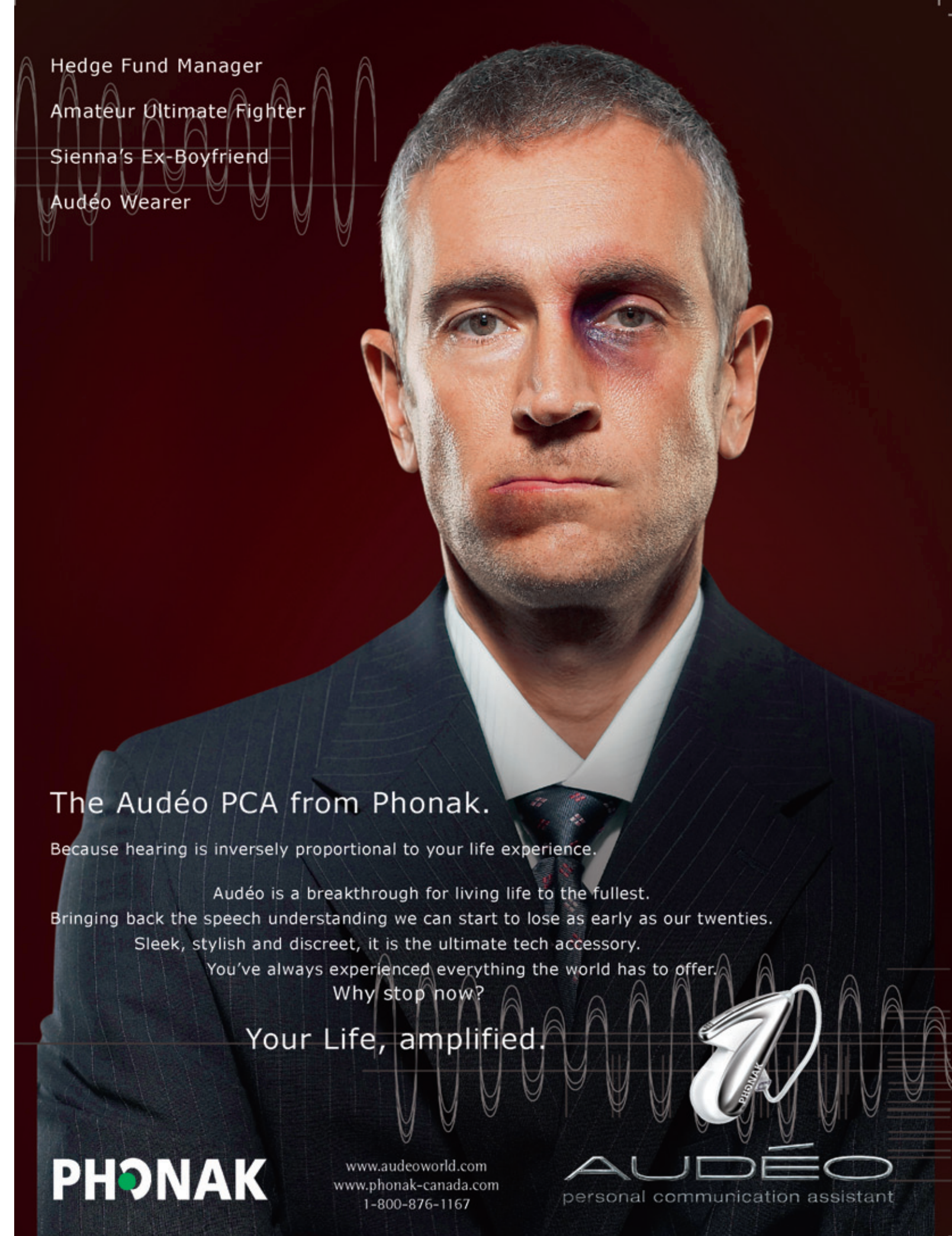
## MESSAGE DU PRÉSIDENT

en audiologie comme norme nationale d'entrée dans le domaine aura bien peu de conséquences pour les audiologistes. Il est évident que des normes nationales de pratique et une représentation professionnelle unique sont essentielles et que plus de la moitié des audiologistes canadiens seront nécessaires pour que notre voix se fasse entendre.

L'ACA a crû considérablement au cours des douze dernières années. La conférence de cette année a été la plus importante à ce jour. Il devient de plus en plus difficile de trouver des lieux où tenir notre conférence annuelle puisque le nombre de villes pouvant nous accueillir diminue. Notre infrastructure administrative est également mise au défi. Les méthodes utilisées actuellement pour inscrire les membres, pour préparer les états financiers et pour gérer les activités quotidiennes de l'ACA sont les mêmes qu'il y a douze ans et ont grandement besoin d'être modifiées. Cette modification ne sera pas réalisable seulement grâce aux efforts des 11 membres administratifs et des loyaux audiologistes bénévoles que l'ACA a recruté au fil des ans. Par le passé, ces professionnels dévoués ont consacré des ressources et du temps précieux à l'organisation de conférences, au recrutement de nouveaux membres et au développement d'une association viable et utile. Compte tenu de notre croissance récente et de nos plans d'avenir, l'ACA aura cependant de plus en plus besoin de ses membres. Nous prévoyions mettre au point des systèmes Web pour l'inscription des membres et l'inscription à des événements, pour la gestion financière et statistique et pour la mise sur pied d'un site Web et d'une communauté en ligne pour les audiologistes. Nous souhaitons évaluer nos stratégies de préparation d'événements, en cherchant à organiser des ateliers et séminaires locaux et régionaux indépendants de notre conférence annuelle. Les divisions provinciales deviennent rapidement une réalité à mesure que des membres demandent de l'aide à l'ACA dans ces domaines. L'ACA est devenue de plus en plus active dans les domaines de la réglementation et de la défense des intérêts à l'échelle nationale et provinciale, et elle doit être bien représentée dans ces domaines. Évidemment, notre comité de conférence aura toujours besoin d'aide pour organiser notre assemblée annuelle de haut niveau. Il ne s'agit que de quelques exemples des besoins de l'ACA. Les membres peuvent contribuer de nombreuses façons. Durant la conférence, j'ai été agréablement surpris par le nombre d'audiologistes qui ont exprimé un intérêt à l'égard de l'ACA et qui sont prêts à l'aider. Je présume que cela a toujours été le cas, mais il n'a pas été facile pour les membres de décider ce qu'ils voudraient faire pour l'ACA. J'espère que nous pouvons aider chacun d'entre vous, audiologistes qui vous intéressez à votre profession, à trouver la place qui vous convient au sein de l'ACA, c'est-àdire une place qui vous permettra d'exploiter un de vos domaines d'intérêt professionnel ou personnel pour nous aider.

Vous vous intéressez aux sites Web? Vous êtes accroc à Facebook? Vous aimez tenir les livres au travail? Si vous souhaitez aider l'ACA, veuillez communiquer avec un de ses membres (voir le site Web, www.canadianaudiology.ca) ou avec le bureau national. Continuez de consulter le site Web puisque nous prévoyions créer une section pour les bénévoles où nous pourrons afficher les postes disponibles au sein de l'ACA. C'est nos membres qui font la force de l'ACA et qui aideront celle-ci à croître.

*William Campbell, MCISc, Audiologiste*
*Président*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# 10th Annual Canadian Academy of Audiology (CAA) Conference and Exhibition Report

By Glen Sutherland,
Associate Editor
Photos by Martin Lux

**From October 18 to October 20, 2007, almost 600 supporters of the audiology community attended this year's 10th annual Canadian Academy of Audiology (CAA) Conference.**

Our home for the four-day event was the beautiful Sheraton on the Falls Hotel in the heart of Niagara Falls. Conference attendees included CAA conference delegates, manufacturer representatives, conference speakers, representatives from Base Consulting, as well as board members, volunteers, and guests. This years' program offered a variety of activities which included educational sessions, poster and podium presentations, the manufacturers' Exhibit Hall, the President's Luncheon, the Annual General Meeting (AGM) and Breakfast, the Town Hall Meeting, the 10th Anniversary Celebration Gala, as well as numerous other parties over the three nights.

Before the official 10th Anniversary conference even got off to its official start, professionals eager to enhance their theoretical and clinical knowledge attended pre-conference sessions on Wednesday, October 17th, 2007. Andrew Johnson, Susan Scollie, and Sheila Moodie from the University of Western Ontario (UWO) in London, Ontario, presented on Evidence-based Practice, Sam Trychin, currently a clinical psychologist consulting to Stairways Behavioural Health in Erie, Pennsylvania, talked about psychosocial issues related to hearing loss and mental health concerns related to hearing loss, and Robert Harrison, from the University of Toronto and Prudy Allen, from UWO, discussed clinical assessments of hearing, Beyond the Audiogram.

The official conference started on the morning of Thursday, October 18th with an interesting variety of sessions which included presentations by Brenda Ryals on Hair Cell Regeneration, Janet Trychin on Coaching Parents through the Early Years: Birth to Three, and Therese Walden on The Year in Review: Professional Issues and You.

We were delighted to have Dr. Jack Katz as our Keynote Speaker at the President's Luncheon on Thursday, October 18th. Jack Katz has worked in the area of communicative disorders over the past 50 years, being involved in administration and teaching in schools, universities, and community clinics. Now, he is in private practice. In recent years his research has focused on auditory processing disorders. However, editing *The Handbook of Clinical Audiology* has been an exciting part of his professional life and has definitely kept him out of mischief.

In a most interesting and entertaining keynote address, Dr. Katz intrigued his audience with a historical perspective on the creation and evolution of *The Handbook of Clinical Audiology*. The following excerpts highlight his presentation.

"The idea of a handbook for clinical audiology came from my personal need for such a book. Since there wasn't a comprehensive handbook in our field, I thought it would be a good idea to put one together. The purpose was to cover the field as broadly as possible. The criteria used for choosing authors was to ask people whose chapters I would love to read on the particular topic; as well as individuals who would be able to explain audiology clearly to students and colleagues.

I believe that the contributors to the handbook are first-rate clinicians, researchers and/or educators. Quite a few presenters at this conference have contributed excellent chapters to the handbook over the years as well as to the current edition. The sixth addition should be available very soon.

The first five editions of the handbook were well received not only in the United States and Canada but throughout the world. I believe the popularity of the handbook is because of its authoritative breadth and depth and importantly because it is quite readable. The book is also a good resource for researchers because of the thousands of references; not to mention the hundreds of tables and figures."

The conference committee, as always, made every effort to provide an agenda of session speakers and topics that offered educational opportunities applicable to a wide variety of clinical practices. It is difficult, in just a few words, to do justice to the many talented speakers that presented at this year's conference. This year's speaker sessions brought us

Warren Estabrooks, Karen MacIver Lux, and Glen Sutherland

the intellect of many renowned lecturers from Canada and the United States. The list of presenters read like a "Who's Who of Hearing Health Care" including, but not limited to, Yvonne Sininger (California), Theresa and Brian Waldman (Washington, D.C.), Terry-Lynn Young (Newfoundland), Kamran Barin (Ohio), Todd Rickets and Anne Marie Tharpe (Tennessee), Warren Estabrooks (Ontario), Frank Musiek (Connecticut), and Janet Jamieson (British Columbia). The presentation topics were as varied as the speakers which offered something of interest for all the delegates attending the conference.

The Exhibit Hall continues to play a big role at the CAA Conference. Time in the Exhibit Hall allows delegates an opportunity to put faces to the names of manufacturers' customer service representatives, and learn about new products, as well as to catch up with colleagues and friends.

This year, the Exhibit Hall boasted 50 exhibitors, from recognized, commercial manufacturers to non-profit organizations and service providers. Some of our exhibitors also provided speaker sponsorships. The 2007 CAA Conference Sponsors included the following participants:

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**The CAA Board and Conference committee members thank you so much for your valued sponsorships!**

CAA hosted another extraordinary conference and this years' was the most successful and best attended event to date! The success of each conference greatly depends on the volunteer efforts of the CAA members who participate on the conference committee. Many thanks are extended to the conference committee as well as the 10th anniversary committee members for all their work and dedication during the past year.

### 10th Anniversary Celebration Gala

This year, the Canadian Academy of Audiology (CAA) reached a significant milestone this year and to acknowledge this achievement we celebrated with a special 10th Anniversary Celebration Gala.

It was advertised as "An Evening to Remember" and a red carpet entrance was promised, so, on the evening of Friday, October 19th, 2007, CAA members and guests enjoyed the 10th Anniversary Celebration Gala in Niagara Falls. Starting at 6:30, people started to walk the red carpet


Glen Sutherland and Carri Johnson look on as one lucky winner accepts a prize from Richard Plummer (Helix).

Ariane Gobeil and André Marcoux.

into the foyer of a room in the Brock Plaza Hotel, as befitting an Academy Award presentation. At one side of the foyer were tables abundant with Silent Auction items; on the other side, a selection of some of the Niagara region's finest vintages.

As guests streamed from the foyer into the dining room, music performed by the Dixie Demons, one of Toronto's best New Orleans-style jazz bands, wafted throughout the room. The festivities had begun!

At the start, it was all about the drink and food! Food stations were spread about the room, providing guests with many edible delights which included shrimp, oysters on the half shell, sushi, satays, salads, cheese and crudités, roast beef carved to your liking, as well as numerous mouth-watering desserts!

Chris Allan presents the Student Poster Award to Jeffery L. Cruckley from the University of Western Ontario.

Krista Riko and Martyn Hyde

Glen Sutherland, Laurie Usher, and Martyn Hyde

Round tables, each seating up to 10 people, were arranged around the dance floor which was laid before the podium where awards were to be handed out. By the time the official proceedings began, about 200 people were in attendance. By 7:30, the Silent Auction was declared officially closed and it was time to hand out the awards. Carri Johnson and Glen Sutherland co-hosted the evening's proceedings.

The evening was particularly special for a few chosen people who were awarded for contributing their time and expertise to improving our profession.

Bill Campbell

Members of the Canadian Hearing Society audiology staff along with Glen Sutherland and the father and husband of Moneca Price

Stacey Weber and Luc Durand.

Chuck Fuller.

**Awards given during the evening were:**

The Student Poster Award is presented to the student author deemed, by the judging panel, to have the outstanding poster presentation at the annual conference. Chris Allan awarded this year's prize to Jeffery L. Crukley, from the University of Western Ontario

The President's Award is given in recognition of outstanding contribution to the development of the Canadian Academy of Audiology (CAA). Past President André Marcoux, gave this year's award to Kathy Pichora-Fuller.

The Honours of the Association Award was presented by Richard Seewald and André Marcoux to Krista Riko and Martyn Hyde for their outstanding contribution to audiology and related fields over the past 30 years.

The Past President's Award was given to Andre Marcoux for his contributions to the CAA during his year (2006–2007) as President of the CAA.

A special tribute was made to all Past Presidents of CAA by incoming President,

One of the Dixie Demons.

Anne Caulfield and Bill Campbell.

André Marcoux and Bill Campbell.

Joe Henne.

Bill Campbell along with 10th Anniversary Celebration Gala co-host, Carri Johnson.

Six of CAA's past presidents were in attendance to accept their awards: Chuck Fuller, Anne Caulfield, Ronald Choquette, Anne Griffin, Stacey Weber, and André Marcoux. Dennis Herx, Greg Noel, and Todd Mitchell (who served two terms) were unable to attend the proceedings.

During the awards proceedings, Rex Banks from the Canadian Hearing Society (CHS) announced the introduction of the Moneca Price Humanitarian Award. Established in 2007 by The Canadian Academy of Audiology (CAA) and The Canadian Hearing Society (CHS), the Moneca Price Humanitarian Award will be presented to an audiologist in recognition of extraordinary humanitarian and community service, above and beyond the requirements of employment. In a particularly poignant moment, Moneca's husband, Dave, addressed the guests, speaking about Moneca and thanking the CAA and CHS for dedicating this award on her behalf.

The event would not have been complete without the participation of Auctioneer Extraordinaire, Joe Henne who auctioned a few items, including one of his famous ties which fetched a record-breaking $1,000.

Dancing, drinking, and partying continued into "the wee smalls." And…a grand time was had by all!

Kathy Pichora-Fuller.

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# 2007 CAA Conference Poster and Podium Presentations

## 1. AMPLIFICATION

### Poster: Inconsistent Amplification with FM Systems in School-Age Children

*[1]Cloutier, A., [2]Picard, M., [2]Leroux, T

1. Biomedical Sciences (Audiology), University of Montreal
2. Speech and Language Pathology and Audiology School, University of Montreal

* Principal author was affiliated with Montreal Oral School for the Deaf at the time of data collection.

In classrooms, coupling FM systems to hearings aids or cochlear implants is recognized as the most beneficial solution to maintain a favourable signal-to-noise ratio. Yet, this advantage is hampered by technical problems and inappropriate use of coupled equipments leading to communication breakdowns. So far, there is little, if any indication of the proper functioning and proper use of these equipments in class. The study aims at documenting the percentage of spot checks where inappropriate use, malfunctions, and/or poor adjustments were present. Nine teachers for the deaf conducted these verifications in mainstreamed classrooms over a period of three months. Thirty-seven personal FM systems coupled in four different ways (magnetic loop, Y-cord, monaural cord, cochlear implant cord) were checked. Forty-seven percent of the spot checks showed inappropriate use (e.g., FM receiver off), malfunctions (e.g., broken shoe), and/or poor adjustments (e.g., insufficient volume) resulting in improper amplification transmission by the FM system. These problems were responsible for periods of sensory deprivation of undetermined duration while the class was in session. This situation is a real preoccupation at least in Quebec because the FM systems are not checked more than once a year.

### Poster: Benefits Derived from Level Dependent Speech Enhancement

[1]Hayes, D., [1,2]Eddins, D.

1. Unitron Hearing
2. International Center for Hearing and Speech research, Rochester Institute of Technology
3. University of Rochester School of Medicine and Dentistry

Providing amplification for speech while minimizing gain for noise should provide demonstrable perceptual improvements in almost every listening situation. For example, a WDRC gain model is applied to make soft speech audible. Unfortunately, simultaneous amplification of soft environmental noises is an inevitable and undesirable side effect. However, when speech enhancement (gain increase) is applied to amplification channels that are dominated by soft speech while channels containing soft environmental sounds do not receive additional gain, the effect is improved clarity for soft or distant speech without noise complaints. The purpose of this poster is to show how level-dependent speech enhancement (LDSE) in a wearable hearing aid provides demonstrable improvements to the perception of speech in differing levels of noise.

**First the gain model will be described, showing the merits of (LDSE). Then an acoustic analysis of speech in noise at two different SNR's will show how the algorithm works. Finally we will show the results of INT and ANL tests obtained on 21 hearing impaired participants.**

### Poster: The Effect of Digital Noise Reduction on Language Acquisition: An Update

[1]Turgeon, C., [1]Marcoux, A.M., [2]Yathiraj, A.

1. University of Ottawa, Ottawa, Canada
2. All India Institute of Speech and Hearing, Mysore, India

Audiologists are reluctant to prescribe digital hearing aids with active digital noise reduction (DNR) to preverbal children due to their potential for an adverse effect on the acquisition of language. Recently, However, a study from Marcoux et al (2006) has demonstrated that, using adults as proxy, DNR does not enhance or deter listening tasks which influence language acquisition of a novel language. The purpose of this study is to examine whether similar results can be found in groups of young children who are more representative of the target population. The relation between DNR and language acquisition is modeled by examining the discrimination of nonnative (Hindi) speech contrasts in noise. While Hindi children performed better than anglophone children, which confirmed the validity of the experimental design, results did not reveal an effect from DNR in both anglophone and Hindi participants. Overall, DNR does not appear to enhance or impair the acquisition of novel speech contrasts by young listeners.

### Podium: Hearing Aids You Teach

Hayes, D.

Unitron Hearing

The initial versions of datalogging provided clinicians with a tool to determine how their clients were using their hearing aids. The device would typically track program usage and volume control adjustments which allowed for informed decisions about how to further fine-tune it. We now have intelligent datalogging that not only tracks user adjustments, but remembers them and slowly updates the aid automatically. While intelligent datalogging is a good first step, it is a slow process requiring weeks to complete. This presentation describes an interactive solution to immediately determine the user's preferences. When they have adjusted their aid for preferred performance in a given listening environment, they press a "Teach Me" button that tells the aid, "This is how I want my settings whenever I am in this environment." In that way, user preference is tapped when deciding how to update the aids. Data presented will demonstrate the efficacy of the "Teach Me" approach to fine tune both a traditional volume and a unique "comfort/clarity" adjustment made possible using this paradigm. Thus the wearer has new adjustment options in difficult listening situations beyond simply making it louder or softer.

## Podium: The Aging Hand and Hearing Aid Ergonomics

[1,2]Singh, G., [1,2]Pichora-Fuller, K., [3]Hayes, D., [1,4,5]Carnahan, H.

1. Department of Psychology, University of Toronto,
2. Toronto Rehabilitation Institute,
3. Unitron Hearing Canada, Kitchener, Canada,
4. Department of Surgery, University of Toronto,
5. Department of Occupational Science and Occupational Therapy, University of Toronto

There are well-defined and characteristic age-related deficits in multiple sensory systems, including vision, audition, and motor abilities. A common rehabilitation strategy for auditory impairment often includes the use of a hearing aid; however, because hearing aids and hearing aid controls are becoming increasingly smaller in size, it is necessary to investigate the impact of fine motor control and other ergonomics issues that should be considered in the design of hearing instruments for older adults. The present investigation is designed to compare manual dexterity on multiple measures of haptic control and to explore the link between fine motor control and the ability to complete a motor task commonly required for successful hearing aid use. In this study, 20 younger (aged between 18 and 30 years) and 40 older adults (one group aged 60–70 and another aged 70–80 years) completed a battery of subjective and objective measures that assessed fine motor control and were later asked to manipulate (e.g., pressing a program button) current generation and innovative hearing aid button technologies. The findings of this research will be discussed within the broader context of rehabilitation and have implications for understanding how to better design the controls on hearing aids and other similar devices.

# 2. ASSESSMENT

## Poster: Longitudinal Changes In Real-Ear-to-Coupler Difference Measurements In Infants

Bingham, K., Jenstad, L.M., Shahnaz, N.

University of British Columbia

The real-ear-to-coupler difference (RECD) measurement is a commonly used clinical procedure that quantifies the difference in sound-pressure level between a 2-cc coupler and an individual's ear canal. The SPL levels in infant ears are highly variable and significantly higher than the SPL levels present in average adult ears, making the quantification of SPL levels in infant ears extremely important for threshold determination and fitting of amplification. The purpose of this study was to examine longitudinal changes in RECD values in newborn infants to determine whether a significant decrease in RECD values takes place, and whether that decrease is predictable from the infant's corrected age, their initial RECD values, or measures of static admittance and ear canal volume (ECV). A multivariate analysis of variance (MANOVA) revealed a significant change in RECD over a 1 month interval. Final RECD values were partially predictable from age, initial RECD value, static admittance, and ECV. RECD test-retest variability was not large, but larger than longitudinal RECD changes over a 1 month period. Consequently, it may be unnecessary to remeasure an RECD within an infant's first month of life, to account for changes in ear canal acoustics between initial screening tests and follow-up assessments.

## Podium: Sound Quality Measurement in Innovative Hearing Aid Technologies

[1]Seelisch, A., [1]Scollie, S., [1]Parsa, V., [1]Glista, D., [2]Huber, R.

1. University of Western Ontario
2. HorTech, gGmbH

While hearing aids remain the primary avenue by which hearing loss is treated, numerous individuals with high frequency hearing loss get very little benefit from conventional amplification due to loudness growth, dead regions, and bandwidth limitations. One proposed solution to this problem has been to present high frequency speech content to low frequency hearing regions where residual hearing is often fairly good. Past attempts at doing this have enjoyed mixed success. One of the major downfalls in doing this has been aberrations in sound quality introduced as a result of the frequency lowering process. Since degraded sound quality is known to predict discontinuation of hearing aid use, new developments need to undergo sound quality testing to evaluate acceptance. For this reason this study measures the subjective sound quality ratings among normal hearing and hearing impaired individuals on a prototype frequency lowering device allowing predictions of acceptance and user settings. While subjective user rating are preferred, testing of this nature is most often time consuming and expensive. As a result this study also attempts to correlate objective sound quality measures with subjective scores so that future testing of this nature can be done objectively.

## Poster: Factors Affecting Practice Effects on the Distinctive Features Differences Test

Jenstad, L.M., Barnes, S.

University of British Columbia

We evaluated the magnitude of practice effects on a nonsense-syllable recognition task to determine how many runs of the test would be required to achieve a stable score on the test A secondary purpose was to determine whether the practice effect could be minimized by manipulating listening conditions, namely, the type and level of background noise, and the number of talkers randomized within a block of trials. The task used the Distinctive Features Differences (DFD) test, which consists of digitized recordings of 4 talkers (2 male, 2 female), speaking nonsense syllables in the form aCil, where C is the target consonant sound, selected from 21 possible consonants. Fifty-four listeners with normal hearing were recruited. Listeners were randomly assigned to listening conditions, with different type and level of background noise, and either a single talker per block of trials or all 4 talkers per block.

All 21 responses were displayed on the computer monitor. Participants were asked to identify which of the words they heard via the headphones. Results showed that practice effects were minimal for this task, but did vary significantly across the listening conditions. Recommendations will be made for study design using these stimuli in hearing aid evaluations.

## Podium: Development of a French Speech-in-Noise Test.

Lagacé, J., Jutras, B., Gagné, J.P., Gagnon, M., Levasseur, J.M., Jakmakjian, G., Huang, Y.
University of Montreal

Many children with auditory processing disorders (ADP) experience speech perception difficulties while in presence of noise. To our knowledge, no clinical test allows the identification of the nature of the speech-in-noise problems among that population. For example, it is not possible to know if the underlying origins of listening difficulties are auditory- or language-based. Some studies have documented the nature of the speech in noise problems among other populations, such as the older adults and adults with peripheral hearing loss by using the SPIN test. It appears that it should be possible to do the same for the children with APD. The SPIN test consists of identifying high- and low-predictable sentence final words presented with a babble noise. The development of a French adaptation of the SPIN test will be presented as well as how it should pinpoint the origins of the speech in noise problems in the case of APD. It is important to identify the underlying cause of the speech-in-noise difficulties because it influences the selection of intervention program. For instance, if the origin of the difficulties is language based, the intervention strategies should be different than if they are due to a hearing problem.

## Poster: Sound localization abilities of children versus adult listeners.

Cruckley, J.L.
The University of Western Ontario

Sound localization accuracy was assessed for three groups of normal hearing listeners. Participants included 12 children between 7 and 12 years of age, 9 children between 13 and 18 years of age, and 10 adults between the ages of 22 and 30 years. Subjects were asked to localize sound stimuli in two conditions; 1) a 300 ms burst of white noise in a quiet hemi-anechoic chamber, and 2) the perceived location of a car horn amidst a stereo recording of traffic noise presented at +/-90º within the chamber. Target stimuli were presented from one of nine locations 22.5º apart, spanning 180º in the frontal-horizontal plane. Subject responses were collected with a head-mounted electromagnetic tracking unit which monitored the position of the subjects' head in space. Localization performance was assessed by comparing the average root-mean-square (RMS) error between groups and test conditions. Results indicated that subjects made significantly more localization errors in the presence of background noise than in a quite environment. Additionally, the RMS error of the youngest group of children was significantly higher than that of the adult subjects. Implications and future directions are discussed.

# 3. NOISE INDUCED HEARING LOSS

## Poster: AHL and NIHL in C57BL/6J and B6Cast Mice

[1,2,3]Stanton, S.G., [3,4]Davis, R.R., [1]Nolte, M., [5]Kreig, E., [6]Canlon, B.

1. National Centre for Audiology, School of Communication Sciences and Disorders, University of Western Ontario, London ON
2. Department of Communication Sciences and Disorders, College of Allied Health Sciences, University of Cincinnati Medical Center, Cincinnati, OH.
3. Hearing Loss Prevention Team, Engineering and Physical Hazards Branch, Division of Applied Research and Technology, National Institute for Occupational Safety and Health, Cincinnati, OH 45226.
4. Department of Biological Sciences, University of Cincinnati, Cincinnati, OH.
5. Communication and Statistics Team, Division of Applied Research and Technology, National Institute for Occupational Safety and Health
6. Department of Physiology and Pharmacology, Karolinska Institute, Stockholm, Sweden.

The C57BL/6J mouse is homozygous recessive for the age-related hearing loss (AHL) gene, cdh23 (formerly Ahl). The congenic B6Cast is genetically identical to the C57BL/6J, but with the cdh23 gene replaced by the wild-type gene. ABR thresholds were recorded in both strains and demonstrate that the B6Cast, like the C57BL/6J mouse, exhibits AHL and noise-induced hearing loss (NIHL). However, the decline in hearing, the pattern of cochlear hair cell loss and vulnerability to noise vary between these two strains. The results of this study suggest that a gene(s) in addition to cdh23 is responsible for age-related hearing loss and vulnerability to noise in the C57BL/6J mouse.

## Podium: "Do We Measure Damaging Noise Correctly?" Thirty Years Later

[1]Champagne, M.P., [1]Henderson, D., [2]Bertrand, R.A., [3]Qui, W., [5]Bertrand, N.

1. State University of New York at Buffalo
2. Emeratus member Medical Health Center, University of Montreal
3. State University of New York at Plattsburgh
4. President, Bertrand Johnson Acoustic Inc.

Introduction: During the past 40 years, researchers have measured industrial acoustic environments to assess the relationship between noise parameters and hearing loss (HL). In the '90s, a kurtosis analysis approach was developed to evaluate the hearing hazards of noise environments containing impact/impulse noises. Hamernik et al. (1993) have shown a direct relationship between the kurtosis value of the noise and the HL in animals. The current study assesses the hearing hazards difference between employees working in noise environments of equal Leq but composed of either high kurtosis or Gaussian noise.

Method: A retrospective analysis was conducted of records from 125 employees working in either high kurtosis or Gaussian noise environments. Noise recordings were done simultaneously using a fixed dosimeter and a digital noise recorder at the same location.

Results: The Leq for the final two industries was 87dBA for the Gaussian and 84dBA for the high kurtosis. The high frequencies average HL was 6.07dB greater for the employees working in the high kurtosis environment compared to the employees working in Gaussian environment. When the Leq were equilibrated, the HL of the employees working in high kurtosis was 12.91 dB greater. However, because of the relatively small sample, the difference was not significant.

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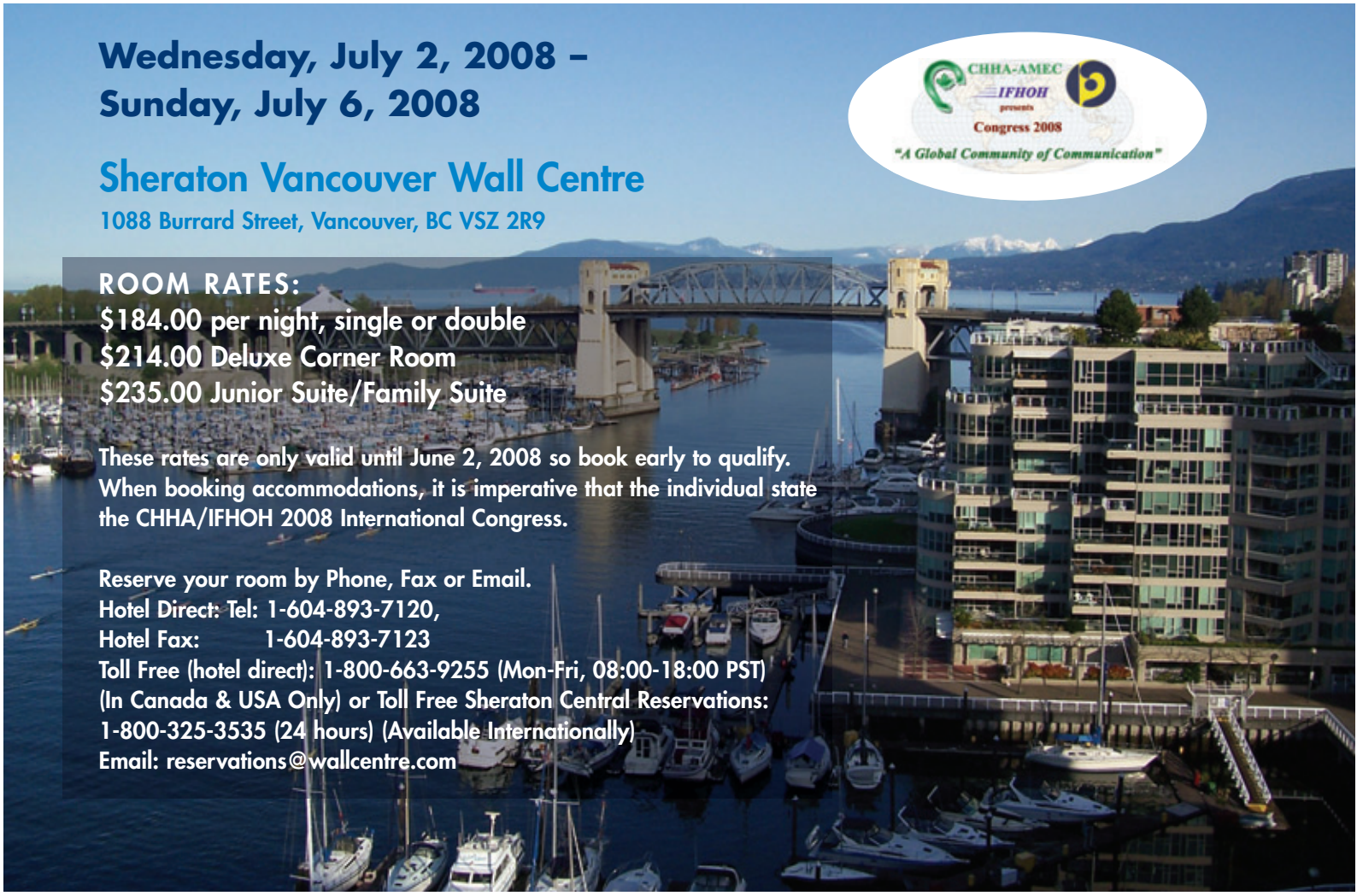

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# Scientific Research and the Canadian Academy of Audiology

As students, we learned much of the knowledge that is the foundation of audiology from professors who are not audiologists. Physicists, physiologists, psychologists, and linguists hold faculty positions in the various audiology programs in Canada and abroad. Therefore, it follows that a significant proportion of research which is translated for clinical application in audiology is published by individuals who may or may not be practicing audiologists.

It is with specific intent that our association was named the Canadian Academy of *Audiology* (CAA) and not an academy of *Audiologists*. Just as audiologists rely on the input from researchers in audiology for the implementation of strategies within their defined scope of practice, so do they rely on the input of researchers in related fields for the development of the profession of audiology. Researchers also rely on input from clinicians as they formulate research goals and try to apply their findings to practice. Historically, members of the CAA have mostly interacted with researchers during conference planning when selecting its slate of presenters. Previously, a scientific advisory committee was established to recommend conference presenters that would maximize the learning experience of delegates. During an event in London, Ontario, named "Beyond the Audiogram," where researchers from across Canada were invited to discuss research priorities, it was clearly stated that better communication was required between Canadian researchers and Canadian audiologists. This assertion was echoed by practicing audiologists when searching for research priorities that meet those required by day-to-day diagnostic and rehabilitative activities. Importantly, there did not seem to be an event where researchers and clinicians could routinely meet and where both clinicians and researchers could attend relevant and stimulating sessions.

A brainstorming session graciously sponsored by Oticon and Widex was held in Ottawa on May 26th, 2007 to bring together a group of researchers to explore ways to enhance the relationships between Canadian researchers and the CAA. Present were organizers of the "Beyond the Audiogram" event, Bob Harrison and Prudy Allen, as well other researchers and academics, namely Kathy Pichora-Fuller, Richard Seewald, and André Marcoux. Discussion at this meeting led to a consensus that there was a need to create a stimulating forum at which researchers and audiologists could interact and that the CAA conference would be an ideal venue. To facilitate this, the group recommended that the existing scientific advisory committee be expanded and accepted as a formal CAA committee. The activities of the committee would go beyond assisting with the conference to recommending activities for CAA to undertake to make research more accessible and applicable to clinicians. As anticipated at the "Beyond the Audiogram" event, the new scientific advisory committee would be charged with facilitating the exchange of ideas between researchers and clinicians with the long-term goal of ultimately enhancing the delivery of audiological services in Canada.

The CAA is committed to ensuring that audiology remain a vibrant and autonomous profession. Involving Canadian researchers in our activities is seen as a welcomed step in this process. We therefore welcome our Canadian researchers to the CAA and we look forward to a productive and enduring relationship.

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With this issue, *Canadian Hearing Report* is pleased to bring you the first in a new series of articles, "Founders of Our Profession."

# E. Robert (Cy) Libby

In conversation with Marshall Chasin

Cy Libby is one of the pioneers in the hearing health care field. Always willing to share his knowledge with others, he has written and lectured throughout the world. A friend to all, Cy has spent thousands of hours bridging the gap between the various hearing health care disciplines. In his role over the years as associate editor of *Hearing Instruments* (the precursor to the *Hearing Review*), he interpreted many difficult new concepts for all for all of the disciplines to understand. Cy is an educator, a clinician, a publisher, a researchers, and an inventor. Among the many awards that he has received are the The New York League "Fletcher Award" (1982) and the Hearing Instruments' "Distinguished Service Award" (1989). Cy was also appointed assistant professor in the Speech and Hearing Department of Hahnemann Medical School.

**Marshall Chasin:** My first question is how did a graduate from an optometry program in 1943 become involved with hearing aids and audiology?

**CL Libby:** It was difficult to make a living in optometry and many optometrists became hearing aid dispensers along with their practice of optometry. It was a natural fit. In other words, I had to make a living! It took me about five years to make a living in optometry and by that time I also had a large hearing aid dispensing practice. At one time I had seven practices around the city dispensing hearing aids and eyeglasses. Eventually I retrenched and concentrated more in the hearing aid field.

**MC:** I also understand that you were one of the first distributors of audiological equipment.

**CL:** Yes – we started in the 1970s when impedance measurements were first introduced and we went around the country with Jerry Northern, Jim Jerger, and Chuck Berlin talking about the benefits of doing this type of test. Then came probe tube microphone devices and ABR machines. So even in the earlier days, I was with good company.

**MC:** Coming from the hearing aid dispensing side of the field you came to realize very early something which audiologists had difficulty accepting in the 1960s and 1970s – the benefits of binaural hearing aids. Most research of that era failed to demonstrate any binaural advantage, yet being on the front line, you clearly saw the binaural advantage, even if it was subjective.

**CL:** There was a lot of "finger pointing" back then and because of the regulations in the United States, audiologists were not allowed to dispense – some felt that dispensers "pushed" two hearing aids simply because they could make more money. After 1978, when audiologists were legally allowed to dispense hearing aids, the benefits to their patients became obvious. In 1980 I edited a two volume text entitled *Binaural Hearing and Amplification* which brought together the research on the benefits of binaural hearing aid fittings. In small measure I believe that the move towards an increased number of binaural hearing aid fittings began with that publication. In the 1960s and 1970s audiology textbooks did not have anything positive to say about binaural fittings. They were influenced by the work of Jerger, Carhart, and Dirks who wrote definitive articles where they could not find an objective binaural benefit. The hearing aid dispensers, however, knew there was an advantage for their patients, even if the early reasons were financial in nature. Then came researchers like Mark Ross and Jerry Northern who were able to demonstrate binaural advantages for adults and children. And when audiologists were allowed to dispense hearing aids, they found the elusive binaural advantage for themselves. In 1980 only 25% of hearing aid fittings were binaural, but the tide changed and by 2005, over 75% were binaural. (Editor's note: see "The search for the binaural advantage… revisited" by E. Robert Libby, Nov. 2007, *Hearing Review*).

**MC:** In addition to your important work on bringing the benefits of binaural amplification to the forefront, it would be remiss of me if I didn't bring up your involvement with the *Vanderbilt Report*, which sits right next to my latest edition of the *Katz Handbook*. Twenty-five years later I still browse through my copy of the *Vanderbilt Report*.

**CL:** The symposium at Vanderbilt University about the state-of-the-art in hearing aids was perhaps the most influential meeting of all time, but after the symposium the presented papers just sat there – nobody had tried to publish them. I called up Gerry Studebaker who suggested that I publish it. In 1982 I published the *Vanderbilt Report* that was edited by Gerry Studebaker and Fred Bess (*Monographs in Contemporary Audiology*). It cost me $25,000 – I didn't make any money, but I didn't lose any money. We ended up publishing the *Monographs* for about 10 years.

**MC:** I can't talk about Cy Libby without talking about the Libby horn. How did that

come to be?

**CL:** In 1978 Mead Killion published an article based on his PhD thesis talking about the acoustic benefits of enhancing the higher frequencies by use of a stepped diameter tubing horn in the hearing aid earmold. So I called him up. He said that the article had been out about 6 months and nobody had called him about it. He said that I was the first person to have shown interest in it. I told him that this was monumental. By simply extending the horn outside of the normal body of the earmold (to 22 mm) one could extend the high frequency range of the hearing aid. You can easily get 10 to 12 dB more gain at and above 3,000 Hz. Mead said why don't you do something with it. I asked him if it was patented and he said no. I went to a plastic firm and invested about $25,000 in it and finally came out with a one piece horn. The Killion horn was a three piece horn (#13 tubing fitted into a length of #9 tubing which fit into a 4 mm inner diameter bore of the earmold) and this was a one piece tubing that flared to a 4 mm horn, and this became one of the standards of the industry. And in this day of digital hearing aids the Libby horn still has a place. If you enhance the high frequency gain electronically, this can increase the gain but may not increase the output, such that there is a headroom problem. If the high frequency gain is enhanced by a Libby horn, the amplification takes place *after* the receiver so that there is no headroom problem (as well as better battery life).

**MC:** I know that there is both a 3 mm and a 4 mm Libby horn. I seem to recall that the 3 mm horn came out first.

**CL:** Actually the 4 mm Libby horn came out first and later the 3 mm version. Many people were experiencing feedback with the 4 mm horn so we stepped it back a bit to lessen the possibility of feedback.

**MC:** With the advent of non-occluding BTE hearing aids, I guess that the Libby horn is not as commonly used?

**CL:** That is true. But I did run with it for 27 years. I sold millions of them all around the world. I sold most of them in Germany, and almost none in Japan.

**MC:** Now for the most important question of all. What does the "E" stand for in E. Robert Libby?

**CL:** Effervescent! My first name is really "Esiah" and that's where the "Cy" comes from.

**MC:** Cy – this has been a pleasure. Check out Cy's website at www.CyLibby.com

# E. Robert (Cy) Libby

En conversation avec Marshall Chasin

Cy Libby est l'un des pionniers dans le domaine des soins de santé de l'audition. Toujours prêt à partager ses connaissances avec les autres, il a écrit et tenu des conférences dans le monde entier. Un ami de tous, Cy a passé des milliers d'heures à établir le lien entre les diverses disciplines de la santé de l'audition. Dans son rôle au cours des ans comme rédacteur associé des *instruments d'audition* (le précurseur à *la revue d'audition*), il a interprété beaucoup de nouveaux concepts difficiles à comprendre pour toutes les disciplines. Cy est un éducateur, un clinicien, un éditeur, un chercheur et un inventeur. Parmi les nombreuses récompenses qu'il a reçues, on retrouve le « prix Fletcher » de la ligue de New York (1982) et le «prix de service distingué » des instruments d'audition (1989). Cy a également été nommé professeur auxiliaire dans le Département de la Parole et d'Audition de l'École Médicale de Hahnemann.

**MC:** Ma première question est comment a fait un diplômé d'un programme d'optométrie en 1943 pour être si impliqués avec les prothèses auditives et l'audiologie?

**CL:** Il était difficile de gagner sa vie dans le domaine de l'optométrie et beaucoup d'optométristes sont devenus des distributeurs de prothèses auditives en plus de leur pratique en optométrie. C'était un ajustement normal. En d'autres termes, je devais gagner ma vie ! Cela m'a pris environ cinq ans pour gagner ma vie dans le domaine de l'optométrie et à ce moment-là j'ai également eu une grande pratique en matière de distribution de prothèse auditive. À un moment, j'ai eu sept pratiques dans la ville qui fournissaient des appareils auditifs et des verres correcteurs. Éventuellement, j'ai restreint ma pratique et me suis concentré sur le domaine des appareils auditifs.

**MC:** Je comprends également que vous étiez l'un des premiers distributeurs d'équipement audiologique?

**CL:** Oui, nous avons débuté en 1970 lorsque les mesures d'impédances venaient tout juste d'être introduites. Nous avons parcouru le pays avec Jerry Northern, Jim Jerger et Chuck Berlin afin de parler des bénéfices de faire ce type de test. Ensuite est arrivé le microphone avec le tube sonde et les instruments de PEATC. Donc, même au tout début j'étais avec une très bonne compagnie.

**MC:** Vu du côté de la distribution de prothèse auditive et du champ d'où vous venez vous avez de réaliser très tôt quelque chose que les audiologistes ont eu la difficulté à accepter dans les années 60 et les années 70- les avantages des prothèses auditives binaurales. La plupart des recherches à cette époque ont échoué dans la démonstration de n'importe quel avantage binaural et, vous, étant pourtant au premier rang, vous avez clairement vu l'avantage binaural, même s'il était subjectif.

**CL:** À cette époque, beaucoup pointait du doigt en raison du règlement aux États-Unis qui stipulaient que les audiologistes n'étaient permis de distribuer- certains y ont estimé que les distributeurs ont penché en faveur de l'appareillage binaural pour des raisons financières. Après 1978, lorsqu'on a légalement permis aux audiologistes de distribuer des prothèses auditives, les avantages pour leurs patients sont devenus évidents. En 1980 j'ai signé un texte de deux volumes intitulé « *l'audition et l'amplification binaurale* » qui ont rassemblé la recherche sur les avantages de l'appareillage binaurale. De façon modeste, je crois que le mouvement vers un plus grand nombre d'appareillages binauraux a débuté par cette publication. En audiologie des années 60 et 70, les manuels n'ont eu rien de positif à dire au sujet de l'appareillage binaural. Ces manuels ont été influencés par le travail de Jerger, de Carhart et de Dirks qui ont écrits les articles définitifs où ils ne pourraient pas trouver un avantage binaural objectif. Les distributeurs de prothèses auditives ont cependant su qu'il y avait un avantage pour leurs patients, même si les raisons antérieures étaient de nature financière. Alors sont venus les chercheurs comme Mark Ross et Jerry Northern qui pouvaient démontrer l'avantage de l'appareillage binaural pour les adultes et les enfants. Ensuite, lorsqu'on a permis aux audiologistes de distribuer des prothèses auditives, ils ont trouvé l'avantage binaural évident. En 1980 seulement, 25% des appareillages étaient de types binauraux, mais le vent a tourné et, en 2005, plus de 75% des appareillages étaient de types binauraux. (Note de l'éditeur: voir "The search for the binaural advantage… revisited" par E. Robert Libby, Nov. 2007, *Hearing Review*).

**MC:** En plus de votre travail considérable pour amener l'appareillage binaural au premier rang, je serai négligente de ne pas mentionner votre implication dans *le rapport Vanderbilt* qui siège au côté de la dernière édition du manuel de référence en audiologie de Katz (v.a."*Katz Handbook*"). Vingt-cinq ans plus tard, je feuillète toujours ma copie du *rapport Vanderbilt*.

**CL:** Le symposium de l'Université


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deVanderbilt au sujet des appareils auditifs a été le rassemblement le plus influent à cette époque, mais suite à la conférence, les résumés papiers des présentations sont restés sur les tablettes, personne n'aillant essayé de les publier. J'ai appelé Gerry Studebaker, qui m'a ensuite suggéré de publier les présentations. En 1982, j'ai publié *le rapport Vanderbilt* qui était édité par Gerry Studebaker et Fred Bess (*monographie en audiologie contemporaine*). Ça m'a coûté 25 000$- je n'ai fait aucun profit, mais je n'ai pas perdu d'argent. Nous avons terminé en publiant *les monographies* environ 10 ans plus tard.

**MC:** Je ne peux pas parler de Cy Libby sans parler du cornet de type Libby. Comment cela est-il né?

**CL:** En 1978, Mead Killion a publié un article basé sur sa thèse de doctorat et qui portait sur les bénéfices acoustiques d'accentuer les hautes fréquences en utilisant un tube avec un diamètre qui progresse dans le moule de l'appareil auditif.. C'est là que je lui ai attribué son nom. Il disait que l'article était sorti depuis plus de six mois et personne n'avait attribué de nom à ce genre d'arrangement de tube. Il m'a dit que j'étais la première personne qui y démontrait de l'intérêt. Je lui ai dit que c'était monumental. En étendant le cornet à l'extérieur du corps normal du moule (jusqu'à 22mm) a comme effet d'élargir la gamme de hautes fréquences de l'appareil auditif. On peut facilement obtenir 10 à 12 dB de gain à et au-dessus de 3000 Hz. Mead disait qu'il fallait aller de l'avant avec ce projet. Je lui ai demandé s'il avait l'intention de le faire breveter et il m'a répondu que non. Je suis donc allé voir une compagnie de plastique et j'ai investi 25 000$ pour finalement terminer avec un cornet en un seul morceau. Le cornet Killion était un tube en trois morceaux (un tube de grosseur #13 intégré à un tube de grosseur #9 qui s'insère dans un diamètre de 4 mm dans la partie intérieur du moule) et il s'agissait d'un agencement de tube une pièce qui s'évase en un cornet de 4 mm. De plus, cet agencement est devenu un standard dans l'industrie. Et même maintenant avec la mise en marché des appareils numériques, le cornet Libby a toujours sa place. Si vous augmentez électroniquement le gain en hautes fréquences cela causera certes un gain, mais pas nécessairement une augmentation de la sortie en raison de problème de plafonnage. Si le gain en hautes fréquences est augmenté par un cornet Libby, l'amplification se fait *après* le passage du son dans le récepteur, donc on n'a pas de problème d'effet de plafond (et on augmente la durée d'efficacité des batteries).

**MC:** Je sais qu'il existe des cornets Libby de 3 mm et de 4 mm. Je crois me souvenir que celui de 3 mm est arrivé en premier.

**CL:** En fait le cornet Libby 4 mm est arrivé en premier et ensuite la version de 3 mm. Beaucoup de gens avaient des problèmes d'effet de Larsen avec les cornets Libby de 4 mm. Nous nous sommes donc questionnés sur ce problème afin de diminuer l'effet de Larsen avec le cornet Libby.

**MC:** Avec l'arrivée des appareils auditifs coutours d'oreilles à moule ouvert, je suppose que l'utilisation du cornet Libby ne peut pas s'appliquer?

**CL:** En effet, mais j'ai tout de même réussi à fonctionner avec pour plus de 27 ans. J'en ai vendu des millions partout sur la planète. J'ai vendu la plupart en Allemagne et presque aucune au Japon.

**MC:** Maintenant la question la plus importante de toutes. Que veut dire le "E" dans E. Robert Libby?

**CL:** Effervescent! Mon prénom est réellement "Esiah" de là le prénom dérivé "Cy".

**MC:** Cy- ça été un plaisir. Visitez le website de Cy au www.CyLibby.com

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# Responses to the Three Common Questions Asked of Us by the WSIB

By Marshall Chasin AuD., M.Sc., Reg. CASLPO,
Doctor of Audiology,

1. This person has only worked 4 years in noise, but the WSIB requires 5 years for a claim. Is there evidence to support this person's claim?
2. This person has only worked in 84 dBA for the past 10 years. WSIB requires a level of 85 dBA. Is there evidence to support this person's claim?
3. This person is retired and no longer exposed to noise. The hearing has deteriorated since he retired. Is this all due to presbycusis, or is there a noise-based component?

A worker who is exposed for less than 5 years, or is in an environment that is less than 85 dBA is typically rejected despite having a hearing loss in excess of 22.5 dB HL averaged at 500 Hz, 1,000 Hz, 2,000 Hz and 3,000 Hz in the better ear. (For an NEL pension, 26.5 dB HL is required.) The WSIB would be willing to consider well researched letters of appeal and the following will serve as a basis for such a report.

The reasons why the WSIB requires at least 5 years of noise exposure (at a level of 85 dBA) before they consider a claim is not well defined and historically is on shaky ground. There are three landmark studies that serve as the basis for questions 1 and 2 above, and these can both be restated as: "Are some workers more susceptible than others to the effects of noise exposure?"

In the Baughn (1973) study that was based on automotive workers from General Motors in the United States from 1960 to 1965, there is evidence that the audiometric test area was noisy thereby compromising the lower frequency thresholds. In addition, none of the workers were otologically screened, thereby ignoring the fact that some workers may have had untreated long-standing conductive hearing losses (e.g., previous ear infections) that may have reduced the sensori-neural noise exposure. The unscreened population may have had middle ear conductive components that would have acted to *minimize* the effects of noise exposure, despite having an undisclosed conductive component that may have *increased* the threshold measurements – i.e., the workers had a mixed loss. Finally, the data for this study was obtained as early as 1960 and the audiometric standards for hearing testing thresholds in 1960 were different than those of the modern ANSI standard (post 1969), thereby further *understating* the actual mid- to high-frequency long-term damage that workers would be subject to.

The Passchier-Vermeer (1968; 1971) studies also formed the basis of modern standards. These studies were actually a compilation of 10 different studies from England, Holland, the United States, and Sweden – each having their own differing test situations. Passchier-Vermeer was however able to delineate workers in this large study (over 4,000 workers) who had differing susceptibilities to noise exposure and data was given for NIHL at various percentiles. For example, after 10 years of being exposed to 100 dBA noise for a typical work week, one can have anywhere from a 22 dB (90th percentile) to a 38 dB (10th percentile) hearing loss at 4,000 Hz. That is, for the same work environment and same exposure, some workers will have a permanent 22 dB loss at 4,000 Hz whereas other "more susceptible" workers would have a 38 dB hearing loss at 4,000 Hz –a 16 dB difference.

The Burns and Robinson (1970) publication is the third major historical study that modern noise models such as ISO (1999), OSHA, EPA, and NIOSH, are based on. Unlike the Baughn (1973) study, Burns and Robinson used well screened individuals and further fine tuned the issue of individual worker noise susceptibility.

Baughn (1973), Passchier-Vermeer (1968; 1971), and the Burns and Robinson (1970) studies clearly demonstrate two issues – (a) some people are more susceptible to noise exposure than others, and (b) the data are highly variable and have been potentially affected by uncontrolled factors (especially for the Baughn and Passchier-Vermeer studies). These studies serve as the basis of all modern regulations and standards. To date, no researchers have definitively pinned down the explanation for why some workers are more prone to hearing loss from noise exposure. There have been many studies looking at factors such as eye colour, race, melanin level, cardiovascular status, serum cholesterol levels, and smoking. To date, while there have been some interesting laboratory results using well controlled environments, the explanations can only account for a small proportion of the overall variance. Nevertheless, as shown by the above three landmark studies, there are varying levels of susceptibility to noise exposure.

Another aspect of the three landmark studies is that data is only summarized for exposures for 10 years or more. If you examine the data from large scale studies the shorter term data is available, but is not typically analyzed – if the data is available at all, it is usually found in the appendix of the report. If the data is analyzed, one can clearly see that the slope of the function between time (in years) and permanent NIHL is quite steep for the first 5 to 7 years and then becomes more asymptotic above the 10 year exposure mark. That is, there is a much greater change in hearing levels over the first 5 to 7 years than later with the greatest changes observed between year 1 and year 5. These data are available from the

appendix of the most modern models of noise exposure (e.g., ISO, 1999). The selection of many regulatory agencies such as the WSIB, of a required exposure for 5 years or greater is merely administrative and has no scientific basis. Whenever there is a high slope, the associated standard error of the data is larger – that is, a small change in one parameter (i.e., time) can result in a large change in permanent NIHL. Definitive statements regarding absolute hearing levels for shorter periods of exposure (e.g., 3–4 years) is simply impossible to make with any degree of reliability. This, however, does not mean that a permanent NIHL is not apparent, depending on the case.

There is well controlled laboratory evidence that the effects of permanent NIHL begin as low as 80 dBA and organizations such as the World Health Organization advocate that noise control measures be undertaken for exposures above 75 dBA. There is supporting data from NASA indicating permanent NIHL for space station astronauts who are exposed to constant (24 hour) exposure to levels in the 70 to 75 dBA range. (Danielson, 2005). The EPA states that for an exposure of 80 dBA, there is a 5% risk, while NIOSH states a 3% risk.

In addition, the selection of an 85 dBA fence is an administrative level and not a target level for safety. Following is a chart of the predicted permanent threshold hearing losses for an exposure of 85 dBA for five studies/models:

| | Passchier-Vermeer | Burns and Robinson | Baughn | NIOSH | ISO R-1999 |
|---|---|---|---|---|---|
| 85 dBA | 8 dB | 6 dB | 9 dB | 5 dB | 6 dB |

As far as the third commonly asked question – Can hearing loss from noise exposure continue after a person has retired? – this is a much more difficult question, and to date, no WSIBs across the country has ever compensated a retired worker for an increased hearing loss after they were removed from the workplace. Nevertheless this can happen and a proposed etiology is the long term weakening of the Deiter supporting cells that "collapse" at some point, bringing down with it, otherwise relatively well functioning hair cells. To date the only study supporting this is by Gates et al. (2000): "The finding of increased loss at 2 kHz suggests that the effects of noise damage may continue long after the noise exposure has stopped. The mechanism for this finding is unknown…".

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5. Passchier-Vermeer W. (1968). Hearing loss due to steady-state broadband noise. (Report 35). Sound and Light Division, Research Institute for Public Health Engineering. Delft, Netherlands.


## SAMPLE LETTER 1

Dec. 3, 2007

**Worker's Safety and Insurance Board,**
Xyz Main Street,
City of choice, Province,
X0X 0X0

Re: Jonathan Worker
**WSIB# 2000 3000**
D.O.B. March 8, 1951

To whom it may concern:

This is a letter in support of an appeal to the WSIB by the above named worker. Documents indicate that this worker was rejected for a WSIB claim on the basis of not being exposed to a noisy environment for at least 5 years. Indeed, Mr. Bonathan was only employed for 4 years at Dufflin Bufflin Bakeries. The following information is to support that "5 year fence" has no scientific basis and is merely administrative.

Historically, the reasons why the WSIB requires at least 5 years of noise exposure (at a level of 85 dBA) before they consider a claim is not well defined and is on shaky scientific ground. There are three landmark studies that serve as the basis for this issue and a review of these primary sources, with special attention given to the issue of worker susceptibility, will provide the correct picture. A review of the strengths and limitations of these studies are in order. The three landmark studies, that serve as the basis of all modern models of noise exposure are Baughn (1973), Passchier-Vermeer (1968; 1971), and Burns and Robinson (1970).

The Baughn (1973) study was based on automotive workers from General Motors in the United States from 1960 to 1965, and there is evidence that the audiometric test area was noisy thereby compromising the lower frequency thresholds. In addition, none of the workers were otologically screened, thereby ignoring the fact that some workers may have had untreated long-standing conductive hearing losses (e.g., previous ear infections) that would have reduced the sensori-neural noise exposure. The unscreened population may have had middle ear conductive components that would have acted to minimize the effects of noise exposure, despite having an undisclosed conductive component that may have increased the threshold measurements – i.e., the workers had a mixed loss. The data for this study was obtained as early as 1960 and the audiometric standards for hearing testing thresholds in 1960 were different than those of the modern ANSI standard (post 1969), thereby further understating the actual mid- to high-frequency long term damage that workers would be subject to.

The Passchier-Vermeer (1968; 1971) studies also formed the basis of modern standards. These studies were actually a compilation of 10 different studies from England, Holland, the United States and Sweden – each having their own differing test situations. Passchier-Vermeer was, however, able to delineate workers in this large study (over 4,000 workers) who had differing susceptibilities to noise exposure and data was given for NIHL at various percentiles. For example, after 10 years of being exposed to 100 dBA noise for a typical work week, one can have anywhere from a 22 dB (90th percentile) to a 38 dB (10th percentile) hearing loss at 4,000 Hz. That is, for the same work environment and same exposure, some workers will have a permanent 22 dB loss at 4,000 Hz whereas other "more susceptible" workers would have a 38 dB hearing loss at 4,000 Hz –a 16 dB difference.

The Burns and Robinson (1970) publication is the third major historical

study that modern noise models such as ISO (1999), OSHA, EPA, and NIOSH, are based on. Unlike the Baughn (1973) study, Burns and Robinson used well-screened individuals and further fine tuned the issue of individual worker noise susceptibility.

Baughn (1973), Passchier-Vermeer (1968; 1971), and the Burns and Robinson (1970) studies clearly demonstrate two issues – (a) some people are more susceptible to noise exposure than others, and (b) the data are highly variable and have been potentially affected by uncontrolled factors (especially for the Baughn and Passchier-Vermeer studies). These studies serve as the basis of all modern regulations and standards. To date, no researchers have definitively pinned down the explanation for why some workers are more prone to hearing loss from noise exposure. There have been many studies looking at factors such as eye colour, race, melanin level, cardiovascular status, serum cholesterol levels, and smoking. To date, while there have been some interesting laboratory results using well controlled environments, the explanations can only account for a small proportion of the overall variance. Nevertheless, as shown by the above three landmark studies, there are varying levels of susceptibility to noise exposure.

Another aspect of the three landmark studies is that data is only summarized for exposures for ten years or more. If you examine the data from large-scale studies the shorter term data is available, but is not typically analyzed – if the data is available at all, it is usually found in the appendix of the report. If the data is analyzed, one can clearly see that the slope of the function between time (in years) and permanent NIHL is quite steep for the first 5 to 7 years and then becomes more asymptotic above the 10-year exposure mark. That is, there is a much greater change in hearing levels over the first 5-7 years than later with the greatest changes observed between year 1 and year 5. These data are available from the appendix of the most modern models of noise exposure (e.g., ISO R 1999). The selection of many regulatory agencies such as the WSIB, of a required exposure for 5 years or greater is merely administrative and has no scientific basis. Whenever, there is a high slope, the associated standard error of the data is larger- that is, a small change in one parameter (i.e., time) can result in a large change in permanent NIHL. Definitive statements regarding absolute hearing levels for shorter periods of exposure (e.g., 3–4 years) is simply impossible to make with any degree of reliability. This, however, does not mean that a permanent NIHL is not apparent, depending on the case.

In light of the aforementioned evidence, we request that Mr. Worker's claim be reconsidered.

Sincerely,

XYZ Name and Degrees
Audiologist

## REFERENCES


1. Baughn WL. (1973). Relation between daily noise exposure and hearing loss based on the evaluation of 6,835 industrial noise exposure cases. (Joint EPA/USAF study, AMRL-TR-73-53). Wright-Patterson AFB, OH.
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4. Passchier-Vermeer W. (1968). Hearing loss due to steady-state broadband noise. (Report 35). Sound and Light Division, Research Institute for Public Health Engineering. Delft, Netherlands.


## SAMPLE LETTER 2

Dec. 3, 2007

**Worker's Safety and Insurance Board,**
Xyz Main Street,
City of choice, Province,
X0X 0X0

Re: Jonathan Worker
**WSIB# 2000 3000**
D.O.B. March 8, 1951

To whom it may concern:

This is a letter in support of an appeal to the WSIB by the above named worker. Documents indicate that this worker was rejected for a WSIB claim on the basis of not being exposed to a noisy environment of 85 dBA. Indeed, Mr. Bonathan was only exposed to 83 dBA during his employment at Dufflin Bufflin Bakeries. The following information is to support that permanent noise induced hearing loss can occur as a result of levels less than 85 dBA.

There is well controlled laboratory evidence that the effects of permanent NIHL begin as low as 80 dBA and organizations such as the World Health Organization advocate that noise control measures be undertaken for exposures above 75 dBA. There is supporting data from NASA indicating permanent NIHL for space station astronauts who are exposed to constant (24 hour) exposure to levels in the 70 to75 dBA range. (Danielson, 2005). The EPA states that for an exposure of 80 dBA, there is a 5% risk, while NIOSH states a 3% risk.

In addition, the selection of an 85 dBA fence is an administrative level and not a target level for safety. Following is a chart of the predicted permanent threshold hearing losses for an exposure of 85 dBA for five studies/models:

| | Passchier-Vermeer | Burns and Robinson | Baughn | NIOSH | ISO R-1999 |
|---|---|---|---|---|---|
| 85 dBA | 8 dB | 6 dB | 9 dB | 5 dB | 6 dB |

The chart shows that "on average," exposure levels of 85 dBA can indeed cause permanent noise induced hearing loss, and given the

individual susceptibilities of many workers, as shown in the studies by Passhier-Vermeer (1968; 1971) and Burns and Robinson (1970), many workers can certainly suffer from noise induced hearing loss as a result of levels below 85 dBA.

In light of the aforementioned evidence, we request that Mr. Worker's claim be reconsidered.

Sincerely,

XYZ Name and Degrees
Audiologist

## REFERENCES


1. Baughn WL. (1973). Relation between daily noise exposure and hearing loss based on the evaluation of 6,835 industrial noise exposure cases. (Joint EPA/USAF study, AMRL-TR-73-53). Wright-Patterson AFB, OH.
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*Marshall Chasin, AuD., M.Sc., Reg. CASLPO, Doctor of Audiology, is the Director of Research, Musicians' Clinics of Canada and is an Associate Editor of CHR. Marshall Chasin can be reached at Marshall.Chasin@rogers.com or visit the Musicians' Clinics of Canada website at: www.musiciansclinics.com.*

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A preview of Yuu was available at CAA in October with product availability beginning in January 2008. Please contact your regional sales representative or Customer Service at 800.265.8255 for additional information.

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Unitron Hearing creates world-class hearing innovations that make everyday listening easier for people with hearing loss. The Company is renowned for high-value, easy-to-use hearing solutions. Unitron Hearing has 12 international offices including its global Development Centre located in Kitchener, Canada, and serves people with hearing loss through distribution partners in over 65 countries. For more information, please visit www.unitronhearing.ca

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| | |
|---|---|
| ❑ 1-50 Words CAA Website | only $150.00 plus GST |
| ❑ 1-50 Words: CAA Website *and* CHR | $200.00 plus GST |

**TOTAL:**

## ❑ Please run my ad as a DISPLAY CLASSIFIED AD

***(ad may contain picture(s) and logo(s), black and white only)***

| | |
|---|---|
| ❑ 1/8 page: CAA Website | only $300.00 plus GST |
| ❑ 1/8 page CAA Website *and* CHR | $400 plus GST |

*Canadian advertisers add 6% GST to total order. 10% discount for multiple orders.*

**Prices subject to change without notice.**

### Ad to appear in:

- ❑ 4 (Dec. 2007)
- ❑ Product Directory (Jan 08)
- ❑ 1 (Feb. 08)
- ❑ 2 (May 08)
- ❑ Corporate Profiles (Aug 08)
- ❑ 3 (Sept. 08)
- ❑ 4 (Dec. 08)

*Ads must be typed and submitted in an electronic format either by mail or email to the address above.*

## CONTACT INFO:

NAME: TITLE:

ORGANIZATION: AGENCY NAME:

ADDRESS:

CITY/TOWN: POSTAL CODE:

PHONE: FAX:

EMAIL:

## PREPAYMENT REQUIRED:

***No ads will be published unless full payment and faxed, printed proof is included with order.***

❑ Cheque enclosed, made payable to Canadian Academy of Audiology

❑ Visa ❑ Mastercard

CARD NUMBER:

EXPIRY DATE:

# So you say you want a revolution?

# Well, here it is.

**The Destiny RIC from Starkey.**

Your hearing problem may have started decades ago, but now you don't have to wait for the solution. Experience the new line of state-of-the-art Destiny hearing instruments. They're small, discreet, and extremely comfortable. It's hearing technology designed to blend in so well, it's practically invisible.

**Ask a hearing professional about Destiny today.**

Destiny™

Starkey®