

Welcome to Warsaw!



Prof. HENRYK SKARŻYŃSKI, M.D., Ph.D.
President of the 2009 ESPCI

It is our great honor and pleasure to welcome you to the 9th European Symposium on Paediatric Cochlear Implantation in Warsaw, Poland.

We are very pleased that such an important and large congress is taking place in the capital of Poland, where, despite many organizational and economic challenges, we performed, in 1992, the first cochlear implantation in Poland. Continuing our hard work, in 2002 for the first time in the world we installed a cochlear implant in an adult with partial deafness (PDCI). In 2004, also as the first in the world, we used the same procedure in a partially deaf child. We have all come a long way since those first implantations.

We hope that this congress, bringing together the most experienced specialists as well as those still learning and developing their skills, will be a great forum for presenting state of the art accomplishments in cochlear implantation and related sciences.

We believe that our organizational efforts to create an interesting and rich program will lay the groundwork for beneficial scientific exchange and personal networking during our social events. We are very proud to present our Polish culture, hospitality, as well

as our scientific and organisational output, to over 1650 participants from all continents. It was also important to us to host as many guests as possible from behind our eastern border, and we managed to assist 350 people from Poland and other eastern countries in to take part in the congress. In this way we wanted to emphasise our devotion to sharing knowledge and creating learning opportunities. We remember and appreciate the help we received ourselves from various, distinguished scientists back when we were first starting to treat deafness in Poland. They were wonderful teachers and leaders to us.

Today, I would like to greet them as special and remarkable guests. Among so many significant people, I would particularly like to draw your attention to: prof. Jan Helms, prof. Blake Wilson, prof. Christoph von Illberg, I also welcome Dr Ingeborg and prof. Erwin Hochmair, Dr Monika Lehnhardt as well as prof. George Tavartkiladze and prof. Rudolf Probst.

Sincere greetings to all of you once again. We would like to thank all our friends and sponsors, who have supported this event and contributed to its organization. Enjoy your stay in Warsaw!

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Change

*A lot of changes in our life
When our dreams come true
Our hearing changes
And our voice changes
Everything gains new meaning
Do you know what changes us greatly?
What changes us more and more?
You probably think it is the way we see things
But it is the sound that changes us so much
The sound that I can hear
The sound that stirred the absolute silence
The sound that wrapped me up
There is a sound, I can hear it!
I feel the world spinning
For a technology miracle and skills
Pulled me out of silence
Today, I can hear!* H. Skarżyński

The Inauguration of the 9th ESPCI in Teatr Wielki – Polish National Opera

The 9th ESPCI inauguration will be exceptional not only because of the scale of the event, but also due to the chosen location itself. Teatr Wielki has been an opera and ballet venue for over 170 years.

Errected between 1825-1833, it was designed by Antonio Corazzi from Livorno as a headquarters for the national groups of opera, ballet and drama troupes. The first performance took place on 24th of February 1833.

During the siege of Warsaw in 1939, the theatre was bombed and almost completely destroyed. Between 1945 and 1965 the troupes gave their performances at different locations. Then the theatre was reconstructed, using the designs of Bohdan Pniewski.

After the grand re-opening in 1965, the theatre became renowned as one of the largest, magnificent and best stages in Europe, and its equipment was considered the most contemporary in theatre technology.



Polish National Opera in Teatr Wielki has built its almost 200 year tradition presenting the works of Polish composers. Its classical repertoire is full of world's famous plays by Beethoven, Mozart, Offenbach, Verdi and Wagner.

According to the original plans and design of Antonio Corazzi, the facade of the building was supposed to be decorated with a triumphant

sculpture of Apollo's arts chariot riding a chariot pulled by four horses. The outbreak and fall of the November Uprising made those plans impossible.

However, in 2002, under an initiative of the theatre's director Waldemar Dąbrowski, the facade was completed according to the original plans. Teatr Wielki – Polish National Opera has its main stage

in Moniuszko Hall with the auditorium of 1841 seats. The cameral stage is in the Emil Młynarski Hall with 248 places.

On the first floor, now in the place of former Redutowe Halls, there is a theatre museum – the only one of this kind in Poland. In front of the building, you can see two monuments of national importance by sculptor Jan Szczepkowski featuring the founding fathers of Polish theatre and opera – Wojciech Bogusławski and Stanisław Moniuszko.



OPENING PROGRAM

9th European Symposium
on Paediatric Cochlear Implantation
In Teatr Wielki – National Opera in Warsaw
14 May 2009, 20.00, Moniuszko Hall

20.00
Opening ceremony – Ms. Anna Popek / TVP introducing 2009 ESPCI President, Prof. Henryk Skarżyński

20.05
Opening speech by the 2009 ESPCI President, Prof. Henryk Skarżyński and awarding the previous ESPCI Presidents with the commemorative medals

20.20
"Poland welcomes, Warsaw welcomes" – show given by friends and patients of MCSM, arranged by Mr. Waldemar Malicki & CO

22.00
The end of gala

THE 9TH EUROPEAN SYMPOSIUM ON PAEDIATRIC COCHLEAR IMPLANTATION

ORGANIZERS:

International Center of Hearing and Speech of the Institute of Physiology and Pathology of Hearing



Foundation of Medical Development "HOMO HOMINI"



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ESPCI– history and people (1)

This is the 9th time when the most influential people from in the fields of physiology and pathology of hearing, otology, otosurgery, audiology, acoustics, psychoacoustics, biophysics, bioengineering, technology, and psychology, speech-language therapy, education meet to discuss the current status and future of auditory implants implementation, partial deafness treatment further implementation, development of rehabilitation and telemedicine and all related subjects at the European Symposium on Paediatric Cochlear Implantation

We hereby present, the first part of the material featuring the previous hosts of the ESPCI 1992 to 1998. In the next issue of the Congress Tribune, we will present more information on the next ESPCI 2000 to 2006.

Hosts of the previous ESPCIs comment on travelling to Poland and visiting Kajetany, what it takes to become a successful otolaryngology specialist, pros and cons about the profession, current economical situation in the world, expectations of the 9th ESPCI, recent changes in otolaryngology, hopes and trends in medicine, and the most significant event or feature of the congress they hosted.



The Boards of the ESPCIs:

- Nottingham 1992:
Prof. Gerard M. O'Donoghue, Prof. Sue Archbold
- Montpellier 1994:
Prof. Alain Uziel, Prof. Bernard Fraysse
- Hannover 1996:
Prof. Thomas Lenarz, Prof. Roland Laszig
- Hertogenbosch 1998:
Prof. Paul van den Broek, Prof. Ad Snik
- Antwerp 2000: Prof. Erwin Offeciers, Prof. Stefaan Peeters
- Las Palmas de Gran Canaria 2002:
Prof. Manuel Manrique, Prof. Angel Ramos
- Geneva 2004:
Prof. Marco Pelizzone, Prof. Pierre Montandon, Prof. Izabel Kos
- Venice 2006: Prof. Gregorio Babighian

We are very pleased to have the possibility to interview Prof. Thomas Lenarz, Prof. Paul van den Broek and Prof. Ad Snik



Prof. PAUL VAN DEN BROEK – President of the 4th ESPCI

I have been to Poland several times, but before the Wende. I liked the people who seemed to have a hard time. We hope and think it is much better now. I have never been to the Institute in Kajetany. Anyway, from what I have heard and read, I get the impression that it is a top institution that has produced excellent work.

It is therefore very appropriate that the meeting is being held in Poland, and to honour Prof. Skarżyński for his leadership in the field. It is a long and hard path, but with many rewards. One need not be famous in order to be a good doctor and researcher, perhaps even the opposite!

Cochlear implants formed an important part of the last period of my professional life and I look back with great gratitude and still have much interest of what is going on today.

The influence of the economical situation in the world depends on which country. The underdeveloped countries will certainly have

more problems, but it is difficult to say what exact effects the crisis will have. Generally speaking, healthcare has a high priority.

Cochlear implants have become a key area of clinical practice and research. It has a widespread interest and has made otolaryngologists become more interested in the problems and needs of deaf people and deaf children. Before CI, little could be done and therefore there was a lack of interest. It is surely one of the most spectacular and prestigious advances in the field of otolaryngology and has certainly added to the high reputation of the specialty.

There are many new areas of research with important relevance for deaf patients. To name a few: bilateral implants, bimodal hearing, new coding strategies and electrodes, the use of growth factors and possibly stemcells, and genetic engineering, among others.

I think of our guest of honour Graeme Ckark, "Cochlear Implants in the 21st Century". There was a connection with the town at the Institute of the deaf, an internationally renowned institute for the rehabilitation of deaf children in St Michielsgestel, The Netherlands.



Prof. AD SNIK – the vice-president of the 4th ESPCI

From what I have heard and read in the scientific literature, ICHS is a centre of excellence. That is why I am convinced that prof. Henryk Skarżyński should have been a president much earlier,

because of all the innovative work that has been performed at his Institute. During the congress, he should try to absorb the "guaranteed" success of this meeting. It is a one-in-a-life time experience.

It is a hell of a job to become a famous otolaryngologist. You need good surgical and scientific skills as well as good management and social skills. Even then, it is a lot of hard work. Henryk and all former presidents fulfill these criteria, except me, as I am just a clinical physicist playing around in the field of audiology.

The most magical thing is to play a (minor) role in this highly interesting field of fitting these highly sophisticated hearing devices in order to help hearing-impaired persons. That magical feeling really culminates when you are among colleagues and friends at meetings like ESPCI.

The global crisis will have its effect on the world of medicine, but not necessarily in a negative way. More and more, health authorities will ask for evidence-based treatments.

Since the meeting in 1998 that we hosted, the main change is bilateral implantation in deaf children at a very young age, minimizing their hearing disability and handicap considerably. There are a lot of interesting new topics that are being studied. Some will turn out to be hype, others might be of great help.

The most significant event was the parade through Hertogenbosch with the local traditional carnival music band towards an old church, where we had the congress dinner. And of course, the marvelous key-note lectures and the inspiring round table sessions.

The congress in Hertogenbosch really was connected with the city. It was organized in the local theatre right next to the famous cathedral. There was a barrel-organ playing in front of the theatre, the local guild and carnival music band gave performances. Finally and fortunately, we had three days of famous Dutch rain.



Prof. THOMAS LENARZ – the President of the 3rd ESPCI

I have been to Poland many times. I was impressed by the Warsaw Center. I also visited the Institute in Kajetany. It is world-class and can compare with other centers such as Hannover (Germany) or House Ear Institute, Los Angeles.

Prof. Henryk Skarżyński has an outstanding reputation and has contributed substantially to the field. He deserves to be the president. To become a successful otolaryngology specialist takes at least 10 years. You have to sacrifice your private life and also push forward both the clinical part and research.

The global financial crisis will definitely influence medicine. We will realize the shortage of money in the coming years.

The 9th European Symposium will showcase our scientific work and bring together leading experts from all over the world.

There is a much broader field of indications for cochlear implants and other implantable hearing aids. We have much more insight into the processes that are behind our success in hearing rehabilitation and we have made substantial clinical and technological progress with better hearing results.

New areas such as hearing preservation surgery in cochlear implantation, together with multimodal treatment such as electro-acoustic stimulation. Other topics are central auditory prostheses, drug delivery to the auditory system, hearing preservation and regeneration.

We had a unique gathering of all the leading experts from all over the world at that time. It was the first time we were able to give scientific background to the importance of early cochlear implantation in children.

Hearing screening of school-children in Poland

Epidemiological and diagnostic screening of hearing have been conducted in Poland for many years. The results of the tests show that, on average, one in three adult and one in six school-children has various hearing problems. 2-4 newborns per 1000 births have serious congenital hearing impairments. It is also known that early detection of a hearing disorder and receiving proper therapy results in a success rate of 92 per cent. Early detection can reduce the costs of treatment about four times.

Between March and June 2008, the Institute of Physiology and Pathology of Hearing, in cooperation with the Agricultural Social Security Fund and Association of Friends of the Deaf and Hearing Impaired "HOMO HOMINI", conducted a screening examination program of seven-year-old school children in rural areas and towns in Eastern Poland. The main goal of the program was to reduce the disability rate of children through early detection of hearing disorders.

The program was conducted in the Eastern regions of Poland from up North to down South including the following: warmińsko-mazurskie, podlaskie, mazowieckie, lubelskie, świętokrzyskie, podkarpackie.

Results and analysis

The results showed that in a group of 93 266 children, 19.4 per cent. had hearing disorders (central or peripheral). As Prof. H. Skarżyński said, it is also worth noting, that parents of 59.5 per cent. of children with diagnosed hearing impairments had not noticed that their children suffered from any hearing problems whatsoever.

Similarly, a diagnostic analysis was conducted by the Institute of Physiology and Pathology of Hearing on a group of 9096 children in the 6th grade in Warsaw's primary schools. The results showed that 21.5 per cent. had hearing disorders (central and peripheral), 28.9 per cent. suffer from ear noises (constant or temporary). Parents of 64.7 per cent. of the children diagnosed had not noticed any problems related to their children's hearing prior to the tests.

The conclusions based on these results demonstrate that a high percentage of children suffers from hearing disorders, and this fact remained undetected by most parents. Such alarming revelation underlines the necessity of conducting more initiatives to increase awareness among parents, says Prof. Skarżyński.

Previous clinical observations clearly indicate that younger children's hearing problems are mostly related to recurring infec-

tions of the upper air passages.

In the case of teenagers we're speaking of long-lasting damage which requires specialized treatment. This, however, leads to increased treatment costs.

The screening tests

Changes in one's daily auditory environment also pose different hazards for the younger generation.

One of the results of these hazards is the instance of ear noise, which was reported by almost 30 per cent. of children.

This large scale occurrence therefore presents itself as a serious medical problem.

THE AUDIOMETR S HAS WON A SERIES OF PRESTIGIOUS PRIZES AND DISTINCTIONS AT NATIONAL AND INTERNATIONAL FAIRS:

- 2008** Main Prize – GRAND PRIX and diploma awarded by the Polish Minister of Science and Higher Education
- 2007** Gold medal on the URKUNDE IENA 2007 International Fair in Nuremberg, Germany
- 2007** Grand Prix, International Inventions Exhibition, IWIS, 2007
- 2007** Gold Medal, International Inventions Exhibition, IWIS, 2007
- 2007** Gold Medal, 35th International Inventiveness and Technological Advancement Fair in Geneva
- 2006** Main Prize, "Polish Products for the Future"
- 2007** Diploma awarded by the Polish Ministry of Science and Higher Education for developing the "Screening Audiometer – Audiometr S"



Tinnitus impedes everyday activities and has a negative effect on psycho-motor development. One of the first questions asked during HI examination should concern the presence of tinnitus.

Audiometr S was used for screening tests. The device was designed by the Institute of Physiology and Pathology of Hearing in cooperation with Research and Development Centre for Electrical Engineering and Automation in Mining EMAG in Katowice, says Assist. Prof. Krzysztof Kochanek.

Audiometr S

The device consists of a palmtop, headphones, and patient's button used to signal the perception of a sound in the headphones. It can be equipped with multiple methods of diagnosing.

The device used during the program evaluated patients in various ways: testing the threshold of hearing at the 250-8000 Hz frequency range; audiometry speech in the presence and the absence of noise; child's voice recording and evaluation of central auditory processing.

The results were saved in the device's database and later sent to the central database of the program. Additionally, audiological questionnaire was an integral part of the device.





Development of new assessment tools related to everyday real-life situations

Nowadays, cochlear implant users tend to perform very well in one-to-one conversation situations. Many are able to use the telephone and a growing proportion of users enjoy listening to music. However, the large majority of cochlear implant users still experience difficulties when facing noisy real-life listening situations, where speech understanding is almost always found to be highly challenging.

In order to assess whether new developments are indeed beneficial, more difficult test materials are currently being investigated, to challenge the performance of our users in situations more representative of everyday life. This article highlights two examples of new assessment tests currently under development and evaluation.

The STAR2: how to assess cochlear implant users' everyday life performance in clinical practice

The Sentence Test with Adaptive Randomised Roving levels aims to make an assessment of speech perception that more closely relates to real life listening situations than the fixed level tests which are traditionally conducted. Sentences

are each delivered by either a male or a female speaker, at one of three different presentation levels, with adaptively varying background noise. The presentation order is randomized, for both the level and the speaker, such that subjects cannot optimize their processor controls as for fixed level tests. This aspect of the STAR2 design better mimics group conversations and more fully challenges sound processor functionality, such as the Automatic Gain Control (AGC) system which is not usually exercised in conventional tests.

A validation project is currently ongoing in a number of centres across Europe, using STAR2 in their clinical routine. This project will investigate: normative data, list equivalence, learning effects, test-retest variation. STAR2 scores will also be compared with other routine clinical tests, as well as with other measures of everyday-life performance.

Pilot data on 18 normal hearing individuals found low inter-subject variability with mean Speech Reception Thresholds (SRTs) of -7.9 dB and -9.24 dB for the male and female speakers respectively (Nunn, 2008). These observations as well as those from other studies using STAR2 to

investigate front end processing are very encouraging on the usefulness of the methodology behind STAR2 for clinical application.

The English version of the STAR2 is available from the Institute of Hearing Research (IHR) in the UK. Versions in other languages are under development.

Paediatric Audio-Visual Test: – a new tool to assess lip-reading abilities in paediatric cochlear implant users

In some countries the trend is to steer towards mainstream education all children with special educational needs, including hearing impaired children with cochlear implants (CI). However, the listening demands of mainstream schools vary considerably, as well as the listening abilities of CI users. It is therefore necessary to be able to describe the auditory needs of children with impaired hearing in order to make appropriate decisions regarding school placement and rehabilitation. Since they can vary considerably depending on the environment, signal to noise ratios (SNR) are a significant factor in classroom listening and should be taken into account regarding school placement.

Furthermore, speech reading is important for some pupils in typical classroom situations, whereas some other children are unable to make use of it. A paediatric audio-visual speech test in noise (PAVT) was developed to evaluate the benefit obtained from adding lip-reading information to auditory signal.

Materials from the existing McCormick and English as a Second Language tests were selected and recorded from male and female children. Editing was performed to add competing noise to the speech signal. A system capable of driving two screens simultaneously ("subject" screen allowing lip-reading and "clinician" control screen) was created and software prepared to drive it. Words are randomly presented to the subjects whose task is to indicate the corresponding picture or toy, or to repeat the word. Testing may be conducted in quiet or noise, with adaptive signal to noise ratio.

The preliminary version (PAVT 1.0) of the software platform was tested on a pilot group of twelve children. The results showed differences in scores obtained in the audio-visual condition, as compared to the auditory only condition, highlighting the benefits that might be obtained from ad-

ding lip-reading information to the auditory signal, and also confirming the feasibility of using recorded audio-visual material to assess lip-reading abilities. Feedback was collected on how to improve the interface and a brand new version was released: PAVT 2.0, which is currently being validated.



Typical PAVT setup

The clinician facing the control screen sits close to the subject to be able to communicate effectively. The child sits at a table, facing the subject screen, with printed picture cards or toys (depending on the child's age) to point at. Please come and visit us at our booth to see a demonstration version of STAR2 and PAVT 2.0!

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THE OPPORTUNITY OF THE COMPLEX CASES TREATMENT IN AUDIOLOGY

Window Approach Workshops

The most important dates:

The 1st Window Approach Workshop, April 16, 2007

Prof. Henryk Skarżyński conducted 6 demonstrative operations: 3 implantations of partially deaf patients and 3 middle ear implants (Vibrant type). The Center was visited by over 20 surgeons from Austria, Belarus, Finland, Italy, Spain, Sweden, Ukraine and the UK.

The 2nd Window Approach Workshop, November 12, 2007

Prof. Henryk Skarżyński conducted 8 demonstrative operations: 5 window approach ones and 3 middle ear implants (Vibrant SoundBridge type) with direct stimulation of the window's membrane, which was a newly designed method. On this occasion, 23 specialists from Austria, Australia, Italy, Lithuania, Poland, Turkey and Ukraine visited the Center.

The 3rd Window Approach Workshop, March 17, 2008

Prof. Henryk Skarżyński conducted 10 demonstrative operations using various methods and types of implants. 75 surgeons from Austria, Canada, Indonesia, Israel, Italy, Kazakhstan, Malaysia, Philippines, Russia, Singapore, Slovakia Spain, Ukraine, the UK and the U.S.A. participated in the course.

The 4th Window Approach Workshop, October 6th, 2008

Prof. Henryk Skarżyński conducted 10 demonstrative operations: 7 window approach ones and 3 middle ear implants (Vibrant SoundBridge type) with direct stimulation of the window's membrane. On this occasion, the centre was visited by 33 specialists from Austria, Italy, Japan, Sweden, Turkey, Ukraine, the UK and the U.S.A.

The 5th Window Approach Workshop will take place on May 14, 2009, at the 9th European Symposium on Paediatric Cochlear Implantation

The 6th Window Approach Workshop is planned for November 22, 2009

The 7th and 8th WAW are planned for spring and autumn 2010

The 9th Window Approach Workshop will take place on May 25, 2011, at the 10th EFAS Congress



The current, fast-paced development of audiology, as well as otolaryngological surgery, gives physicians the chance to treat even complex cases of hearing impairment. Cochlear implants, which help people return to the world of sounds, are an excellent example of such a technical solution. The Oto-Rhino-Laryngo-surgery Clinical Center in Kajetany, conducts the largest number of otolaryngological operations in Poland.

For over 17 years, Prof. Skarżyński's team has been using the most advanced technology and equipment, coupled with their own methodology, in the surgical treatment of hearing impairment, partial deafness and deafness.

Due to their years of experience in cochlear implants, the center's team was invited by the Med-El company to share their knowledge and techniques with a group of European surgeons. This formed the basis of the first 'Window Approach Workshop'.

The aim was to create a discussion forum for audiology specialists from all over the world, enabling them to share experiences and new developments as well as learn from one another.

Of particular interest was knowledge concerning novel surgical methods and rehabilitation. To date, four workshops have taken place at the International Center of Hearing and Speech in Kajetany and future ones are already being planned. The workshops consisted of lectures by

team members from the centre, detailed introductions to the surgical cases and demonstrative operations performed by Prof. Skarżyński, which were tele-transmitted to the conference room.

The original methods of cochlear implant electrode through the round window presented at the workshop, were designed by Prof. Skarżyński.

Besides their own experiences in the field of audiology, the panelists (Dr. Marek Porowski, Dr. Maciej Mrówka, Dr. Nadia Giarbini, Agnieszka Pankowska, Anita Obrycka, Dr. Artur Lorens, Dr. Anna Piotrowska and Dr. Robert Podskarbi-Fayette) discussed indications for the use of implantable prostheses, as well as comprehensive rehabilitation procedure.

Early intervention and diagnosis of hearing loss is essential to insure the appropriate selection and speedy access to a hearing device for a child with a hearing impairment.

Aspects of Assessment of Young Children with Cochlear Implants

Furthermore, an appropriate assessment facilitates the choice of a suitable habilitation programme which leads to better results in auditory, speech and language development and may have an impact on future educational development. Children who were born deaf or became deaf in the early months of life now have the possibility to be provided with a cochlear implant as early as a few months of age. Studies have shown that infants implanted prior to their second or even first year of age develop rapidly to attain scores in speech

and language performance comparable to their normal-hearing peers. (Nicholas et al, 2006; Dettman et al, 2007). However, the need for appropriate assessment in the early stages of a child's hearing and speech acquisition and development is indispensable (Zink et al, 2000).

LittleEARS® Test Battery, developed by MED-EL in cooperation with leading experts worldwide (LittleEARS Auditory Questionnaire, Coninx et al, 2003, 2009; My LittleEARS Diary, Veekmans et al, 2005), enables an easy to use yet reliable docu-

mentation of early auditory and speech development in infants and toddlers with normal hearing as well as with a hearing impairment.

On their way from hearing to speech, children first learn to perceive and react to sounds, then recognize and distinguish sounds, voices and elements of speech such as phonemes, syllables and words (Schramm et al, 2009, Schauwers et al, 2009). The occurrence of an infant's first words is regarded as an important milestone in his/her lexical development. The first real words usually occur at the age of approximately 12 months and the amount of words increases quickly thereafter. An assessment of vocabulary development can provide important evidence of the child's developmental progress.

Initial results of a study of development, First 100 Words List in Turkish Language, indicate that children with normal hearing and children with a hearing impairment acquire similar words first. Infants

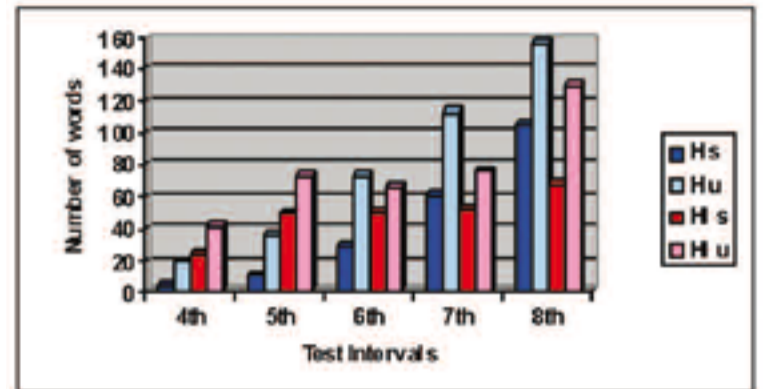


Table 2: Words understood (u) and said (s) by children with normal hearing (H) and children with hearing impairment (HI). HI: N=51; H: N=58

and toddlers with a cochlear implant, according to their hearing age, tend to acquire 100 words faster than their hearing peers, although individual differences may vary greatly (Kosaner et al, 2009). While some children with a CI may use 100 words already by 17 months after the fitting of the device, other children use 10-15 words by 20 months.

Hearing implants help young children to perceive sound and prepare the groundwork for acquiring speech and language skills.

Appropriate assessment methods help professionals and parents to evaluate children's development over time and give a quick overview of their developmental progress.

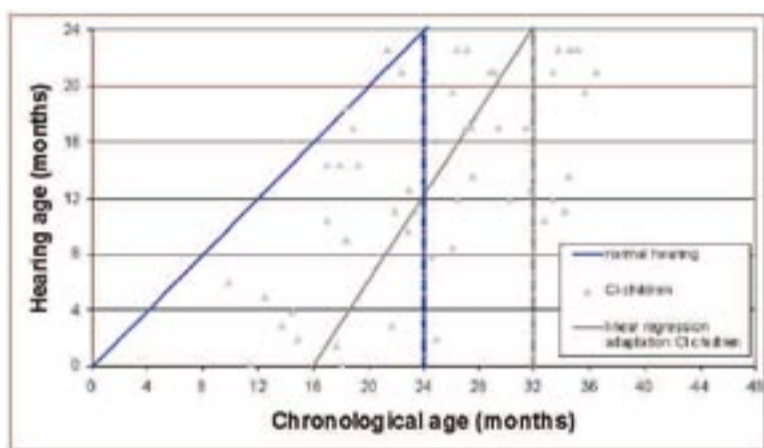


Table 1: Comparison of chronological age according to hearing age (NH: N=218; CI: N=93)

Cochlear Implantation within Small Children

Children who are identified before 6 months of age and who are treated with CI(s) or hearing aid(s) soon thereafter have the best chance to attain language skills on par with normal hearing peers. Based upon results of many clinical studies, MED-EL strongly encourages early implantation of small children (Baier et al, 2002).

A safe immobilization of the implant housing is mandatory to avoid dislocation. Studies demonstrate that a proper immobilization during the first weeks after surgery is important until the soft tissue is repaired (Baier et al, 2002). Immobilization of the implant with resorbable material avoids foreign body granulomas. In addition, preserving a thin bony bottom while creating the bed during surgery has proven to be advantageous for protection of the dura and of the brain (Baier et al, 2002). The preservation of the bony bed also ensures an effective fixation of the implant.

The small size of the head and the thin bone of the skull may compromise the placement of the device. Due to an earlier study performed in Würzburg, the thickness of the bone in a small child ranges from 2.2 to 4.2 mm. For children in the age group of 2 to 7 years, the bone thickness varies from 3.0 to 6.1 mm (Mack et al, 1997). The soft tissue covering varies in both groups from about 5 mm to 9 mm. The thickness of commercially available implants may influence the decision about which implant should be placed in young children.

For this age group, a proper immobilization and the use of a completely inser-

ted atraumatic electrode is particularly important. The length of MED-EL's standard electrode provides the ability to stimulate the apical region of the cochlea while supplying electrical stimulation to the base, thus effectively covering the entire cochlea, from the base to the apex. As a result, the tonotopic frequency range is expanded considerably compared to shallow insertions.

Minimizing trauma due to electrode insertion tends to maximize results of cochlear implantation in children. In order to minimize trauma, the electrode should be highly flexible in order to easily adapt to the angulations of the basal and second turn of the cochlea regardless of lateral or medial wall positioning. A key feature in making electrodes more flexible is the zigzagging of the platinum iridium wires inside the electrode's silicone carrier. A collection of straight wires, even 25 microns in diameter, increases the rigidity and more than doubles the insertion force of the electrode compared to an array with wires in a zigzag form.

The zigzag wiring network is a key and unique feature incorporated in all of the MED-EL electrodes. The flexibility also allows hearing preservation in the majority of patients implanted with the hearing preservation electrode. In the rest of the population, the zigzag wiring network has allowed the electrode to be fully inserted from the base to apex of the cochlea. Full insertion allows for complete cochlear coverage with electrical stimulation, especially important when children are implanted with a cochlear implant system.

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Life After Deaf



An interview with Karol Nowakowski, who is a member of a hip hop band 2cztery7, a great fan of Legia Warsaw football club, and the Institute's of Physiology and Patology of Hearing patient –the first patient with two brainstem implants regained his hearing

When and how did you become a musician? When did you become fascinated with hip hop music?

KN: A “musician” is a too big word in my case. Let’s just say the talent got a hold of me and it can’t let me go (laughing). Rap music, hip hop is my medium, a language which helps me to spit out the things inside, the ones that are still searching for an exit. The time of my musical searching coincided with the emergence and popularity boom of hip hop music in Poland. Almost ten years ago I led a life of a youngster, living in a block of flats, and those are the places, where hip hop itself has its roots and finds the way to a larger audience.

Usually, those who perform and those, who listen to their music come from the same place, speak the same language, use the same things, that get them high. I’m speaking about myself, but it’s kind of telling about dreams and phobias of the others, that live on the same street and even the building.

That’s how I became and still am part of the so called hip hop culture. The recording sessions, CD’s, videos representing certain

choices, that come directly from the internal need of speaking and telling the others about myself, a kind of exhibitionism. It also emphasizes that this is the lifestyle I still want to follow. 2cztery7 (in English: 2for7) recorded two CDs so far: “Funk dla smaku” – 2005 (“Funk for taste”) and Spaleni Innym Słońcem –2008 (“Burnt with other sun”). Currently I’m working on my solo project. I’ve made numerous guest appearances on the recordings of Polish hip hop stars e.g. Molesta, Eldo, Pezet, Ten Typ Mes.

I’m a fan of good music, no matter what the genre is. If something is good, then it’s able to defend itself. A good artist should be both a good listener and shouldn’t limit anything that can influence him. Nevertheless, the kinds of music that get my attention the most are jazz, rap, funk and soul, the so called “black sounds”.

You had already been an established artist when your illness appeared. Tell us about that.

KN: In 2004, when I was 23 years old, I got diagnosed with neurofibromatosis type 2 – the doctors found that I had tumors on the auditory nerve bilaterally and in

Deafness doesn’t mean that you’ve died, it’s not the end. Without the implants I’m completely deaf. Thanks to the core implants and electric stimulation I can hear – I live.

the lumbar part of the vertebral canal. At that time my bandmates and I were preparing to the recording of our debut album. During the recording of the first session I was pretty conscious of the fact that I was ill, bound to undergo a serious surgery and was about to become deaf. Nonetheless, I managed to leave a footprint in the world of music – the debut in 2005. I met with Prof. Skarżyński and he decided to send me to Fulda Clinic in Germany, where Prof. Behr was ready to undertake the surgery.

In the beginning of year 2006 good friends of mine did whole series of live shows and performances in order to collect the funds needed for my surgery. Life is not like the one seen on MTV, and the country I live in, Poland isn’t the U.S.A. Polish hip hop performers aren’t on the Forbes list. Then, in February 2006 I underwent the operation of excising the tumor and grafting the core implant on the right side.

Rehabilitation took me a year, but I think that being a guy who

underwent so much, I was able to do a lot and I did a lot. I returned to a quite an active life – live shows, travelling, parties and the guest appearances on other artists’ sessions. I got the invitations due to my skills, regardless of the fact that I was handicapped to some extent. We also started to record a new album with 2cztery7. Everything would have been great for, the fact, that the



tumor on the left side was getting larger.

At the end of March 2008, just one month after releasing the album, I ended up at hospital,

bound to undergo another surgery. The surgery of embedding another core implant was conducted at the International Center of Hearing and Speech in Kajetany. That's how I became a patient with two such devices. Since then I've been going through rehab sessions. Also in 2008 I had surgery to remove the tumor from my spine, but my life is getting back on the right track and I'm cur-



rently working on a new solo album.

Apart from music you're also a great fan of football. For couple of years you've been a member of the Cyberfani group (the Cyberfans), supporting Legia Warsaw Football Club.

KN: Cyberfani was a group mostly made up of young guys, strongly devoted to supporting Legia Warsaw, fascinated with colorful, chanting support groups from all over the world, and willing to bring that kind of unique atmosphere to the grey, dull, Polish stadiums. Over a number of years, the group created and staged unusual happenings at the stadium.

These involved moving carboard images, flags of all kinds

and sizes and, of course, loud and energetic chanting. All of these things became a milestone for the Ultras movement in Poland. Today the group is nonexistent, mostly due to the fact, that we're no longer able to spend a couple of nights to prepare the banners or flags. Nevertheless, our actions led the way for others and still they are staged in Warsaw, Poland or at other venues in Europe.

Those, who contributed and collaborated on these events are still good friends of mine and I still can count on them, e.g. they also took part in performances and events that helped to raise the money needed for my surgery. However, some things haven't changed at all. We still support Legia Warsaw Football Club.

How can you describe the time when an individual loses ones ability to hear? Is it a time when you try to recall the sounds you've heard recently? Is it possible to imagine how the surrounding world sounds?

KN: To tell the truth, I had never been completely deaf. I had been

losing my ability to hear, but later surgeries have left me only bereft of hearing and also gave me the possibility of digital hearing. Thanks to the fact that the surgeries were conducted separately, I could develop the new skill in one ear, and later on I could use the benefits of electric stimulation. I'd like to say the most important thing in learning the hearing is the imagination, trying to imagine the sounds that surround you. I've got a whole bank, a library of sounds in my head.

These were the information, a sort of source for my brain to appeal to, when I was getting used to the experiences and stimulus from the core implant. For instance, when I was listening to a song, which I had listened so many times in the past, the implant was relaying mistaken information, but somehow I knew "what's in it" and what I should hear.

Month after month, I was training my brain, so it would eventually hear those sounds correctly. Finally, I made it! Missing "the paradise lost" is one thing, but the echoes of "the pa-

radise" are able to help you in everyday life.

How does a musician suffer when he loses his ability to hear? Have you ever tried to compare your experiences with patients that aren't musicians?

KN: I'm trying to be in touch with the deaf and those struggling with inaudibility. It's an incredible lesson of empathy and humility, and the hardships given to people with such a disability. Most people notices me and my problems, just because I'm someone recognizable, but the rest aren't so lucky, and their infirmity, or rather the infirmity of the world, condemns them to rejection and ostracism. It's very true that my life without music would be very difficult, but not impossible. There are many people who must exist in a world, where they can't hear their child's crying or their wife's voice. I got a chance to be able to hear. They should also get one.

You've got a tattoo on your arm that says "Life after deaf". When did you get it and what does it really mean to you?

KN: It's obviously a game of shuffling words and it corresponds to the very famous line "Life After Death". It's supposed to mean more or less the same. Deafness doesn't mean that you are dead, it's not the end. Without the implants, I'm completely deaf. Thanks to the brainstem implants and electric stimulation, I can hear – I can live. I decided to tattoo my arm right after the first surgery when I got the first implant. I knew it would be even better when I would received the second one. Speaking of tattoos, I also have another one. On my chest there is a sign saying in French *Toujours Viv*, which means eternally alive. These two signs form a kind of my own creed and accompany me in everyday life. Tattoos can be shocking but they also make you think.

Is there anything else, any experiences, thoughts, you would like to share with the professionals treating people with the same kind of disability that you have?

KN: Every rapper should have something exceptional in his own lyrics, some sort of message. This is my message: I'm not the kind of megalomaniac to call my own experience a hope. I'm just a messenger of hope. This hope is for the ones losing their ability to hear just right now, but this hope is also for the upcoming generations. Give them hope, give them a chance.

A good artist should be both a good listener and shouldn't limit anything that can influence him. This is my message: "I'm not the kind of megalomaniac to call my own experience my hope".
I'm just the messenger of hope. Life after deaf.



Commemorative Medals to honor organizers of previous ESPCI

The tradition of European conference series focusing on the subject of deafness treatment program is already 17 years old. This year, it is hosted by the country situated the farthest East among previous organisers.

ESPCI is a series of regular gatherings, ever increasing in prestige, of experts in the various fields like medicine, acoustics, biomedical engineering, biocybernetics, psychology, speech and language therapy and education. The current series, as usual, is not tied to one, particular scientific association. Rather, we are all members of various scientific societies.

The fact that for so many years we have been gathering in ever increasing numbers, proves that these meetings are important to us, sought-after, useful for exchanging opinions, and contribute to the constant progress in our field of expertise.

As the host of 9th ESPCI, wishing to pay tribute and strengthen this long tradition, which is dedicated to a very dynamic program of deafness treatment and other hearing problems, we decided to commission a collection of commemorative gold medals to honour the organisers of the previous eight meetings.

Presidents and Vice-Presidents to be awarded Medals will be presented to the Presidents and Vice-Presidents of all previous ESPCI held in:

Nottingham – Prof. Gerard M. O'Donoghue and Prof. Sue Archbold;

Montpellier – Prof. Alain Uziel and Prof. Bernard Fraysse;

Hannover – Prof. Thomas Lenarz and Prof. Roland Laszig;

Hertogenbosch – Prof. Paul van den Broek and Prof. Ad Snik;

Antwerp – Prof. Erwin Offeciers and Prof. Stefaan Peeters;

Las Palmas de Gran Canaria – Prof. Manuel Manrique and Prof. Angel Ramos;

Geneva – Prof. Marco Pelizzone, Prof. Pierre Montandon and Prof. Iza-bel Kos;

Venice – Prof. Gregorio Babighian as well as Vice Prezydents of the current congress:

– Prof. Rudolf Probst,
Prof. George Tavartkiladze and
Prof. Milan Profant.

Additionally, on behalf of the organisers of the 9th ESPCI, we have endowed a Presidential Chain. As a symbol, we have chosen a gold chain with a medallion and engraved links commemorating previous conferences. There is also a blank space reserved for future conferences. Thus, we would like to start a tradition of passing on this insignia to the next President during the inauguration of each subsequent conference.



Ballot for the ESPCI in 2013

Board of former Presidents' Meeting on Friday, May 15, 2009

The biennial ESPCI Congresses have the longstanding tradition of bringing together scientists and physicians from many different specialties and countries to exchange information on their latest research, achievements, interesting cases, and state of the art developments in medical science and technology.

Great progress has been made in 17 years since the first Congress, especially in treatment of hearing loss in children, and especially in the design

and performance of cochlear implants. The scientific programs of the former ESPCI Congresses reflected the multi-lateral, interdisciplinary approach to cochlear implants, involving studies of anatomy, physiology, pathology, otology, audiology, psychology, speech therapy, acoustics, psychoacoustics, biophysics, and technology.

As technology is still developing to provide much improved sound quality for children with cochlear implants we believe that the organizational efforts should be continued to hold next symposia for presenting accomplishments

and state of the art in cochlear implantation and related sciences.

Traditionally, during the Friday lunch break, the conference site for the 11th Symposium in 2013 will be selected by the Board of former Presidents of the ESPCI.

Each candidate will have 5 minutes for the presentation. They will be asked one by one to present their sites.

Former Presidents are kindly asked to participate in the meeting to ballot and objectively select the best candidate.

The following information from the candidates will be taken into account when selecting the future site:

1. Scientific achievements of the host organization in the fields relevant to pediatric CI (list of the key scientific staff to be involved in organization of the Symposium)
2. Organizational and social capacity for organizing the symposium
3. Geographical advantages of the proposed location
4. Support of government and non-government organizations
5. Organizational advantages
6. Financial advantages (proposal of overall participation costs, registration fee, accomodation prices)



Future success is based on results

An interview with Professor GEORGE TAVARTKILADZE for the 9th European Symposium on Paediatric Cochlear Implantation, Poland, May 2009

How many times have you already been to Poland?

GT: It is difficult for me to give you an exact number, but definitely more than 10 times. My first visit was back in 1989 during international study in Poznań. It was then that I first met Prof. Skarżyński, which was the beginning of our cooperation and friendship.

Then, you must be aware of all the changes, I presume?

GT: Absolutely. I remember the times when this very place, this excellent building, this excellent Institute didn't exist! I was present during the first meeting when the building was planned. It might be hard to imagine now, but I walked on this site when it was still just an empty field. Now, I can see the development and future plans of this institution. Nowadays I consider the Institute to be one of the best in Europe with respect to functional possibilities, as well as staff and the research that has been developed here.

How would you compare the Institute to other otolaryngological institutes in the world?

GT: When it comes to functional possibilities, I really don't know any other institute that would compare. I'll tell you more. I'm planning to do the same in Moscow! Hopefully it will have the same, high standard as the one in Poland.

What about getting the title of "Friends Forever"?

GT: I can't remember the exact year. I felt very proud and honoured when it was announced. It was a great privilege for me to be included among very well known scientists and very high level Poles who helped build this institution.

What was the first important choice you had to make in your career?

GT: As you know, I come from Georgia, so I finished my medical studies in Moscow, where I also had my residency. For the next two years, I was back in Tbilisi, Georgia. Prof. Hecinaszwili, an internationally known scientist, was my teacher and mentor of my first dissertation. Then I went back to Russia to work at the Moscow ENT Research Institute. In 1988, with the decision of Soviet Union Government and Ministry of Public Health Care, I started the All-Union Research Centre for Audiology and Hearing Rehabilitation, completely from scratch.

Last year there was the 20th anniversary of my institute. The name has been changed since then, so now it is called the National Research Centre for Audiology and Hearing Rehabilitation. That was the first major step of my career. Of course my medical background education (ENT) was important, however since 1983 I have been working as an audiologist doing mainly research. I was very glad to see an audiological speciality finally being established in 1996 in my country. Just as in Poland, it is a medical speciality and not, as in some Western countries, a technical audiological speciality.

I am proud to be able to say we have managed to develop the scientific profession of audiology in my country. There is an established network of over 220 audiological centres. In our institute we do basic research, clinical research and have excellent contacts with different regions within Russia. And we are proud to be involved in international projects. For example, we have an international cooperation agreement with professor Skarżyński's Institute. The future looks optimistic, as we have joined interests and I hope we will develop them further.

What do you enjoy most about your line of work?

GT: I find my area of expertise thoroughly exciting and rewarding. Especially being able to diagnose HI or HL within the first few hours of birth. We now have the possibility to start an early intervention which means helping children not only to hear but, just as importantly, to develop speech very early on in life. There are also fantastic prospects for the future, when it comes to the new generation of hearing aids – digital hearing aids, as well as the 14th generation cochlear implants, but also we have the possibility to apply findings of genetic research into our field. Perhaps gene replacements to restore hearing will become the future – that would be a new era.

What are your expectations of the 9th ESPCI?

GT: That's a very good question. I was very pleased that such a venture would take place, when it was decided in Geneva during one of the previous congresses. We were working together very hard to make it happen. I was very proud when I was elected as vice president for this congress. At least 600 participants are registered as of today, which is a very nice number. I am sure that as time of the conference draws nearer, the amount of people interested in it will increase even more. The topics are fantastic, the sessions are great, so I have no doubt that it will be very successful. I am absolutely sure.

What do you think about Prof. Henryk Skarżyński being the president of this year's Symposium?

GT: Without Professor Skarżyński, the success of this congress in this country would be impossible. He is a leader, a key figure in this success. I am proud that he is my friend.

What has changed since the previous symposium that was held in Venice?

GT: Sadly, I wasn't present in Venice. However, many things have changed. I have already mentioned the new cochlear implants and new generations of hearing aids, but also worth mentioning are the new approaches for surgery in very small children. Today we are using bimodal stimulation which combines acoustically and electrically evoked auditory potential.

Again, a very specialised approach has been developed in this very institute by Prof. Skarżyński for a specific group of patients with partial deafness. So there are quite a few new issues and they will be discussed during this conference.

What is the most important area of research or study in otolaryngology right now?

GT: Here we are speaking only of audiology and otology because both our institutes work mainly in the field of hearing and speech, so I cannot vouch for the whole, wider discipline, but I can say that we have reached the highest level of otolaryngology. As with all the other medical specialities, future successes are based on results of basic research. Usually starting with animal experiments, in hope of eventually applying the findings to humans.

Is there anything that you would like to add?

GT: I would like to take this opportunity to invite you to the first worldwide congress in Moscow in 2012. It will be organised by my institute and I shall have the privilege of being the president of the event. Secondly, it might be worth stating that Prof. Skarżyński is organising the European Conference in Otolaryngology in Warsaw in 2011. Hopefully, this will be yet another opportunity to share knowledge and breakthroughs.

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Congress Secretariat
phone: +48 22 356 03 66
fax: +48 22 356 03 67
e-mail: efas2011@ifps.org.pl

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THE INTERNATIONAL CENTER OF HEARING AND SPEECH IN KAJETANY

Where Dreams Come True

It all began with the passion and determination of one man – the leader, professor Henryk Skarżyński.

The main task of the Institute was, and still remains, scientific, medical and didactic activity in the area of hearing, voice, speech and communication disorders as well as tinnitus and balance disorders. This work is carried out by five clinics: otolaryngology, audiology, phoniatrics, tinnitus and rehabilitation, some of which are the only ones of their kind in Poland.

In 1992, for the first time in Poland, Prof. Skarżyński performed a cochlear implantation, enabling a totally deaf person to return to the world of sounds, and history was made. Widely publicized in the media, the event was considered a miracle, not to mention a huge opportunity for thousands of people suffering from various hearing impairments.

Once the position of the Warsaw Institute of Physiology and Pathology of Hearing was established as a leading, world-class implant center, it became apparent that renting office space was no longer sufficient. The idea to



create their own cutting-edge institution had taken root. So Prof. Henryk Skarżyński gathered a group of young enthusiasts from his team to determine how they could work together in order to implement such a plan, and create an atmosphere conducive to its realization. They soon gained substantial social support for their efforts. Eventually, with 20 per cent. financial support of non-government organizations and people of good will.

Finally, in 2003, the International Center of Hearing and Speech in Kajetany (ICHS) opened its doors. It was Prof. Skarżyński's dream come true! His unique idea that has come

true is "everything under one roof" – diagnostics, treatment and rehabilitation in one place. ICHS is the only center that fulfills the idea for the comfort and benefit of its patients.

Its greatest assets are the abilities of its team, facilities, unique equipment and the scientific activity of the remarkable members of the International Scientific Council. This ultra-modern facility provides comprehensive services in both otolaryngology and communication sciences and disorders (CSD), including voice, speech-language, and auditory-services for patients from all over the world.

The proof is in the numbers

Over the past four years, nearly 400 patients have received auditory implants annually, putting the center among the world's largest cochlear implant facilities. In the first few years of the Institute's activity, the number of medical consultations for people seeking advice ranged to over ten thousand. Nowadays the number of consultations is approaching 2 thousand per year and 15 thousand surgical procedures per year.

The center's aim is to provide

complex care in the area of early diagnostics, treatment and rehabilitation, but an equally important element of its activity is also the current development of a didactic program for residents in otolaryngology, audiology and phoniatrics. Currently in use at the centre is state of the art equipment allowing for 3D transmission of operations, as well as its Ear Biomedical Tests Laboratory, which allows for the performance of operations in a specialised setting. A valuable and constantly developing element of the didactic program is distance learning, which is based on the experience of many foreign experts – members of the International Scientific Council.

Over four years ago, the team started using tele-medicine, which includes specialist on-line tele-consultations, as well as internet courses and training sessions, such as the regular 'Otosurgery Academy'.

A specially designed LMS platform is also being used. The Institute of Physiology and Pathology of Hearing in Warsaw provides many training opportunities for both Polish and foreign specialists dealing with hearing, voice, speech, language commu-

nication and balance disorders, as well as for patients and their families.

Growth and development

The center is developing dynamically all the time and new teams are being established to meet the challenges to implement the latest scientific achievements in the area of medicine. This gives the opportunity to design and develop new clinical solutions. Collaboration between the center's professionals and faculty members at Warsaw-area universities on research and development projects promises to further expand auditory implants including cochlear implant use.

These advances have set the stage for further growth and development, and as progress continues, audiologists in Poland welcome collaboration with their peers in the U.S.A. and elsewhere around the world.



TOMORROW ON ESPCI:

- New trends in rehabilitation
- Telerehabilitation
- Education in audiology and otology in Europe – Experts' Meeting
- Beyond rehabilitation - Round Table

TOMORROW IN THE CONGRESS TRIBUNE:

- An interview with prof. Leo de Raeve
- New technologies: home rehabilitation clinic
- Events of the day: WAW and satellite symposia
- An interview with ICHS patient, dr M. Strycharz

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