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# **TELEMEDICAL FITTING OF PATIENTS WITH COCHLEAR IMPLANTS IN CENTRAL ASIA**



## BACKGROUND

1992 First Cochlear Implantation in Poland

1993 Opening of Cochlear Center

1996 Creation of Institute of Physiology and Pathology of Hearing

2003 Opening of International Center of Hearing and Speech

2012 Opening of World Hearing Center

Over 250 000 consultations per year

Over 65 surgeries per day





# NATIONAL NETWORK OF TELEAUDIOLOGY



## 25 terminals Polycom HDX8006

- 2 telemedical studios for all types of telemedical practice and consultations
- Video conference bridges RMX2000 & RMX4000

Symmetric high speed Internet 100 Mbit/s

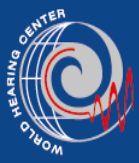
**Clinical Interfaces** for fitting of Cochlear, MED-EL and Advanced Bionics cochlear implant systems, PC/Internet controlled

**Impedance audiometers**

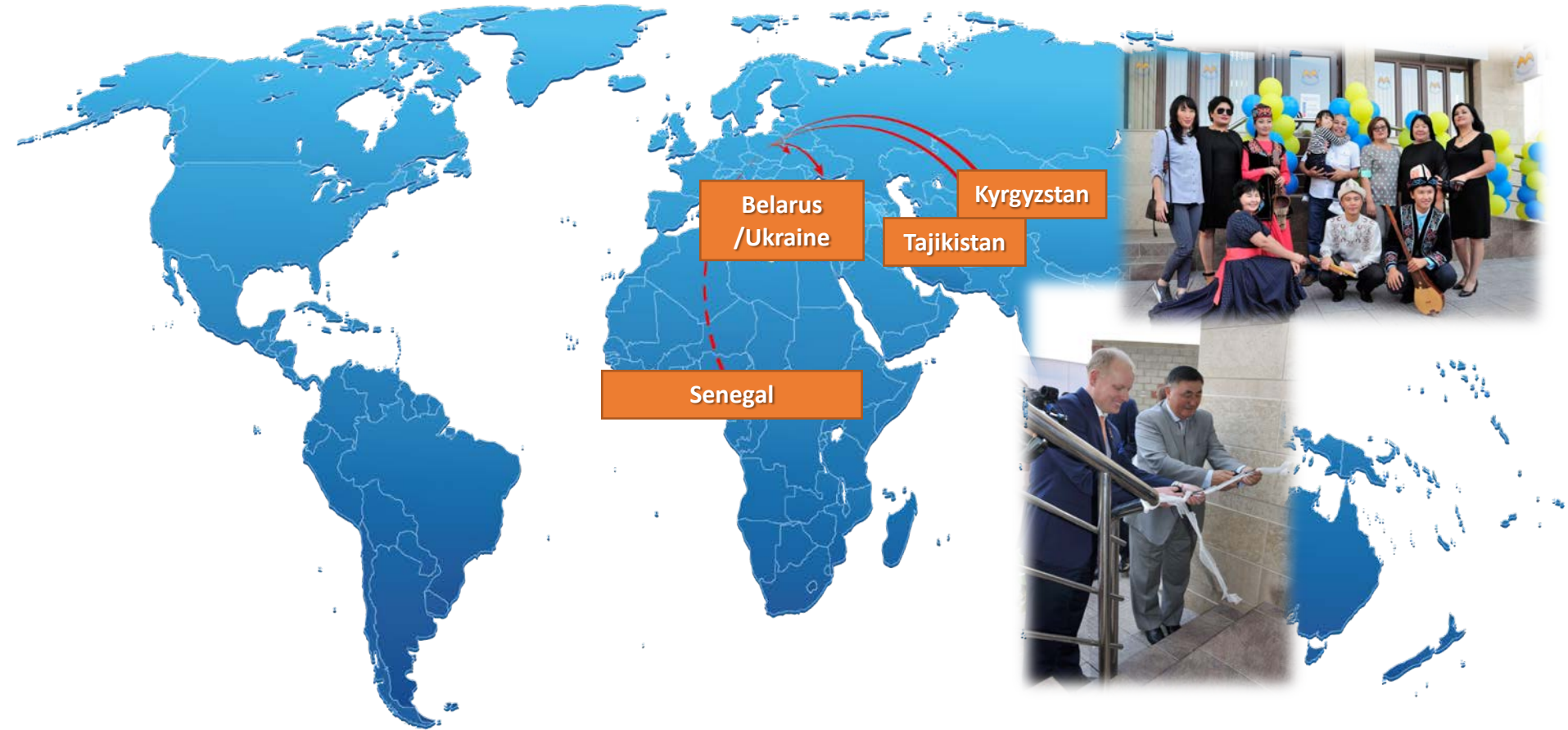
**Remote desktop** applications (Logmein)

**Speech therapy** applications

**Videotoscopes, Surgery Microscopes**



# INTERCONTINENTAL NETWORK OF TELEAUDIOLOGY





## OVER 3 000 TELE PROCEDURES PER YEAR IN THE WORLD HEARING CENTER

- TELECONSULTATIONS
- TELEFITTING
- HEARING SCREENING
  - System of Integrated Communication Operations „SZOK”®
- TELEREHABILITATION
- TELEDIAGNOSTIC
  - Teleotoscopy
  - Tele – ABR
  - Telemedical diagnostic-rehabilitation systems Health
- TELEEDUCATION
  - Window Approach Workshops
  - International Conference and Course in the Endoscopic Sinus Surgery
  - Scientific and training conferences Listening is „I Can”
  - Global Otology-Neurotology Live Surgical Broadcast (LION)

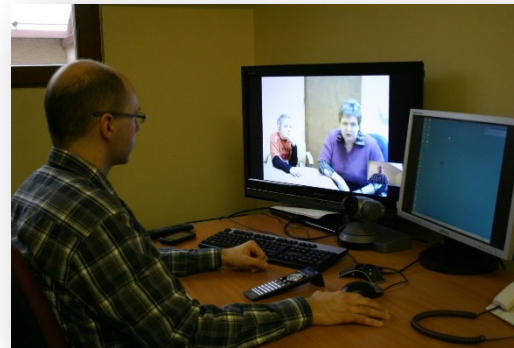
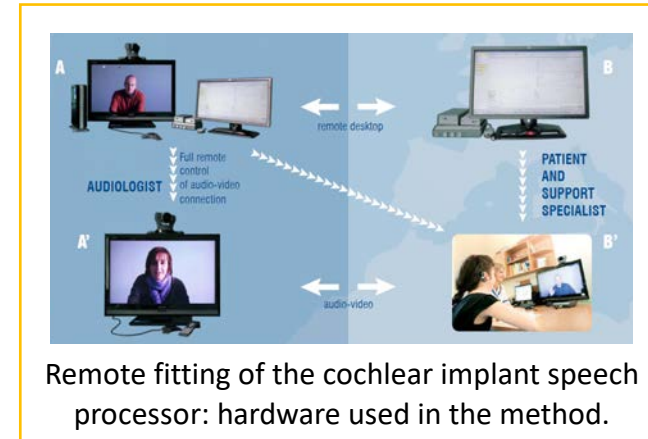




## TELEFITTING SCHEME

**By remote fitting session in the WHC it is possible to perform:**

- Consultation about ways to use new settings in the speech processor
- Objective measurements: electrically elicited compound action potentials
- Remote objective measurements (ECAP, ESR, Telemetry)
- Telemetric measurements to check the internal part of the system
- Activation of the speech processor in 'live' mode
- Programming electrical stimulation parameters into the patient's speech processor
- Remote psychophysical measurements (amplitude growth function)



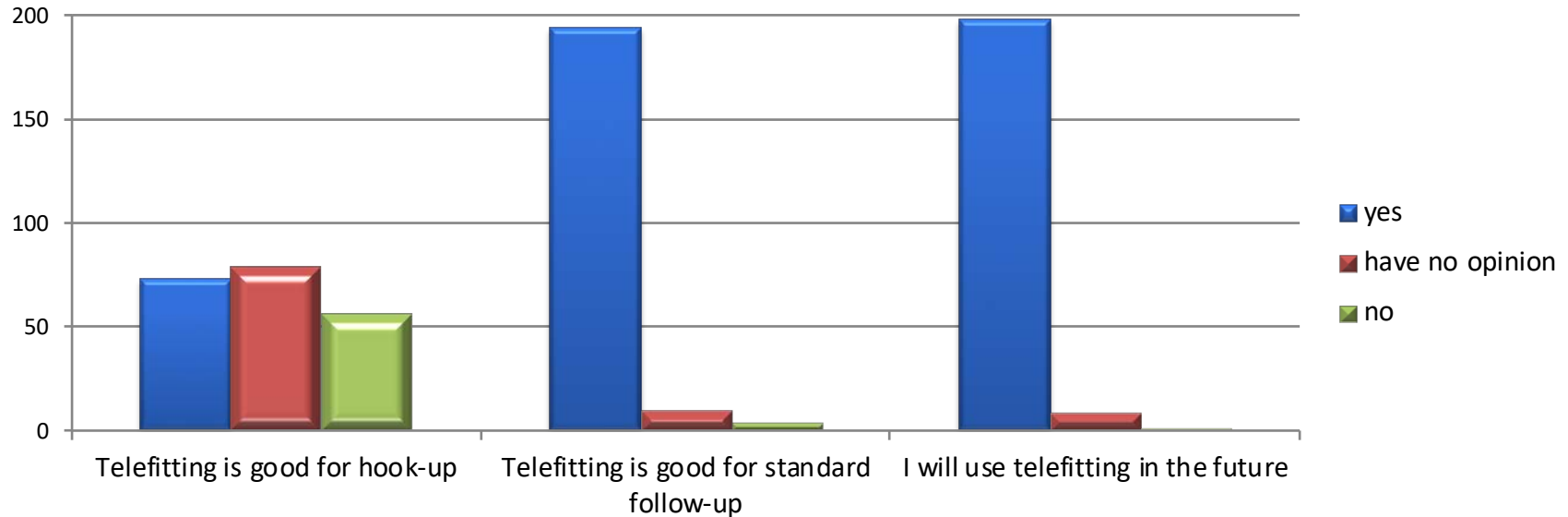


## EVALUATION OF QUALITY OF TELEFITTING - MATERIAL

- **114 children** (questionnaires filled by parents)
  - Mean age = 7.4 years, median 7 years, SD 3.8, Range 1 – 16 years
  - Mean experience = 48 months, median 41 months, SD = 33.5, Range 3 – 131 months
- **94 adults and older teenagers**
  - Mean age = 34.5 years, median 30.5 years, SD=16,9, Range 12 – 86 years
  - Mean experience = 57 months, median 48 months, SD = 42, Range 6 – 17 months
- **Users of Medel** Pulsar, Sonata, Combi 40+; **Cochlear** Nucleus 3G, Freedom, Nucleus 5; **Advanced Bionics** Harmony
- Experience with cochlear implant: from **9 months** to **8 years 3 months**
- All patients visiting one of **8 cooperating polyclinics** selected for the study, fitted by **4 different audiologists**, supported by **13 different support specialists**



## RESULTS (both groups, n = 208)



### Time saved by coming to the center close to living place:

- **mean = 11 hours, median = 9 hours, SD = 9, Range 0 - 48 hours**
- **Savings on travel per patient: 12,5 % of mean national salary**



## EFFECT OF TELEFITTING

- ↑ access to highly specialized procedures
- ↑ effective therapy
- ↓ overall costs
- ↓ individual costs
- ↑ „Quality of Life” for patients
- ↑ educational capabilities for specialists



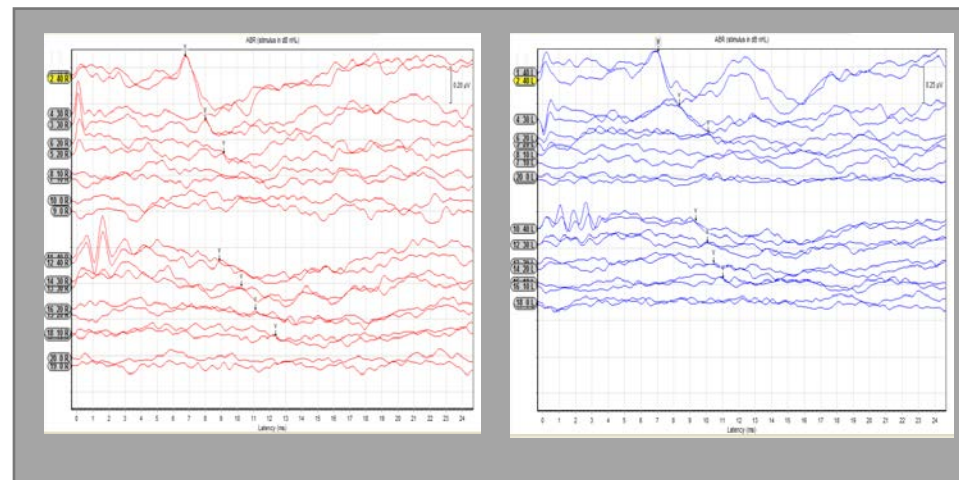
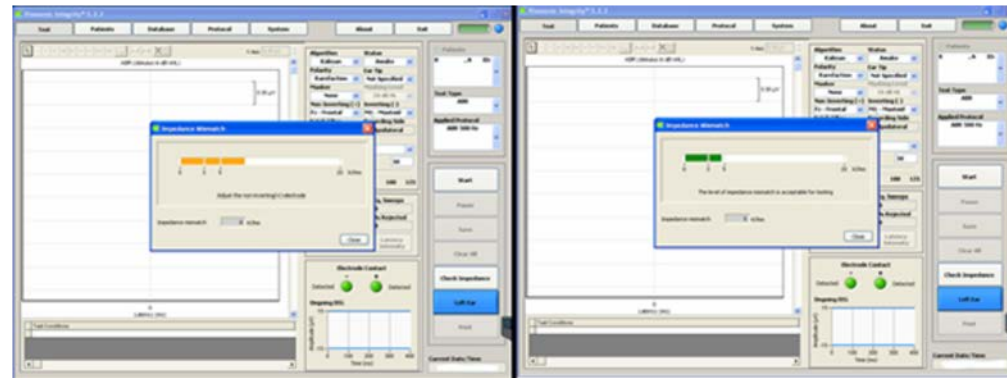


## TELE-ABR

Before starting the examinations local technicians completed comprehensive training courses.

They were instructed on the correct patient preparation for testing, abrasions of the skin, electrode sticking, clip attaching, and launching of the appropriate software. Support documentation was prepared.

After the test, the results are collected and sent to a specialist in Poland to determine the result. This technology assists clinicians by making it easier for them to consult with other more experienced audiologists.



# Organization of the world's and Europe's largest congresses and scientific conferences

**28 May-1 June 2019**

## **32<sup>nd</sup> Politzer Society Meeting 2<sup>nd</sup> World Congress of Otology**



## **XXXV World Congress of Audiology 2020**





# WORLD HEARING CENTER

## INSTITUTE OF PHYSIOLOGY AND PATHOLOGY OF HEARING

KAJETANY/WARSAW, POLAND



THANK YOU FOR YOUR ATTENTION