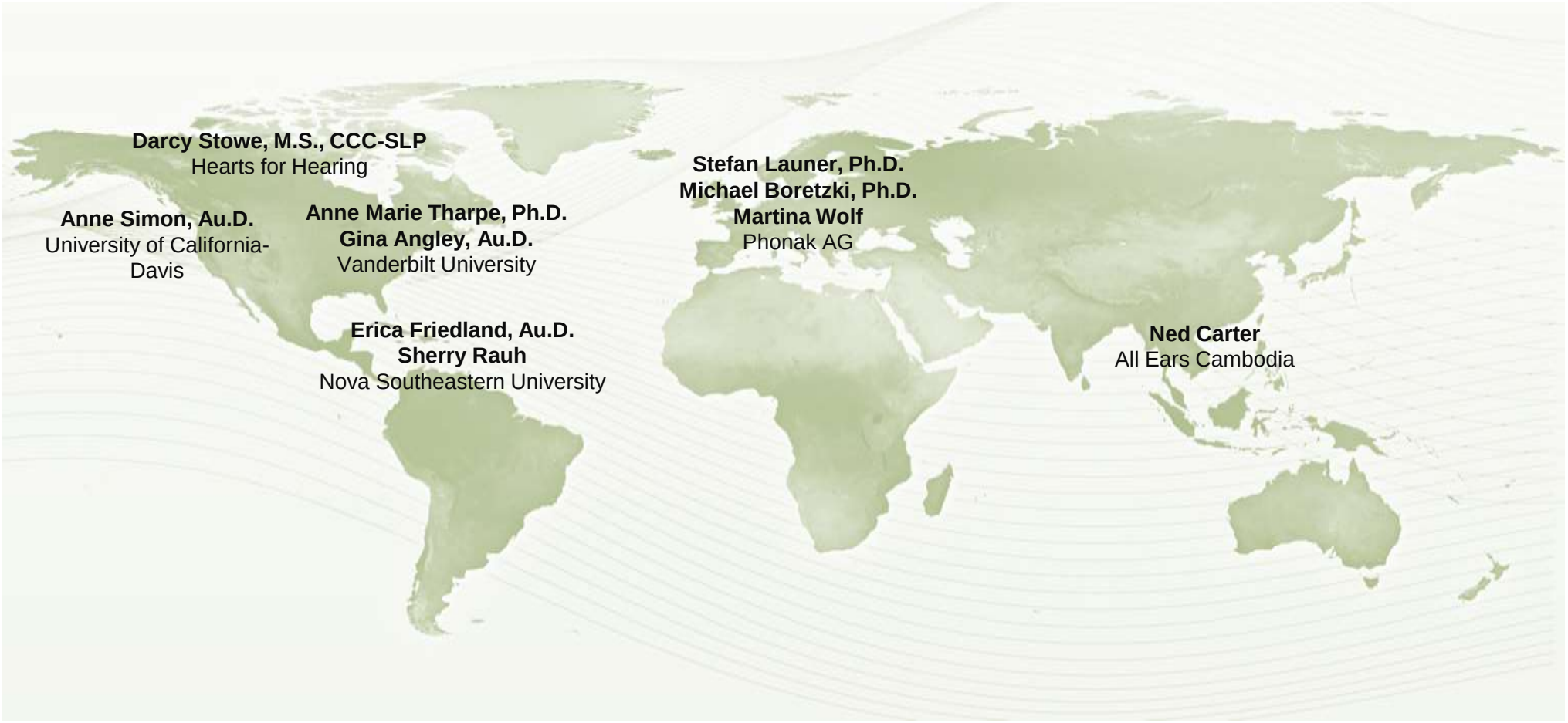
Tele-toddlers: Potential Applications of Telepractice in Pediatric Fitting

Jean Anne Jordan, Au.D.

Phonak AG

PHONAK
life is on

Acknowledgement



PHONAK life is on

Agenda

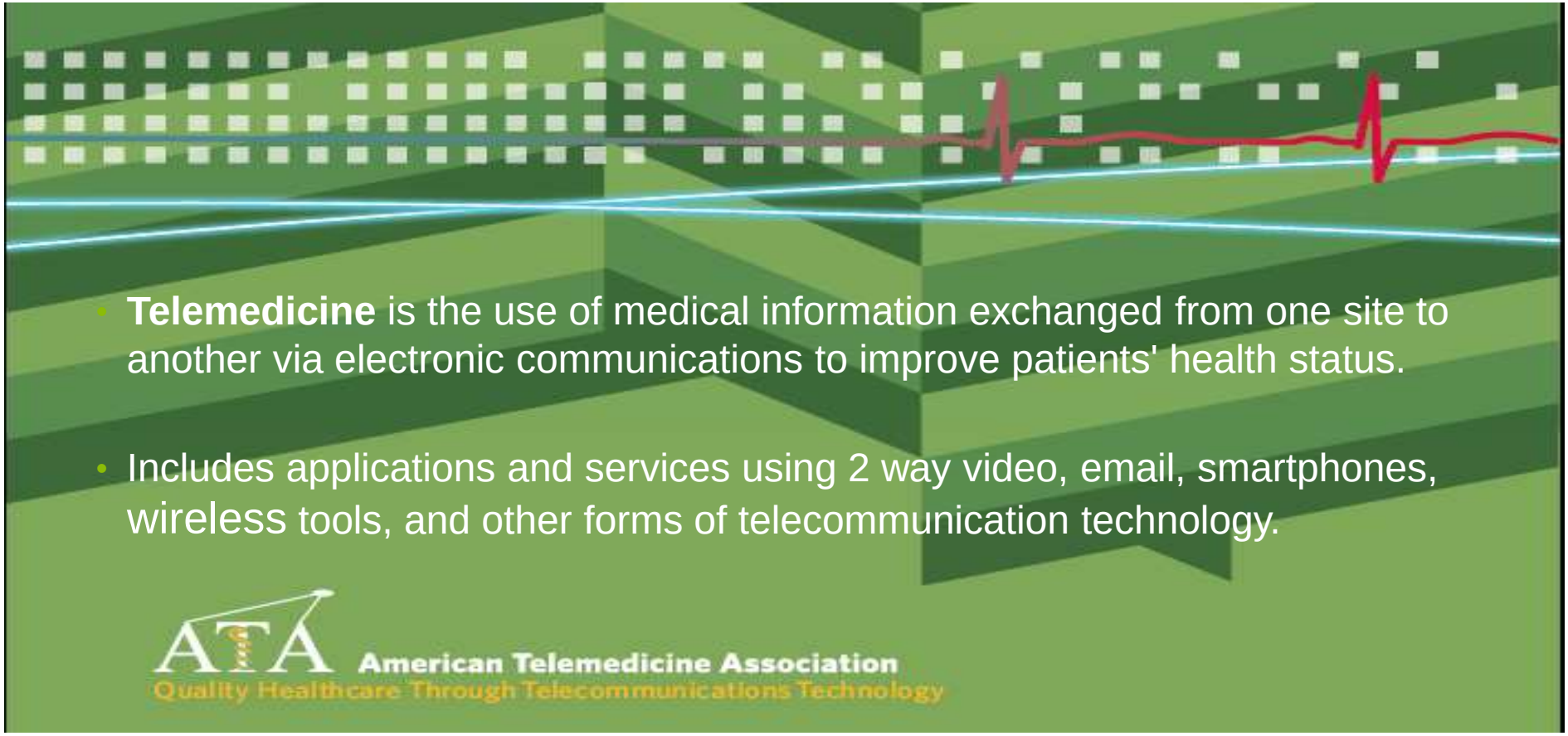
- Telemedicine/Telepractice
- Disruptive Innovation
- Using Teleaudiology/Telepractice to Increase Access
  - Current Applications
  - Future Possibilities
- Challenges

Knowledge is Power

“We must start to manage knowledge as if it were money. The application of what we know will have a bigger impact on our futures than any drug or technology.”

- Sir Muir Gray, Director of BVHC, United Kingdom

What is Telemedicine/Telepractice?



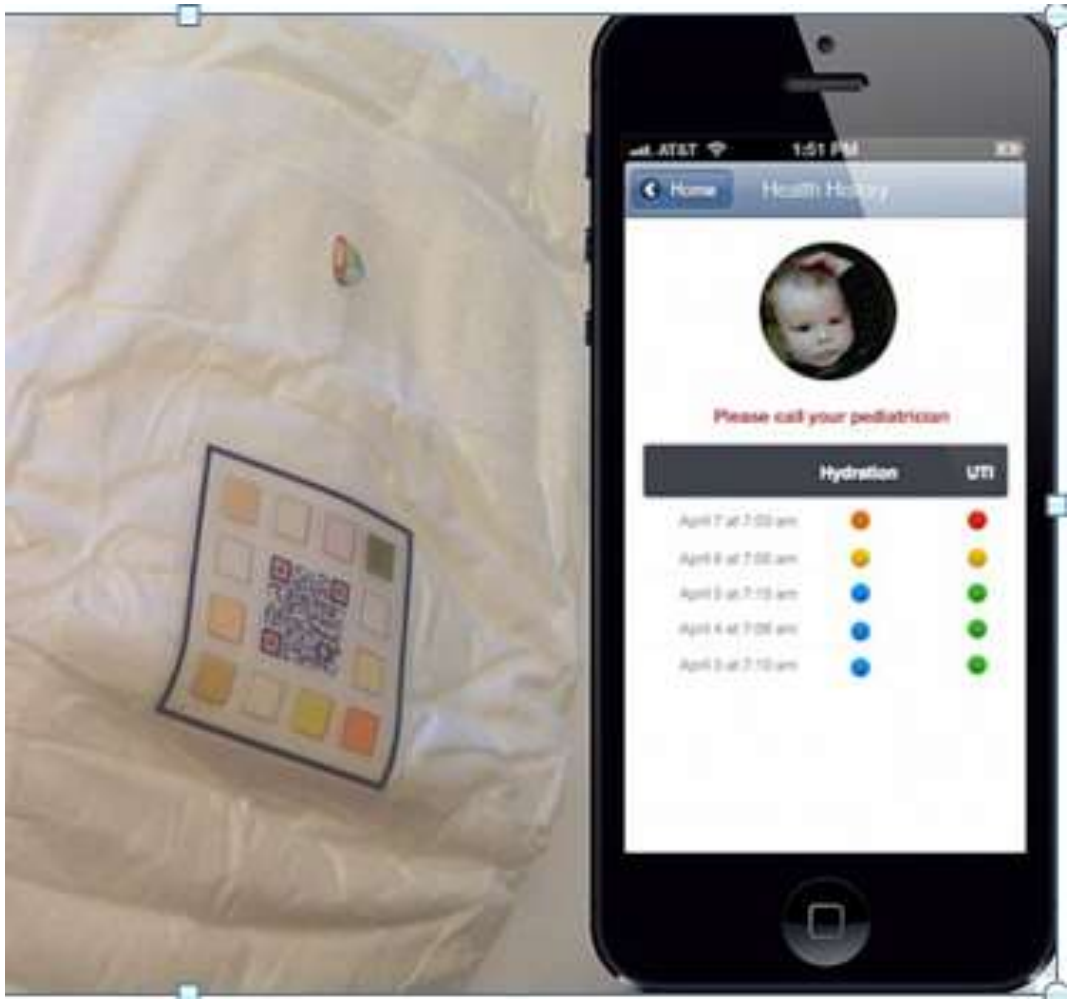
Telemedicine

ACCESS & CONVENIENCE

Conventional

With telemedicine

Smart Diapers



2013 Pixie Scientific

- Parent scans QR code on a wet diaper.
- Smart Diapers can reveal signs of :
  1. Urinary tract infection
  2. Prolonged dehydration
  3. Developing kidney problems
- In clinical trial period, awaiting FDA approval.

CellScope

- Developed at University of California- Berkley
- Parents take a picture of the tympanic membrane using the special attachment for the iPhone and an app
- Image is sent to the physician through a HIPPA compliant website
- Ear infections can be diagnosed and treated from home

Agenda

- Telemedicine/Telepractice
- **Disruptive Innovation**
- Using Teleaudiology/Telepractice to Increase Access
  - Current Applications
  - Future Possibilities
- Challenges

History of Mobile Phones

- In the beginnig cell phones weighed almost 2 pounds and were expensive. Today's technolgy is small, affordable and has opened up limitless possibilites.

Disruptive Innovation in Audiology

- WDRC
- Analog to digital

Agenda

- Telemedicine/Telepractice
- Disruptive Innovation
- Using Teleaudiology/Telepractice to Increase Access
  - **Current Applications**
  - Future Possibilities
- Challenges

Telehealth in Audiology

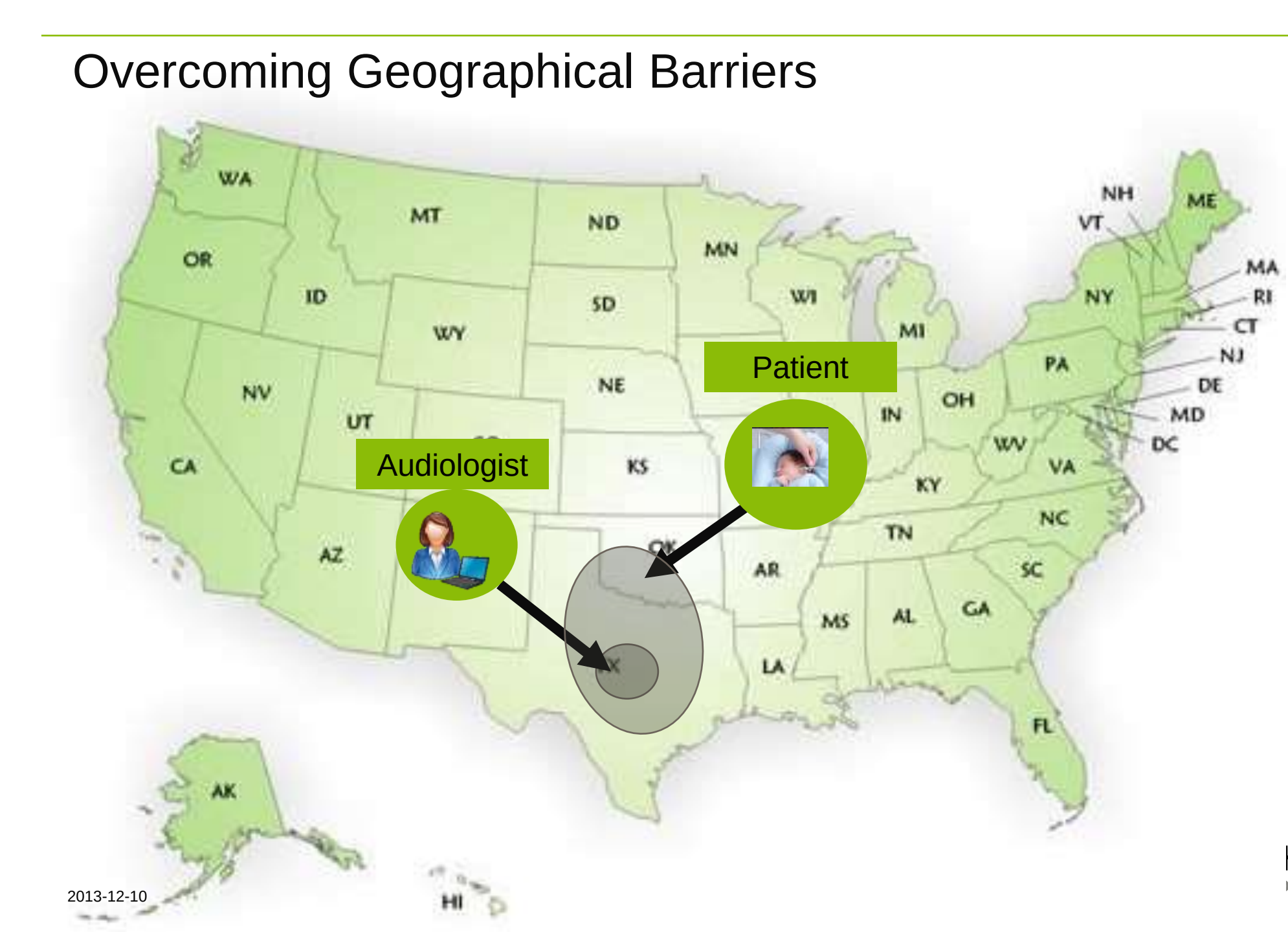
Swanepoel and Hall 2010

A Systematic Review of Telehealth Applications in Audiology

VOL. 16 NO. 2 • MARCH 2010 TELEMEDICINE and e-HEALTH 181

- Audiological screening
- Audiological diagnosis
- Audiological intervention
- Patient and clinician Perceptions

Overcoming Geographical Barriers



University of California, Davis
Teleaudiology Program

- Tele-audiology program developed to reduce loss to follow up
- Target Population
  - Infants not passing newborn screen
  - Four months of age and younger
  - Must qualify geographically based on residence
    - Far N. California inland counties
    - where loss to follow up rate was 20% (compared to 4.5% across California)

Anne Simon, Au.D., Dec. 2013

UCDAVIS CHILDREN'S HOSPITAL

University of California, Davis
Teleaudiology Program

- Comprehensive diagnostic infant hearing evaluations
  - History
  - View structures (pinna and symmetry of face)
  - Video Otoscopy
  - Immittance
  - Otoacoustic Emissions
  - Auditory Brainstem Response
  - Auditory Steady State Response (as needed)
  - Counseling/Recommendations
- Audiologist performs all testing from expert site
- Audiology assistant is at the originating site with patient, technical analyst & medical interpreter as needed

Anne Simon, Au.D., Dec. 2013

UCDAVIS CHILDREN'S HOSPITAL

University of California, Davis
Teleaudiology Program

- Parent Satisfaction
  - Positive response
  - Pleased not to travel as far
  - Not concerned about the remote environment
  - Participate openly with history, discussion of evaluation findings, and recommendations

Anne Simon, Au.D., Dec. 2013

UCDAVIS CHILDREN'S HOSPITAL

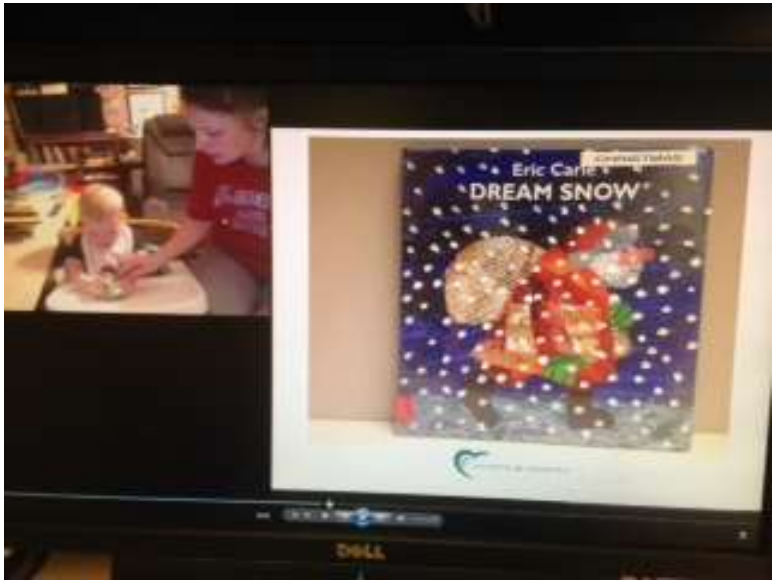
Hearts for Hearing
Teletherapy IHEAR

- Auditory verbal therapy, HIPPA compliant
- Established in 2005
  - Motivation: family 3 hours, 1 car, dad working
- Most have face to face therapy before beginning teletherapy
- IT specialist works with parents to prepare for first session
  - Equipment: computer & webcam
  - Parents are technologically savvy
- Challenges:
  - Internet Stability
  - Audio
  - Licensing

Darcy Stowe, M.S., CCC-SLP, Dec.13

Hearts for Hearing
Teletherapy IHEAR

- Benefits of teletherapy
  - Providing regular intervention to patients who would not be able to travel frequently.
  - Child can keep the same provider if they move.
  - Working flexibility for the therapist.



Darcy Stowe, M.S., CCC-SLP, Dec.13

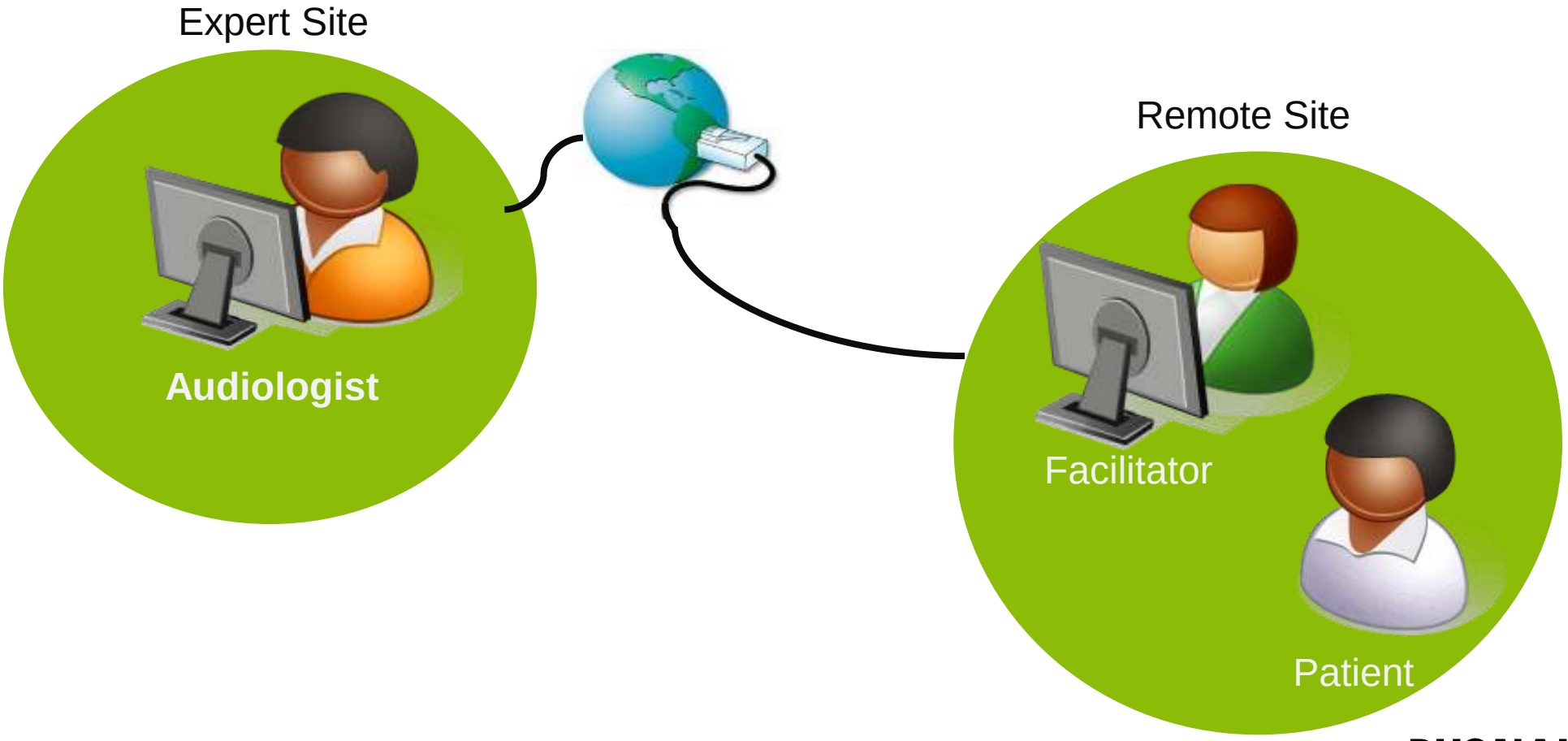
PHONAK life is on

Agenda

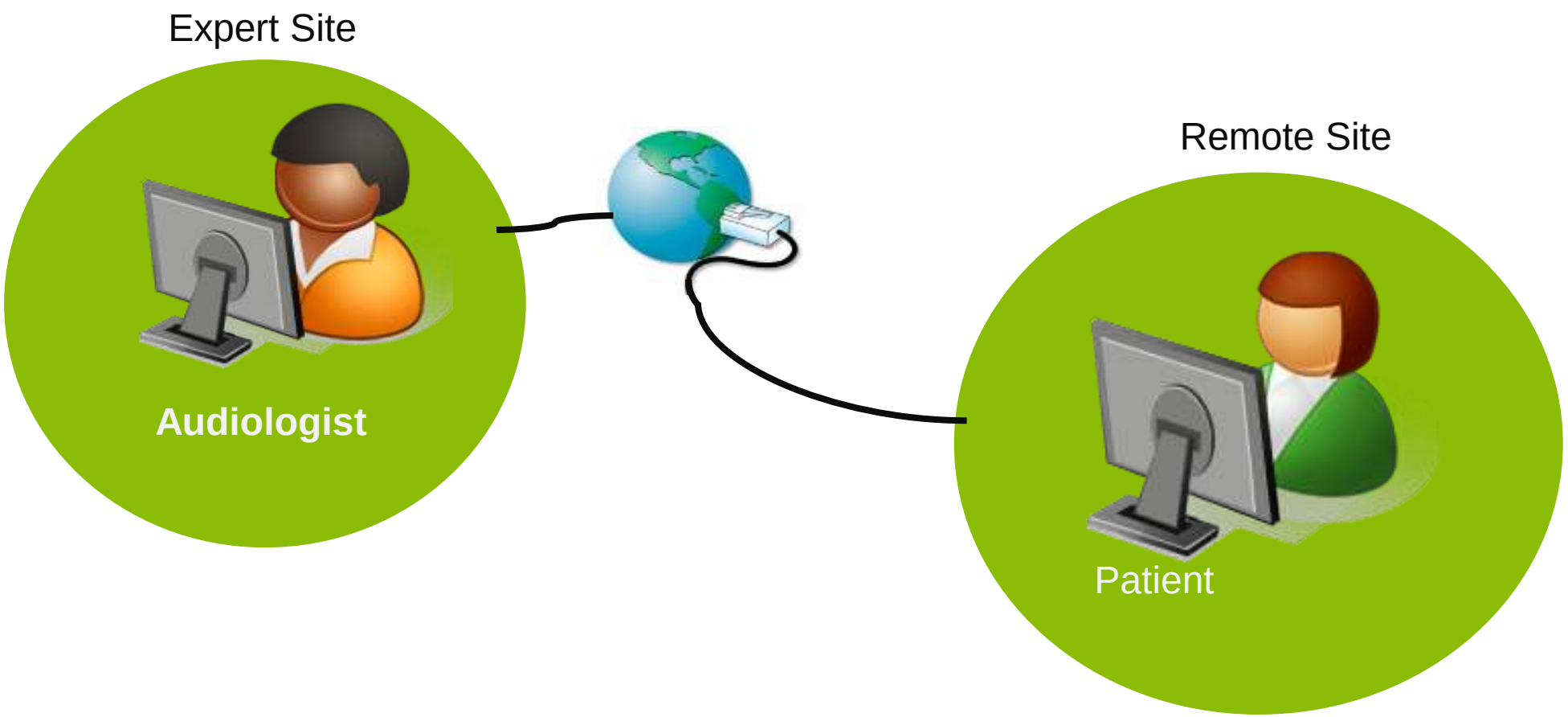
- Telemedicine/Telepractice
- Disruptive Innovation
- Using Teleaudiology/Telepractice to Increase Access
  - Current Applications
  - **Future Possibilities**
- Challenges

Is this a Pipe?

Telemedicine Delivery Models



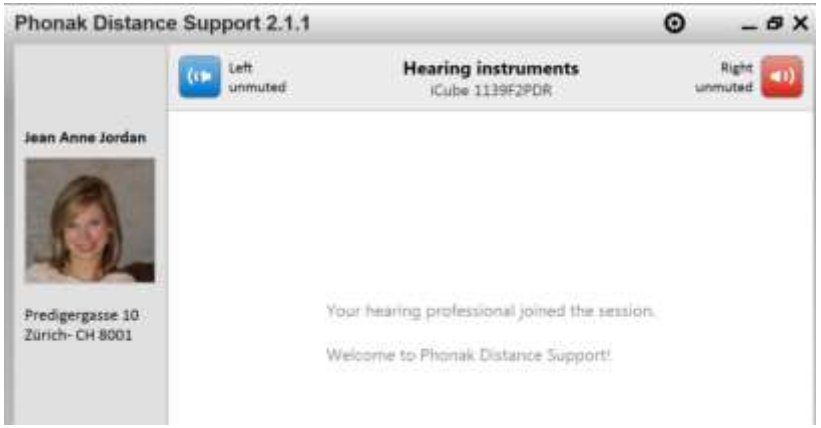
Telemedicine Delivery Models



Phonak Distance Support Prototype

Phonak Target

Distance Support Client



life is on

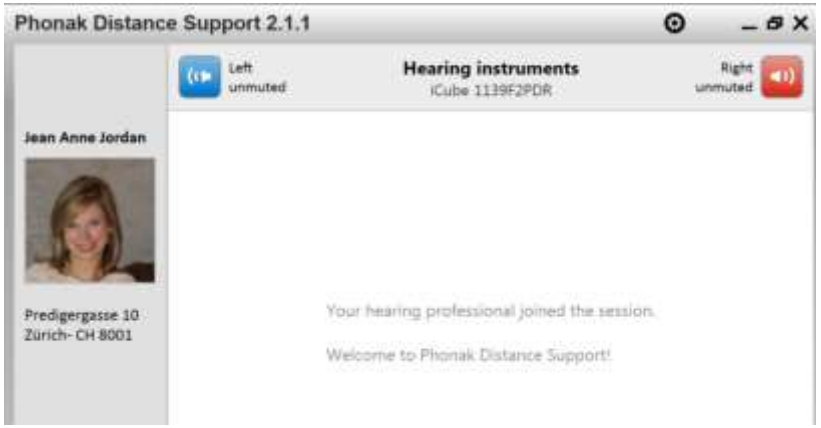
Vanderbilt University
Distance Support: Phase I

- Goals:
  - Were clients able to install the software on a laptop?
  - Was the audiologist able to connect to the hearing aids?
  - Audiologist and client experiences?

Vanderbilt Pilot Study

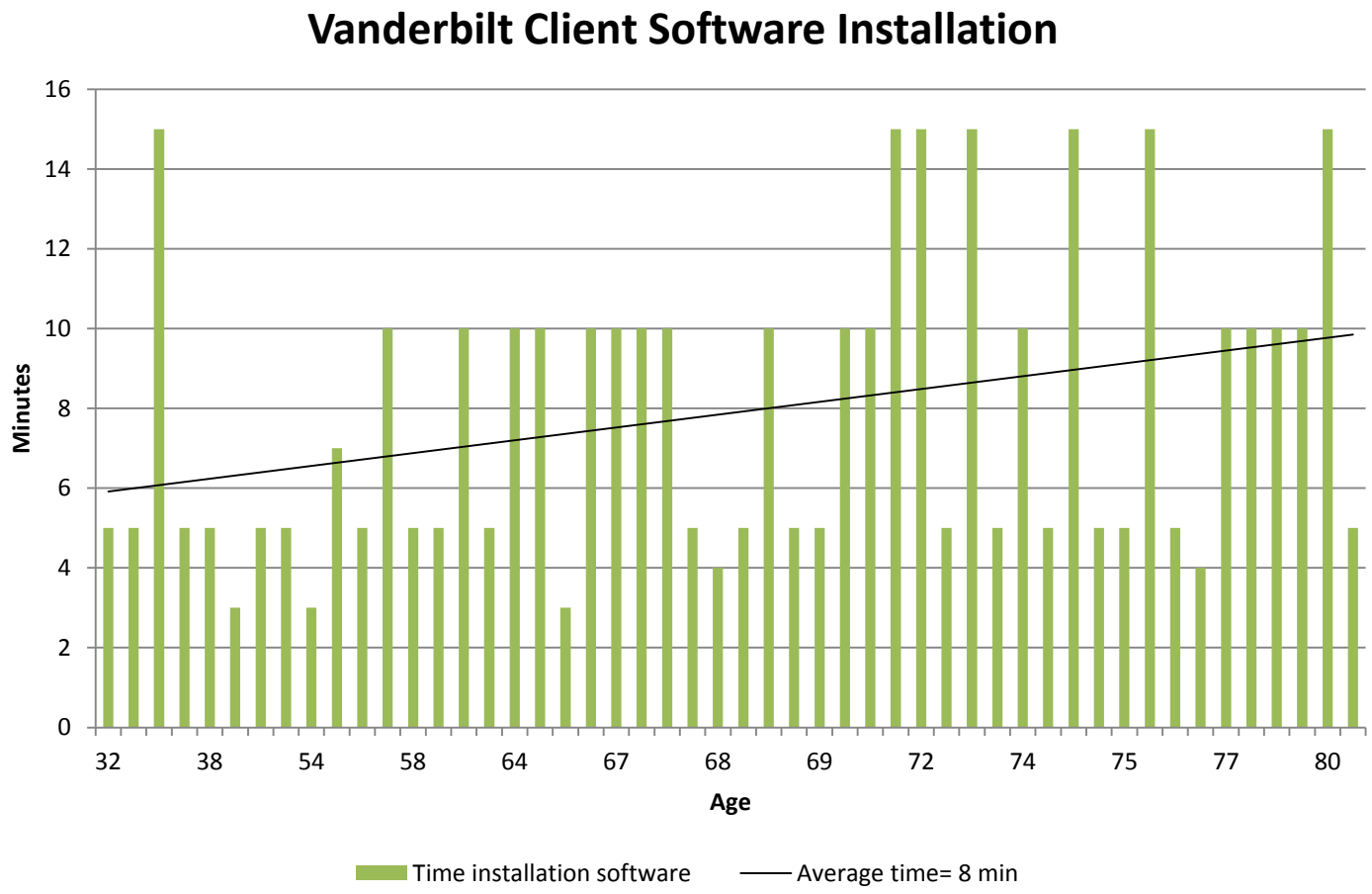
Phonak Target

Distance Support Client



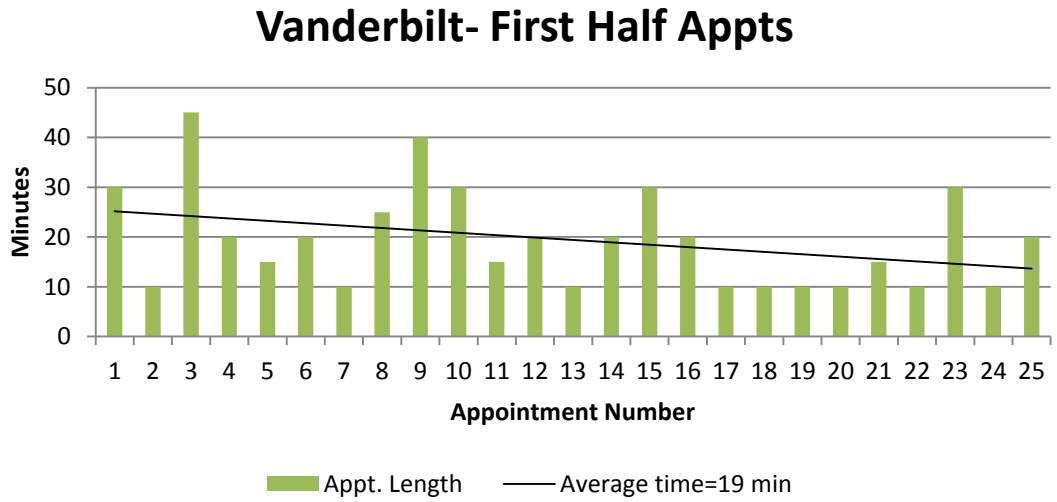
Vanderbilt University Phase I Results

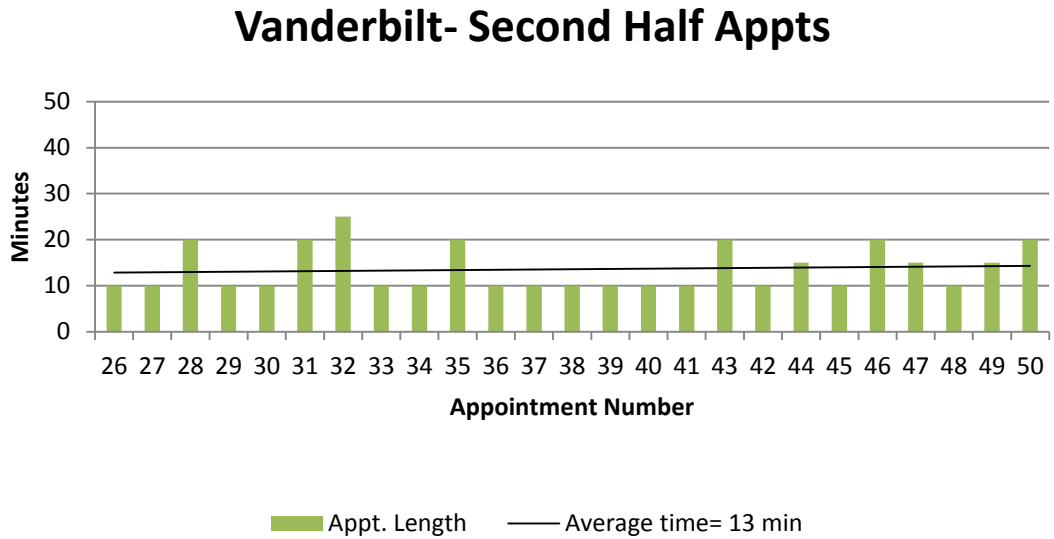
Client Software Installation



Vanderbilt University Phase I Results

Acclimatization to Prototype





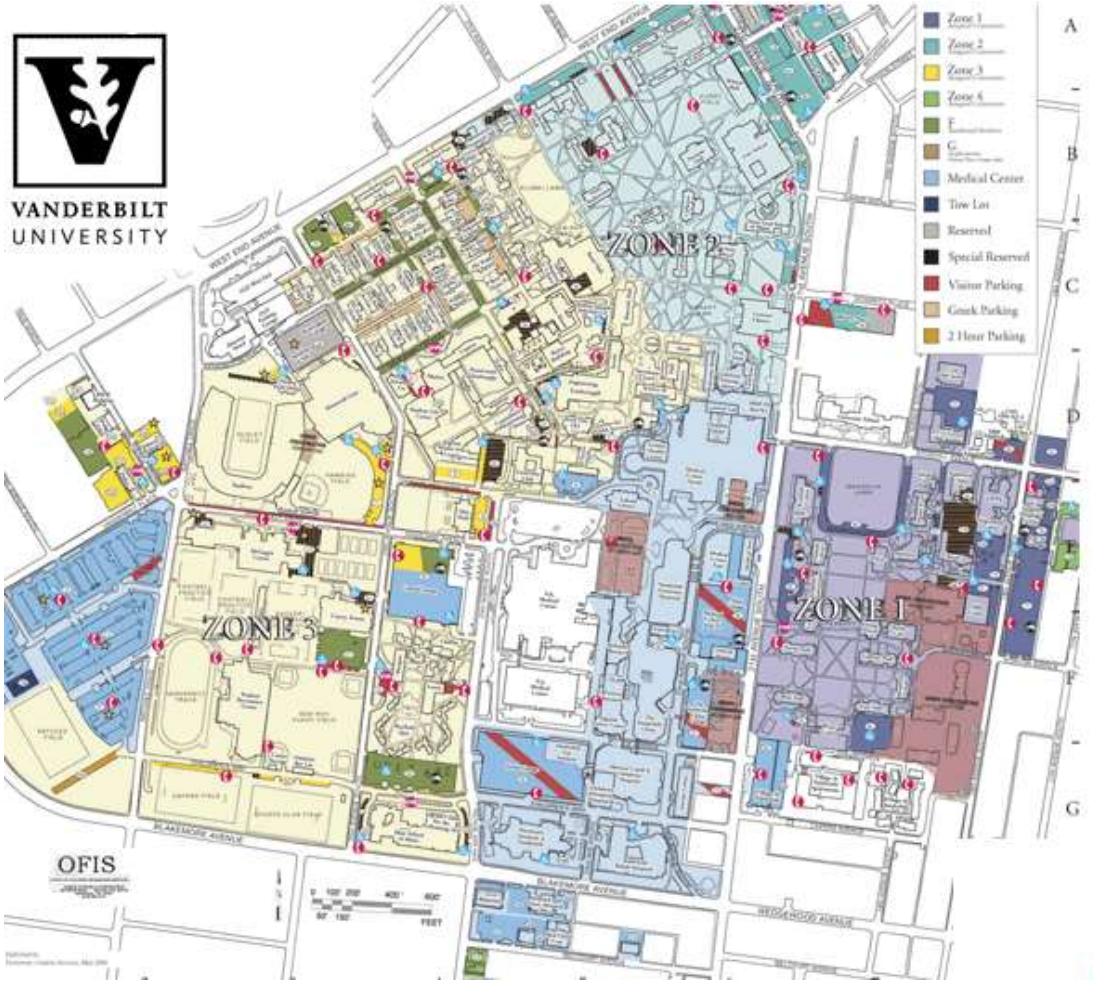
Vanderbilt University Phase I Results
Subject Experience

- 90% listed a strength related directly to accessibility and convenience
- 20% had concerns about loss of face to face contact
- 4% had concerns about using technology
- 92% would recommend to friends and family.
- Preference for Distance Support :
  - 64% prefer Distance Support appointments in the future if possible
  - 32% were neutral
  - 4% preferred face to face

Vanderbilt University Phase I Results
Audiologist Experience

- Generally satisfied with 76% of appointments, the remaining 24% were rated as neutral.
  - Needed real ear
  - Connection problems
  - Hearing aid batteries dead
  - Visual inspection of the hearing aid needed

Vanderbilt University
Patient Benefit



PHONAK
life is on

Vanderbilt University
Clinician/Clinic Benefit

- Efficiency scheduling
  - High cost on efficiency for no shows
  - Possibly more likely to replace no shows with Distance Support patients
- Remote fitting appointments were shorter, saving clinic time so more patients can be seen
  - Face to face visits can be used for patients with issues that can not be solved remotely or prefer face to face.

Vanderbilt University
Clinical Outcomes

- Convenience may equate to patients seeking services more often when they need them.
  - 40% of clients in Phase I reported they would seek services more often.
  - Possibly increase satisfaction

Vanderbilt University Phase II
Preliminary Results

- 62% of clients preferred using a webcam instead of telephone only
- Audiologist was able to connect to 87% of patient's hearing aids.
- More to come…….

Possible Pediatric Applications

- Datalogging
- Feedback manager
- Adding a phone program

All Ears Cambodia

- NGO- only ear and hearing clinic in Cambodia
- Greatest need: Education and training of local staff/ volunteers
  - Satallite clinics have to close for trainings
- Greatest challenge: infrastructure
  - Urban/rural divide

Nova Southeastern University & Los Pipitos

- Fifteen children, ranging from 2-9 years old, will be fit with hearing aids by an audiology team from Nova Southeastern University in winter 2014.
- Follow up visits are planned on an annual basis.
- Nova will test Phonak Distance Support as part of remote follow-up care provided to families and clinics in between face to face visits.
  - Start with small conservative steps such as reading datalogging
  - Will provide feedback to Phonak on what tasks are not solvable or appropriate through the current functionalities of Phonak Distance Support.

NSU
NOVA SOUTHEASTERN UNIVERSITY

LOS PIPITOS
ASOCIACIÓN DE PADRES DE FAMILIA CON HIJOS CON DISCAPACIDAD

Agenda

- Telemedicine/Telepractice
- Disruptive Innovation
- Using Teleaudiology/Telepractice to Increase Access
  - Current Applications
  - Future Possibilities
- **Challenges**

Key Challenges

- Licensing
- Reimbursement
- Real ear measurements
- Infrastructure
- Inability to physically inspect ear and equipment

Thank you!

Jeananne.jordan@phonak.com

PHONAK
life is on