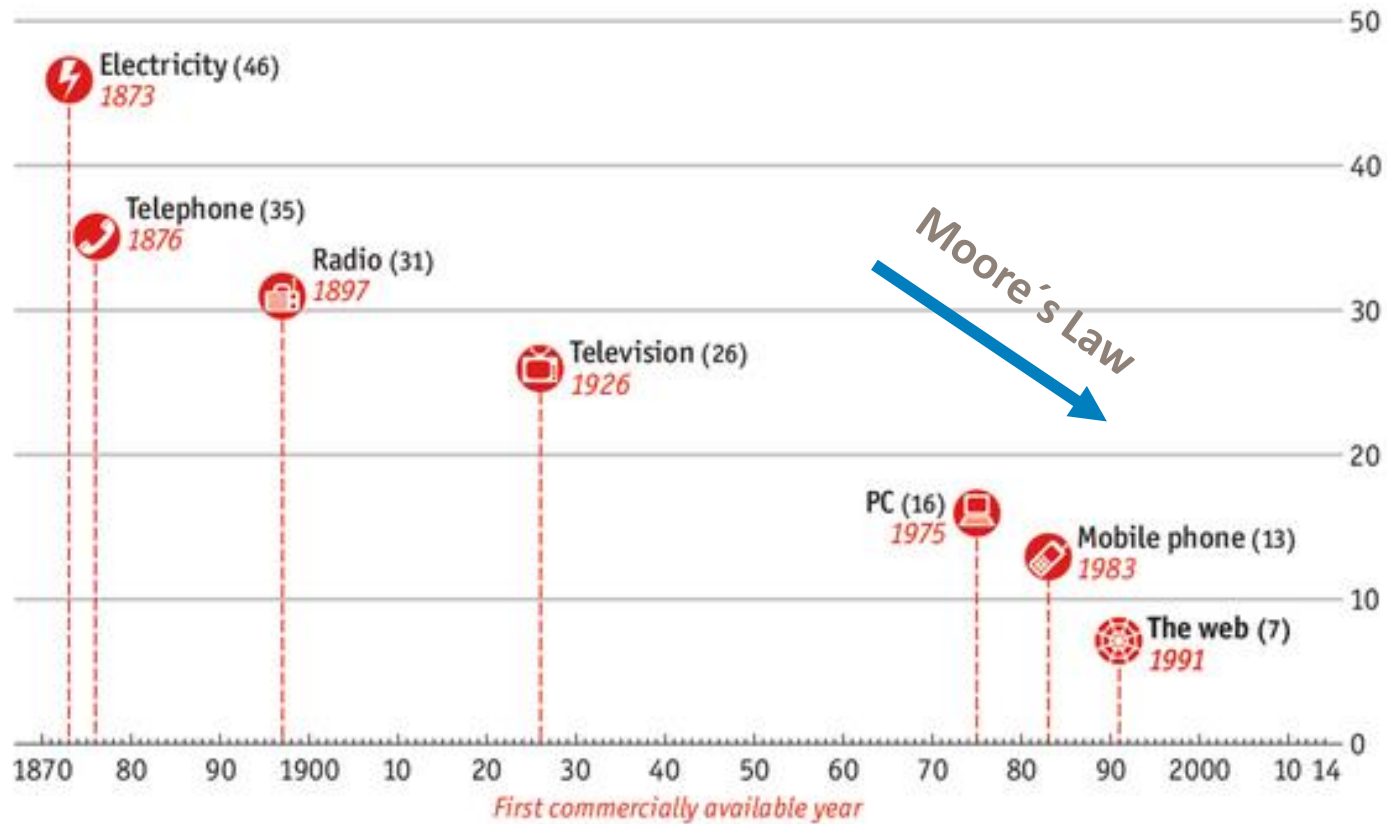# PHONAK REMOTE SUPPORT: KEY LESSONS AND PRACTICAL TIPS

Jean Anne Schnittker, Au.D.
Research Audiologist, Sonova AG

DEMOCRATIZATION

Technology adoption
Years until used by one-quarter of American population

- Electricity (46) 1873
- Telephone (35) 1876
- Radio (31) 1897
- Television (26) 1926
- PC (16) 1975
- Mobile phone (13) 1983
- The web (7) 1991
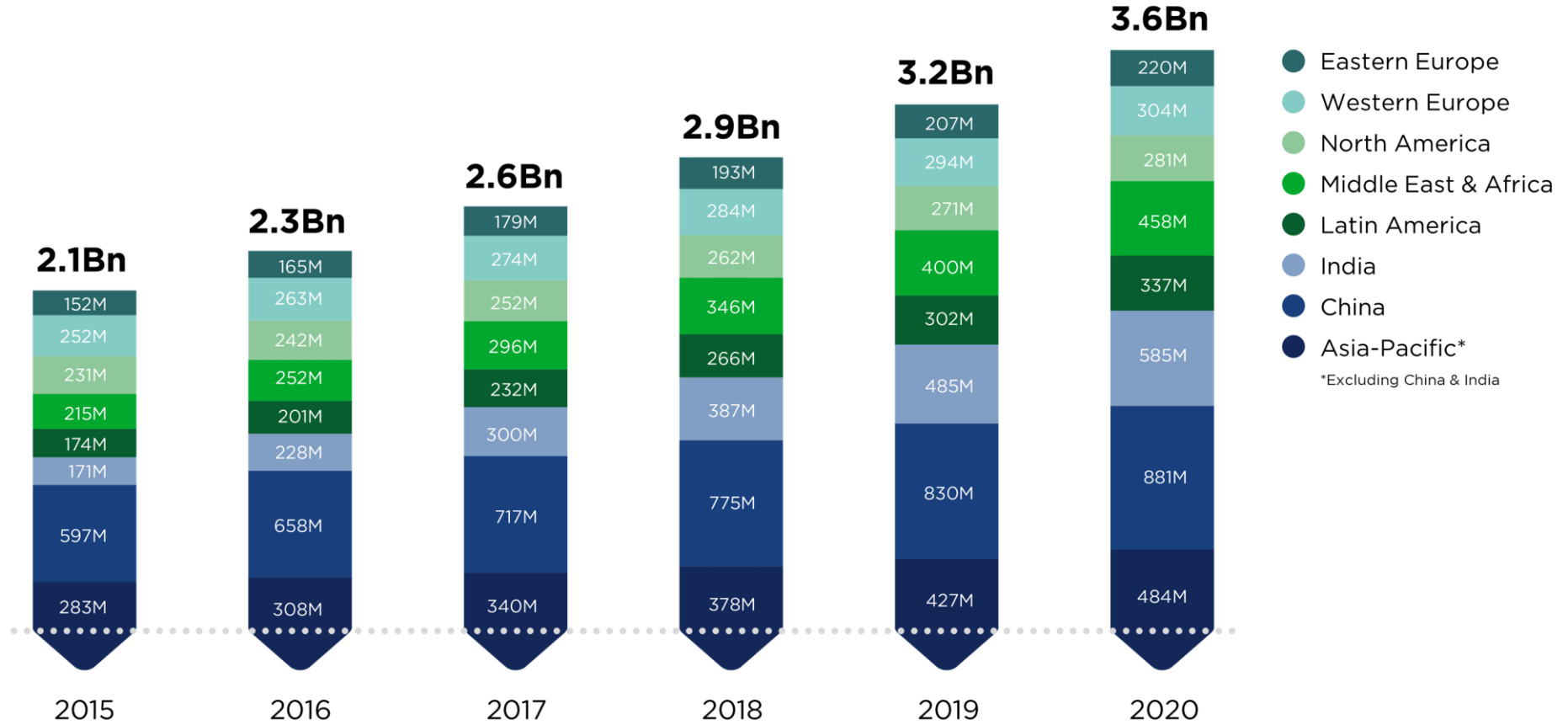
Moore´s Law

First commercially available year

Source: Singularity.com

Economist.com/graphicdetail

2.6BN ACTIVE SMARTPHONE USERS GLOBALLY
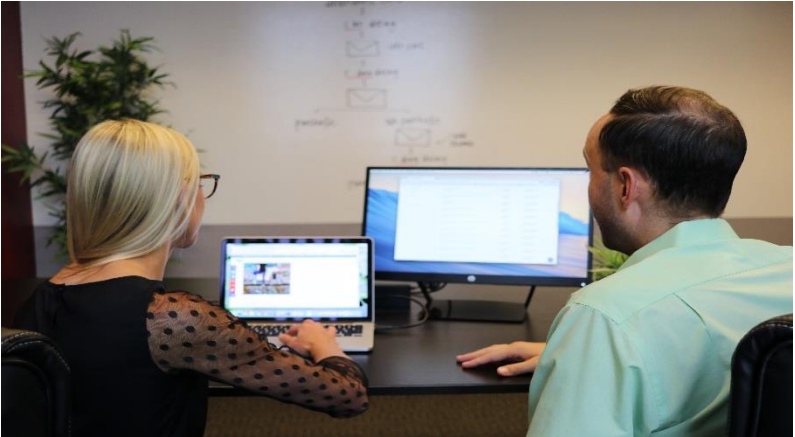
ACTIVE SMARTPHONE USERS | 2017 | PER REGION | 2015-2020

newzoo

2.1Bn

152M	
252M	
231M	
215M	
174M	
171M	
597M	
283M	

2015

2.3Bn

165M	
263M	
242M	
252M	
201M	
228M	
658M	
308M	

2016

2.6Bn

179M	
274M	
252M	
296M	
232M	
300M	
717M	
340M	

2017

2.9Bn

193M	
284M	
262M	
346M	
266M	
387M	
775M	
378M	

2018

3.2Bn

207M	
294M	
271M	
400M	
302M	
485M	
830M	
427M	

2019

3.6Bn

220M	
304M	
281M	
458M	
337M	
585M	
881M	
484M	

2020

● Eastern Europe
● Western Europe
● North America
● Middle East & Africa
● Latin America
● India
● China
● Asia-Pacific*

*Excluding China & India

© Copyright Newzoo 2017 | Source: 2017 Global Mobile Market Report
newzoo.com/global-mobile-report

newzoo

THE MEDICALIZIED SMARTPHONE

FOR YOUR HEALTH®

WHY? ACCESS AND CONVENIENCE

Conventional

eAudiology

No Real-time

Feedback App

Limited fitting capability
Additional tool for HCP
No direct user feedback

Real-time

User App

100% of fitting capability in
Phonak Target
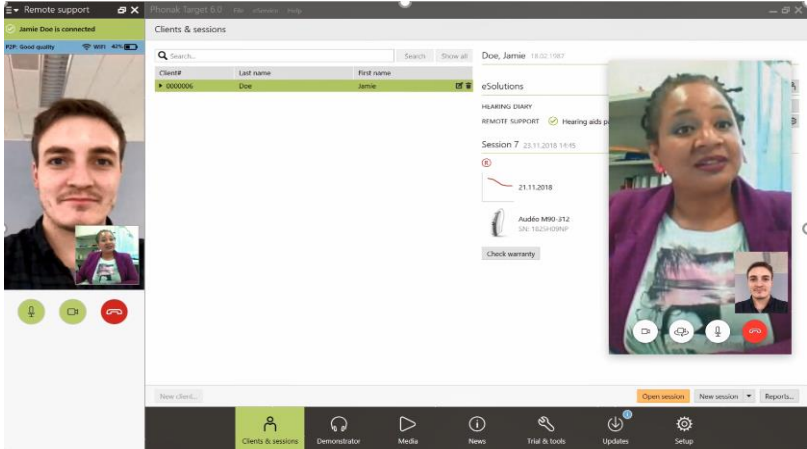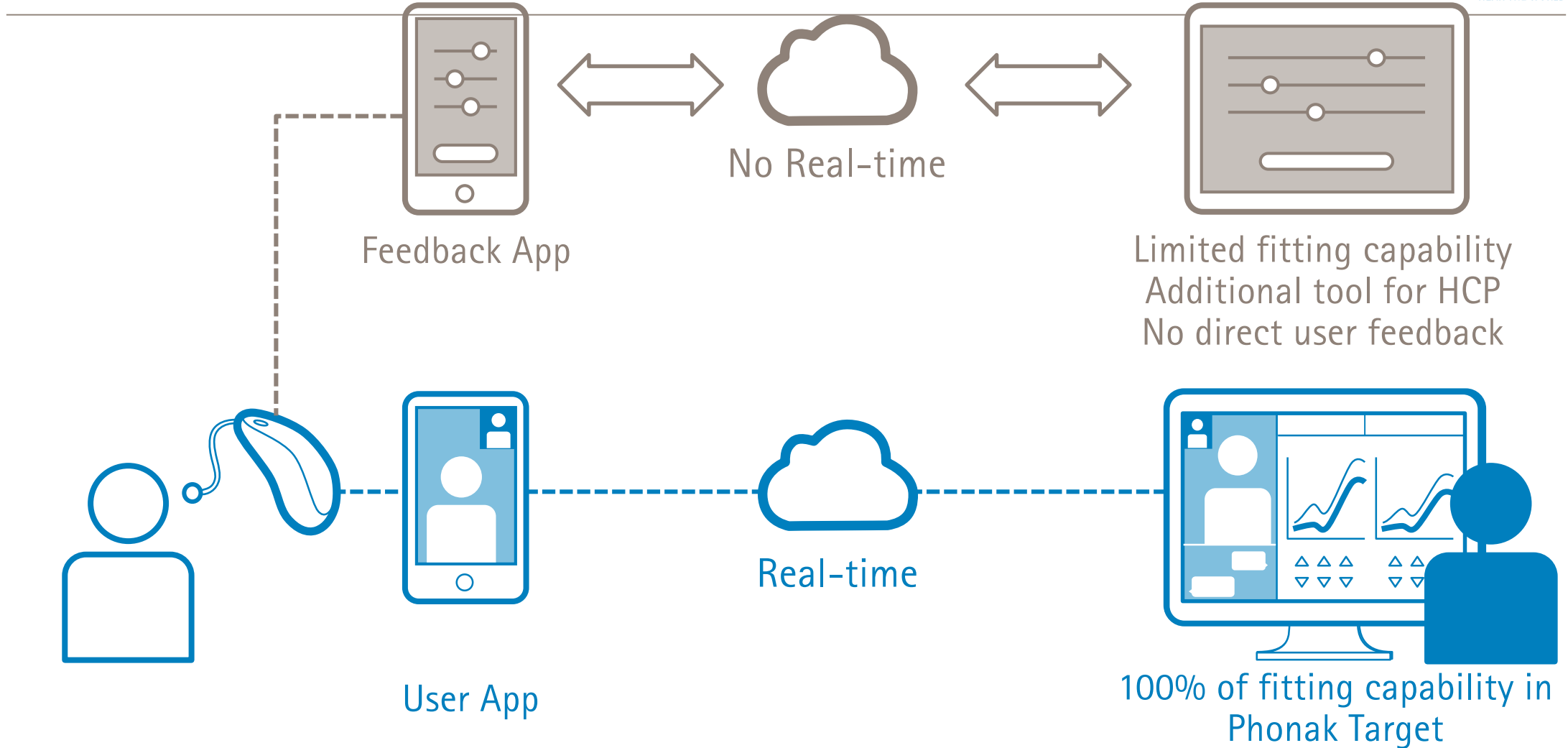
Synchronous real-time tele-session

HOW REMOTE SUPPORT WORKS

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Client

Audiologist

2.4 Direct

Real-time

Phonak
Audéo B-Direct

myPhonak app
iOS and Android video
(MFA)
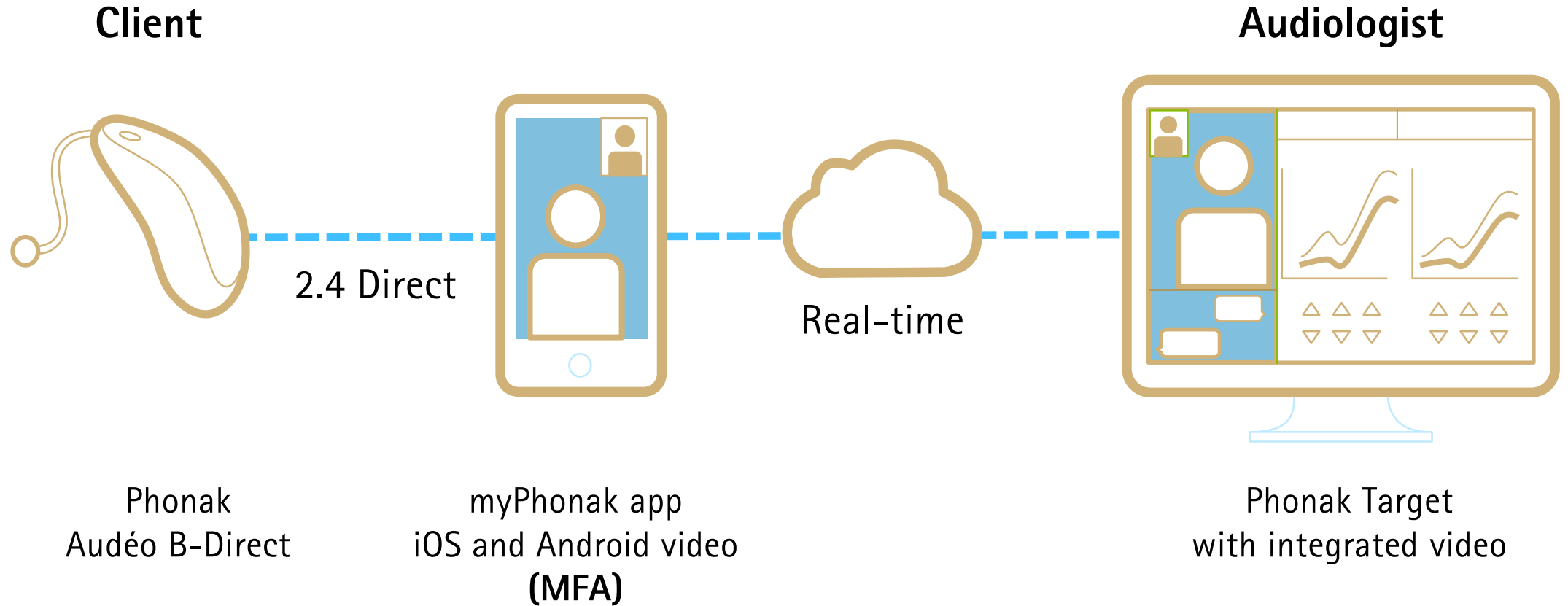
Phonak Target
with integrated video

CLINICAL STUDIES TO DATE

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1. Qualitative Study of Attitudes

      Singh, G. (2014), published

2. Audiological Feasibility and Ffficacy of Remote Support

      Singh, G. (2012), not published yet

3. Remote Support Video Connection

      Haubold, J. (2012), internal report

4. Remote Hearing Aid Support: The Next Frontier

      Angley G., Tharpe, A.M., Schnittker, J.A. (2017), published

5. Re-engagement of Teen Hearing Aid Users

      Carr, G., Joseph, K., Davis, A. (2014), not published

6. Pediatric HA Management: Using Virtual Visits to Enhance Parent Support

      Muñoz, K., Kibbe, K., Preston, E., Caballero, A., Nelson, L., White, K., & Twohig, M.(2017), published

7. Technical Usability Study with Hearing Care Practitioners in Germany

      Schnittker, J.A, Schuepbach-Wolf, M. (2018), analyzing

1. QUANTITATIVE STUDY OF ATTITUDES

Gurjit Singh, Ph.D.
University of Toronoto, Sonova

Kathleen Pichora-Fuller, Ph.D.
Toronto Rehabilitation Institute

Stefan Launer, Ph.D.
Sonova

Michael Boretzki, Ph.D.
Sonova

QUANTITATIVE STUDY OF ATTITUDES

Purpose: To survey **hearing health care practitioners`** attitudes toward eAudiology

1. Attitudes toward eAudiology appointments
2. Willingness to conduct different clinical tasks via eAudiology
3. Willingness to conduct a eAudiology appointment with different patient populations.

Method: Participants (202) working in Canada completed the Attitudes Towards Teleaudiology Scale for Practitioners (ATS-P) online.
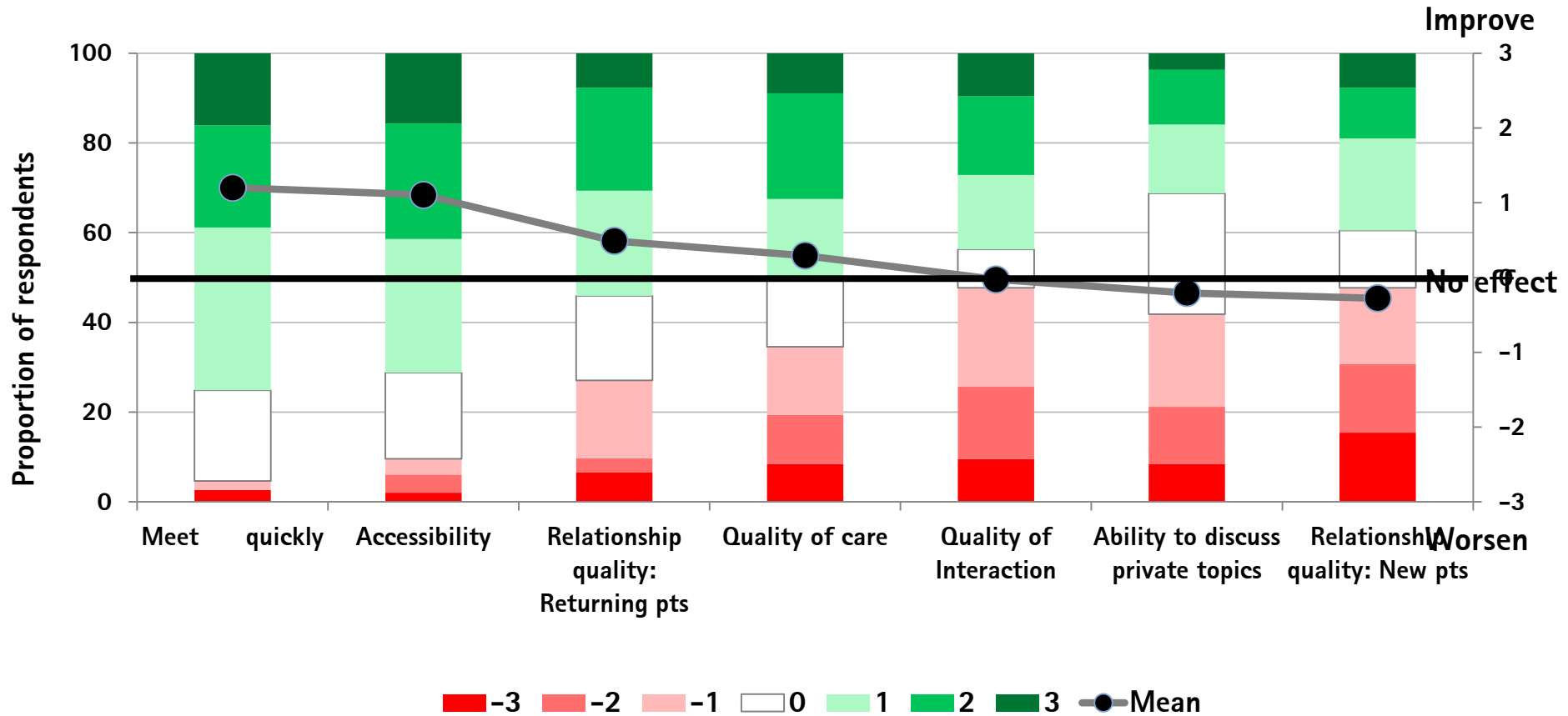
Singh G. (2014) A survey of the attitudes of practitioners toward teleaudiology. Inter J Audiol 53(12):850–60.
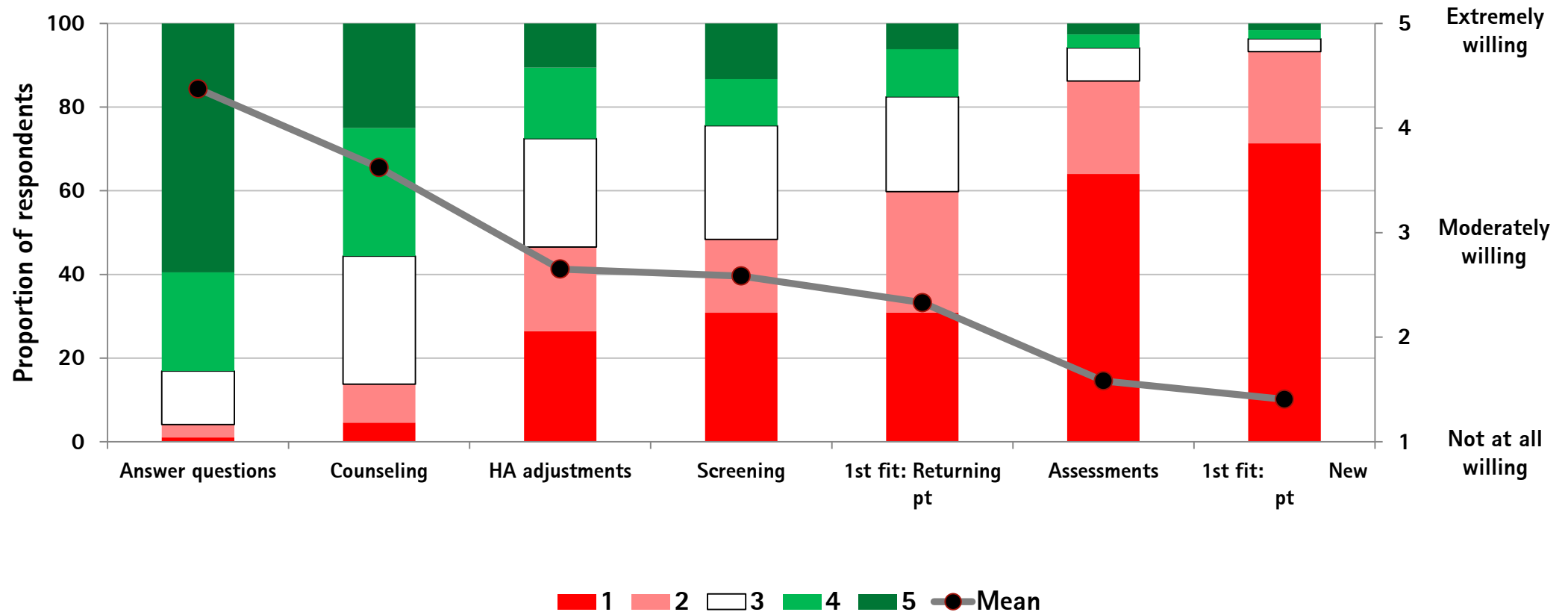
QUANTITATIVE STUDY OF ATTITUDES

Results:

- On average, it is believed that eAudiology will increase accessibility, but will likely have a minimal effect on hearing health care

- Significant proportions of clinicians have opposing attitudes toward eAudiology.

- Willingness to conduct eAudiology sessions highly dependent on:

Clinical Tasks	Patient Populations
High for counseling-based behaviors	High: tech savvy, mobilty issues, or travel long distance
Cautious for more technical tasks	Reluctance for new patients
Reluctance with diagnostics & first fittings	

Singh G. (2014) A survey of the attitudes of practitioners toward teleaudiology. Inter J Audiol 53(12):850–60

PERCEIVED EFFECT OF eAUDIOLOGY ON HEARING CARE

Singh et al. (2014, IJA, 53, 850–860)

WILLINGNESS TO USE eAUDIOLOGY: CLINICAL TASKS

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Singh et al. (2014, IJA, 53, 850–860)

WILLINGNESS TO USE eAUDIOLOGY: PATIENT GROUPS

Singh et al. (2014, IJA, 53, 850–860)
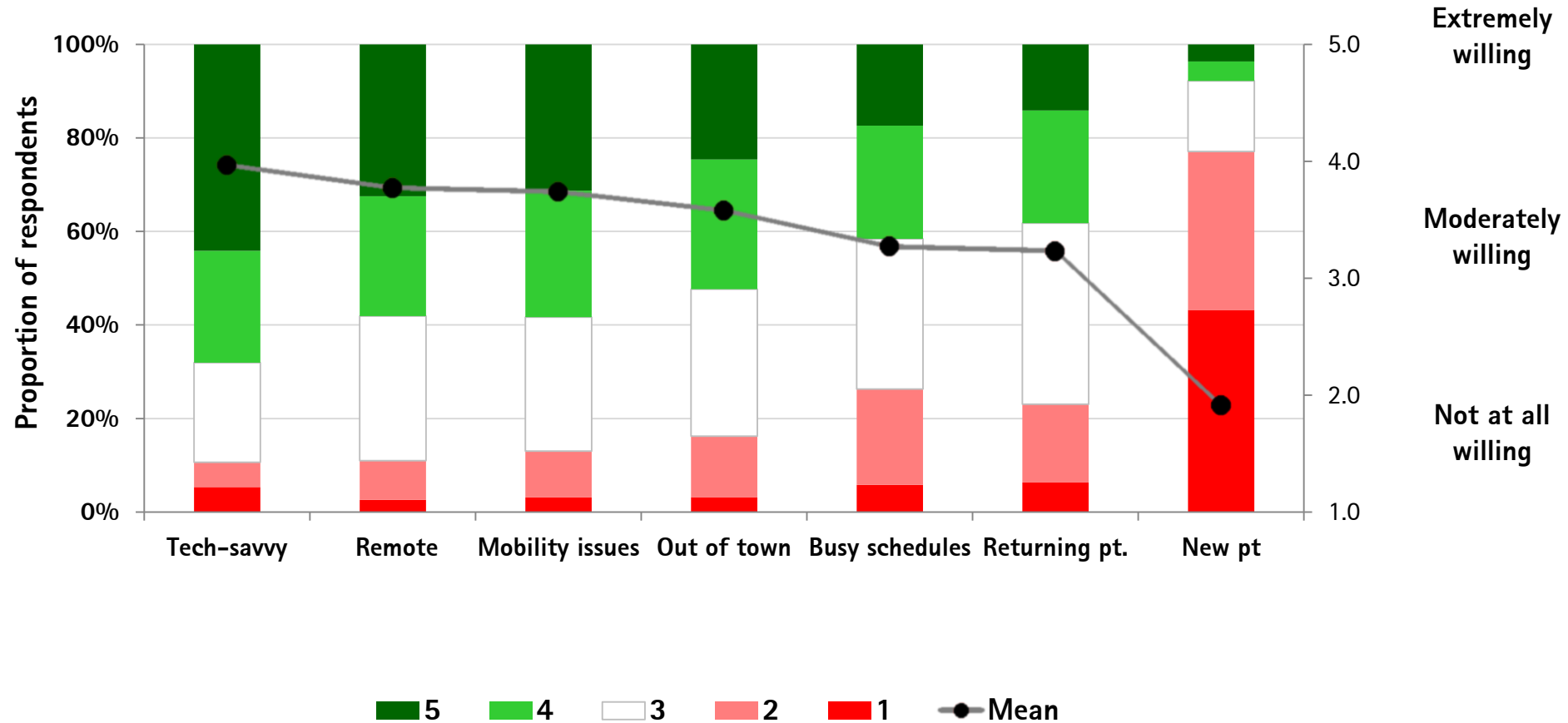
PERCEIVED BENEFITS OF eAUDIOLOGY

Easier access to healthcare especially for people living in remote or underserved locations

Reducing wait times

Reducing medical travel

Minimizing caregiver stress and time off from paid work

Facilitating rapid response

Benefits of Tele-Audiology

Reducing CO2 emissions

Reducing costs of delivering healthcare

More comfort when discussing stigmatizing issues

Improved clinical outcomes

Improved adherence to treatment

Singh G. (2014) A survey of the attitudes of practitioners toward teleaudiology. Inter J Audiol 53(12):850–60

2. AUDIOLOGICAL FEASIBILITY AND EFFICACY OF REMOTE SUPPORT (NOT PUBLISHED YET)

Gurjit Singh, Ph.D.

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<u>Purpose</u>: Compared to a face to face fitting, does a Remote Support follow-up session have an impact on:

- Ease of communication

- Resulting gain settings

- Resulting speech intelligibility

- Resulting sound quality

- Satisfaction with audiological service

- Duration of session

AUDIOLOGICAL FEASIBILITY AND EFFICACY OF REMOTE SUPPORT

Subjects: 23 hearing impaired patients (mean age = 67.2 years)

Method:

Baseline	Measures	
• Audiological assessment • Fittings of hearing aid(s) • Fine-tuning appointments	• MoCA • HHIE • Computer Anxiety Scale • Baseline WIN testing • Baseline real-ear testing	**Traditional (Face-to-Face) Appointments**

Experimental: Follow-up
- Mistuning 1

Face-to-face   Remote

- AASS
- Appointment duration

- Mistuning 2

Face-to-face   Remote

- AASS
- Appointment duration

Experimental Appointments

Experimental: Outcomes
- Outcome measures

- WIN testing
- Real-ear testing
- Sound quality ratings

Outcomes

AUDIOLOGICAL FEASIBILITY AND EFFICACY OF REMOTE SUPPORT

Independent variable	Dependent measures
• Remote fitting versus fitting in clinic (within subjects design)	• Ease of communication • Gain changes compared to prescriptive fitting (REM) • Speech intelligibility (Words-in-Noise-Test) • Sound quality ratings • Satisfaction with audiological service • Duration of fitting session

AUDIOLOGICAL FEASIBILITY AND EFFICACY OF REMOTE SUPPORT

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Has conducting a follow-up session as a remote fitting session an impact on the following, compared to a face to face follow-up session?

Question	Answer
• Ease of communication	Nearly none
• Resulting gain settings	None
• Resulting speech intelligibility	None
• Resulting sound quality	None
• Satisfaction with audiological service	Nearly none
• Duration of session	Remote session a bit longer (15.7 min v/s 22.4 min)

Joerg Haubold, et al.

REMOTE SUPPORT VIDEO CONNECTION

Purpose: To determine if having an audio and video connection between hearing care professional and patient is perferred to an audio connection only?

Subjects: 16 hearing impaired subjects, 8 professionals

Independant variable:
Video connection condition
1. No camera at all
2. Camera only on patient
3. Camera only on professional
4. Camera on both

Gina Angley, Au.D.
Vanderbilt University

Anne Marie Tharpe, Ph.D.
Vanderbilt University

Jean Anne Schnittker, Au.D.
Sonova
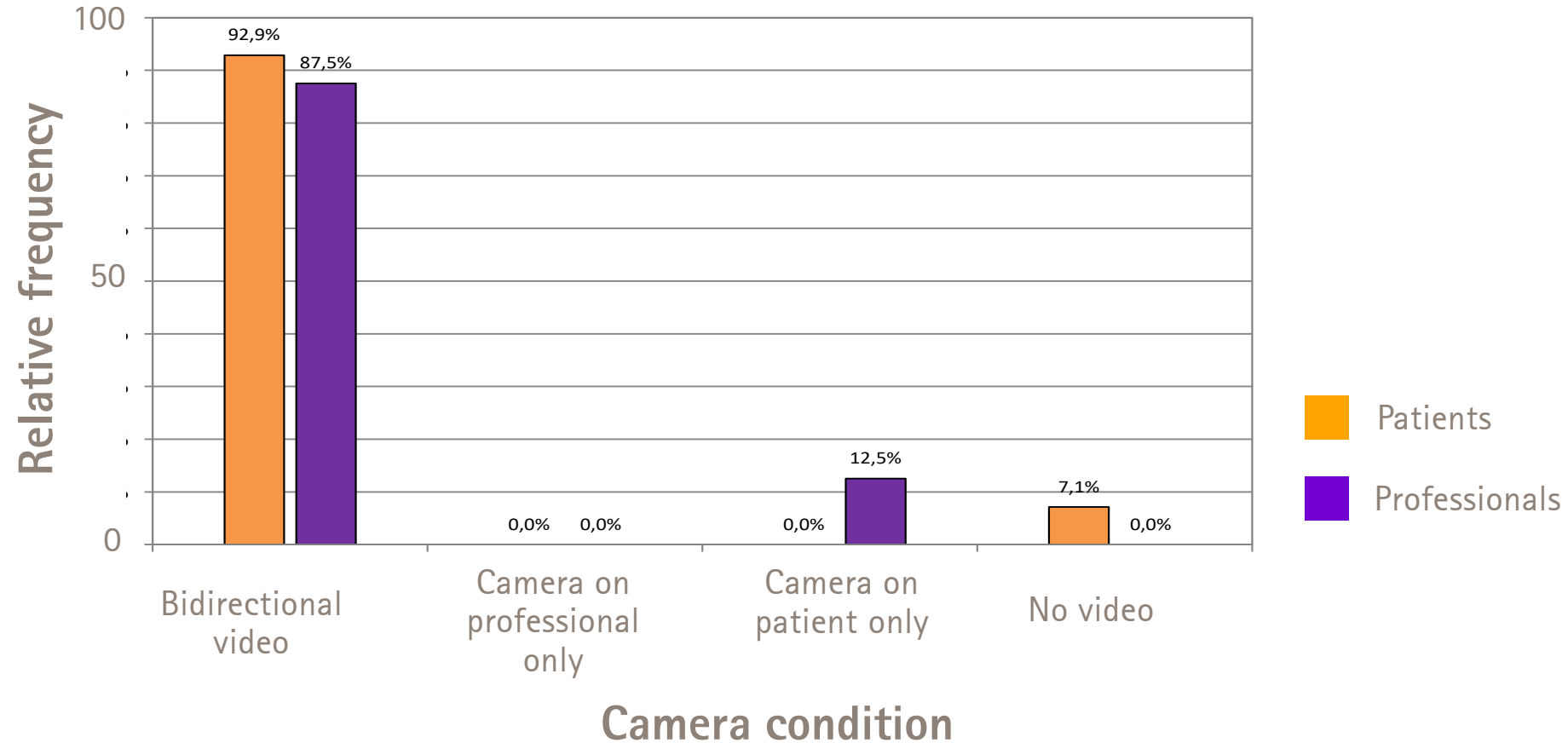
REMOTE SUPPORT: TECHNICAL FEASIBILITY STUDY

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Purpose: To evaluate feasibility & perceived benefits of remote support follow-up appointments in a controlled clinical environment & in participants' homes.
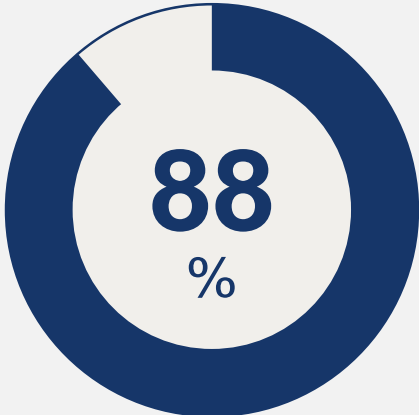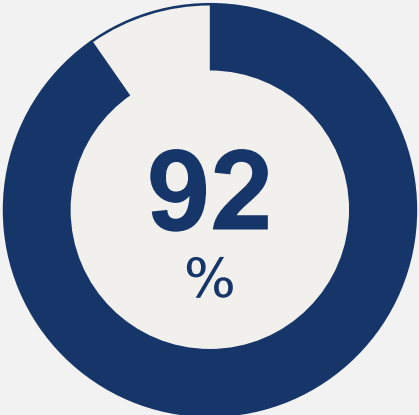
Subjects:
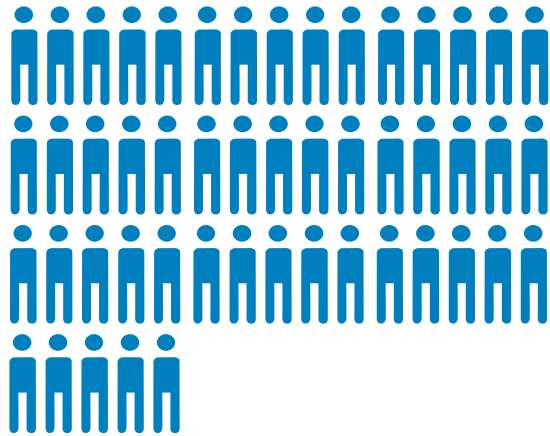
50 users
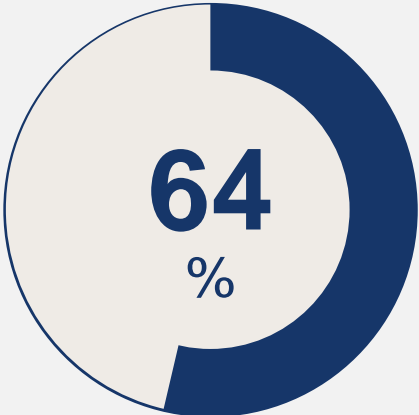100+ sessions

65
Mean age(32–88)

35 min
Average travel time

Angley G., et al. (2017) Remote Hearing Aid Support: The Next Frontier. Journal of American Academy of Audiology 00:1–8. DOI: 10.3766/jaaa.16093

SUBJECTS REPORTED

88%

Prefer remote support under difficult conditions

92%

Would **recommend** remote support to other users
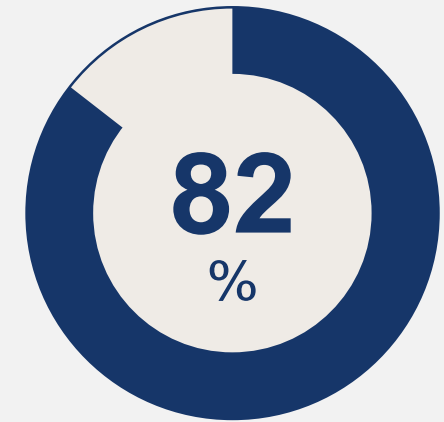
64%

Would prefer remote support if offered a **choice**

Angley G., et al. (2017) Remote Hearing Aid Support: The Next Frontier. Journal of American Academy of Audiology 00:1-8. DOI: 10.3766/jaaa.16093

AUDIOLOGISTS REPORTED

86
%

80
%

82
%
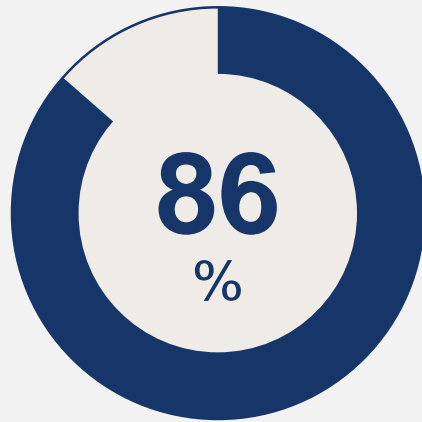
Stable
connection
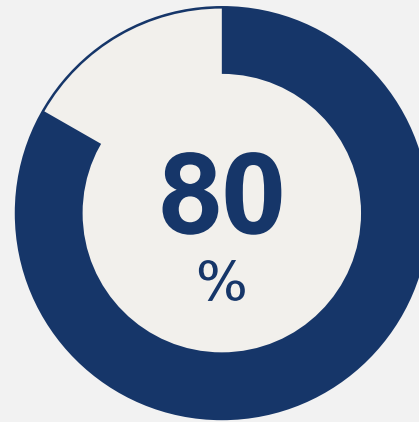
Remote support as
efficient as
face-to-face

Satisfied with
outcome

Angley G., et al. (2017) Remote Hearing Aid Support: The Next Frontier. Journal of American Academy of Audiology 00:1-8. DOI: 10.3766/jaaa.16093

Gwen Carr, Keiran Joseph, and Adrian Davis

RE-ENGAGEMENT OF TEEN HEARING AID USERS

Purpose: Can eAudiology serve as a motivational tool to re-engage teenagers who have become disengaged (frequent non attendance at clinic, either DNA or unexplained cancellation) from audiological care?

RE-ENGAGEMENT OF TEEN HEARING AID USERS

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- Subjects: 20 hearing impaired young people with hearing loss (aged 12-19 years)

- Method: Focus groups + Remote Support sessions
  - Focus Groups
    - Knowledge and experience regarding technology.
    - Attitude towards their hearing losses and current experiences of amplification.
    - Mapping experiences of and enjoyment with audiology services and audiological support
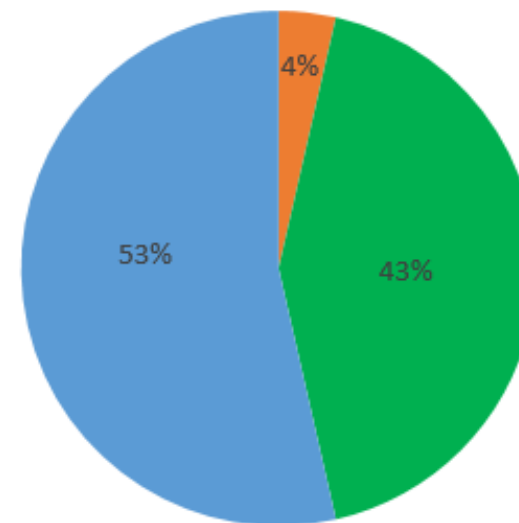
RE-ENGAGEMENT OF TEEN HEARING AID USERS

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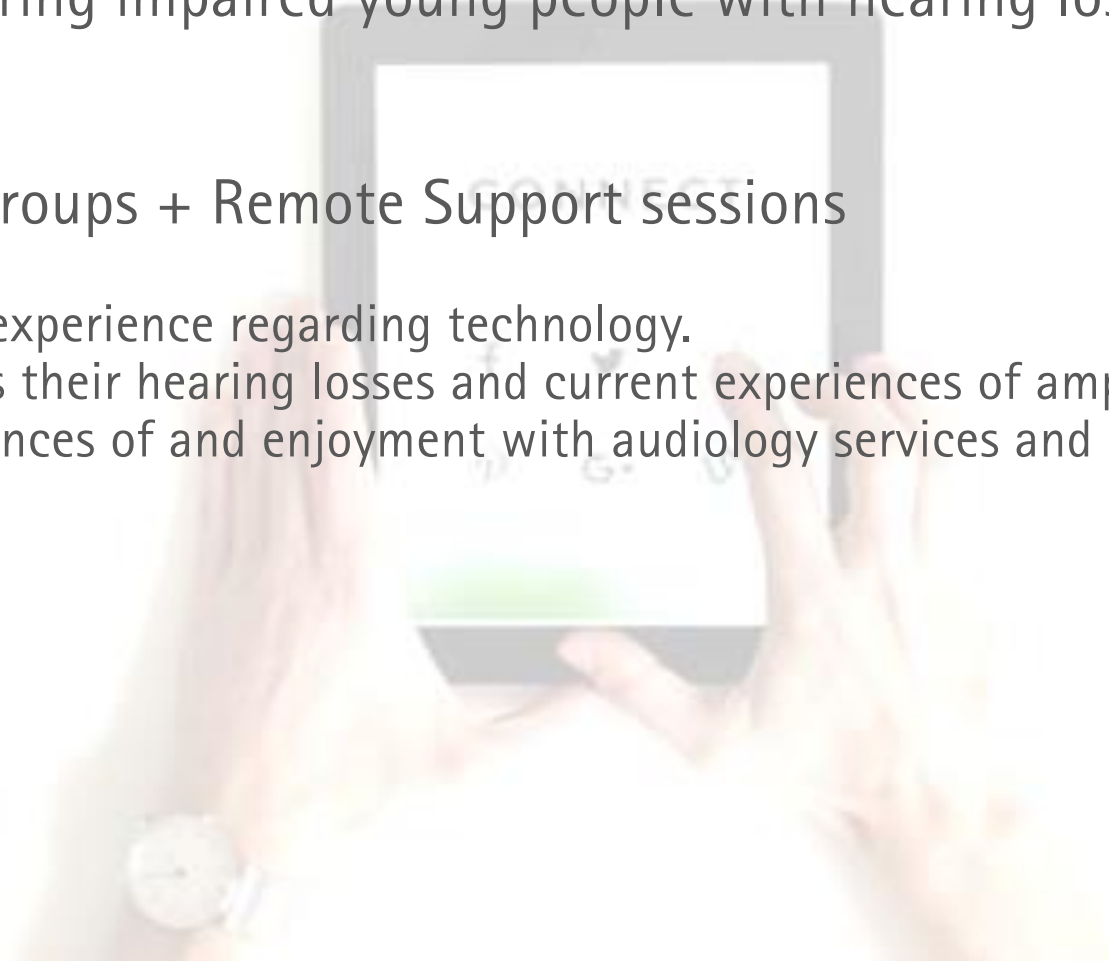
Results:

I would rather have my audiology appointment in this way than travel to see my audiologist in the clinic

7% 4%
7%

82%
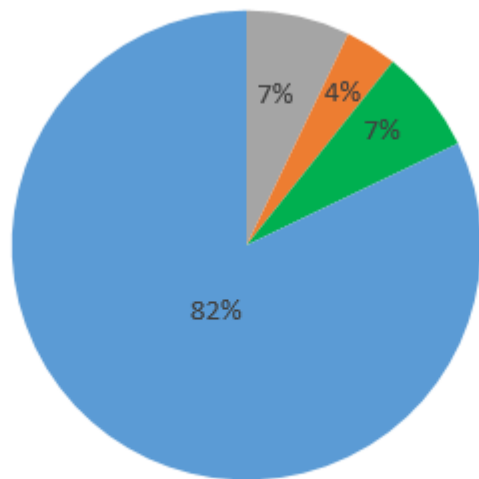
■ Disagree ■ Neither Agree nor Disagree ■ Agree ■ Strongly Agree

I felt comfortable with the equipment used

4%

53% 43%

■ Neither Agree nor Disagree ■ Agree ■ Strongly Agree

RE-ENGAGEMENT OF TEEN HEARING AID USERS

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Results:

- Students gave positive feedback

- Desire to avoid inconvenience of taking time out of school or 'wasting' of own leisure time after school.

- Technology can be an attractive option for this age group because it empowers them to have greater control of their hearing aid services and feel like an equal partner
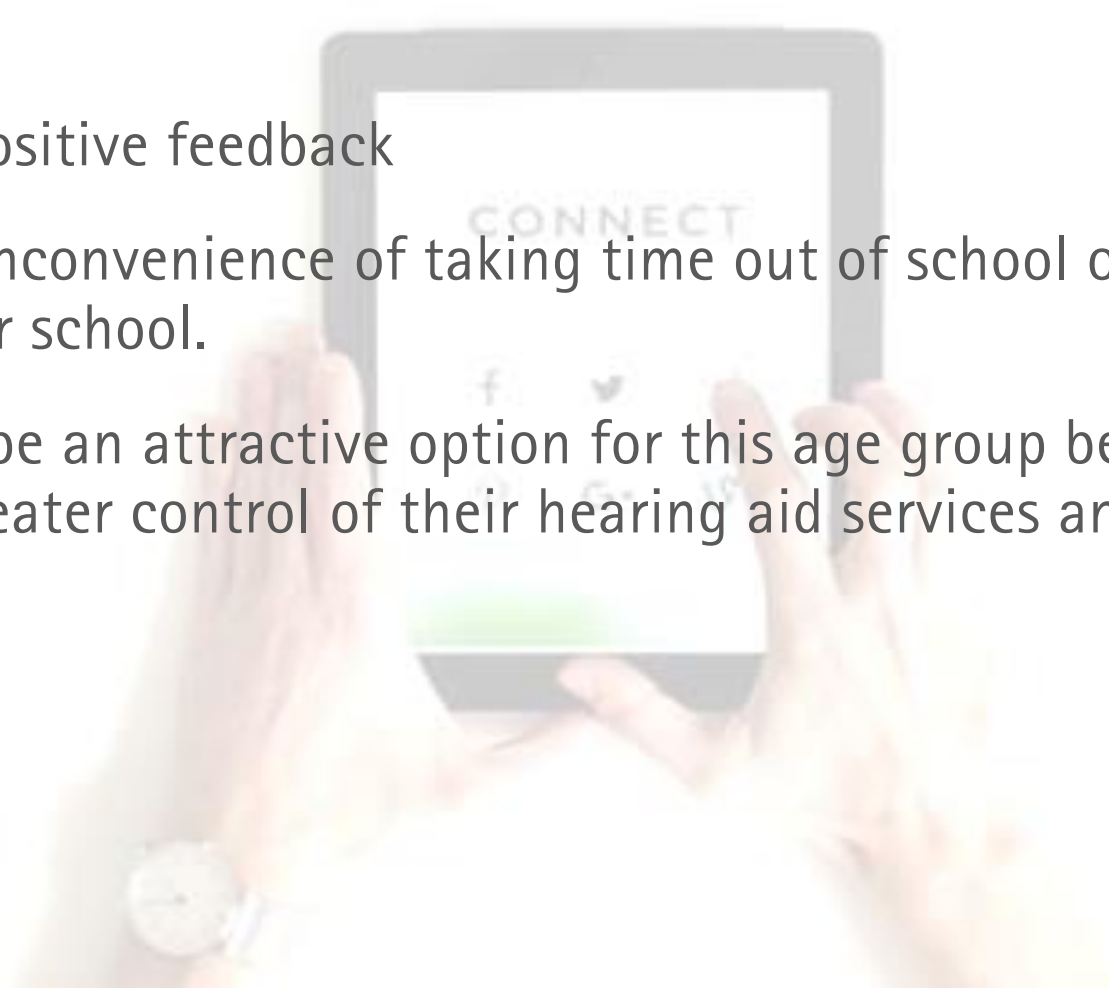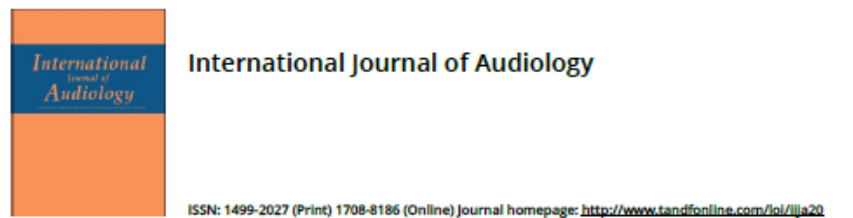
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Karen Muñoz, Kristin Kibbe, Elizabeth Preston, Ana Caballero, Lauri Nelson, Karl White & Michael Twohig (2017)

Karen Muñoz, EdD, Au.D.
Utah State University

International Journal of Audiology

ISSN: 1499-2027 (Print) 1708-8186 (Online) Journal homepage: http://www.tandfonline.com/loi/iija20

Paediatric hearing aid management: a demonstration project for using virtual visits to enhance parent support

Karen Muñoz, Kristin Kibbe, Elizabeth Preston, Ana Caballero, Lauri Nelson, Karl White & Michael Twohig

To cite this article: Karen Muñoz, Kristin Kibbe, Elizabeth Preston, Ana Caballero, Lauri Nelson, Karl White & Michael Twohig (2017) Paediatric hearing aid management: a demonstration project for using virtual visits to enhance parent support, International Journal of Audiology, 56:2, 77-84, DOI: 10.1080/14992027.2016.1226521

To link to this article: http://dx.doi.org/10.1080/14992027.2016.1226521

REMOTE SUPPORT AND PEDIATRICS

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<u>Purpose</u>: Explore the feasibility and acceptability of using eAudiology to:

1. Investigate the use of virtual visits to monitor hearing aid use with data logging measurements

2. Enhance parent support for addressing challenges with hearing aid use and management

<u>Subjects</u>: Four families (children age range 2 months–5 years) and two providers participated.

<u>Method</u>: A 6-month longitudinal case study design was used to report Remote Support visits to help parents address hearing aid use and management issues.

REMOTE SUPPORT AND PEDIATRICS

Results: Over the 6 month period, average hearing aid use time increased by 3.5 hours/day..

Muñoz, K., Kibbe, K., Preston, E., Caballero, A., Nelson, L., White, K., & Twohig, M.(2017) Paediatric hearing aid management: a demonstration project for using virtual visits to enhance parent support, International Journal of Audiology, 56:2, 77-84, DOI: 10.1080/14992027.2016.1226521

REMOTE SUPPORT AND PEDIATRICS

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<u>Results</u>: Percentage of days at hearing aid use goal during 6 month study period.

Child	Age During Study	HA use goal/day	Goal met 1st 3 mths	Goal met final 3 mths
1	2-8 mths	8	100%	100%
2	24-30 mths	9	25%	100%
3	64-70 mths	10	75%	100%
4	37-43 mths	10	0%	12%

Conclusion:

- Virtual visits provided benefits to families including flexibility & timely access to support.

  - Could be scheduled at a time that allowed multiple family members to be involved, providing an opportunity to address their learning needs

- The ability to collect data logging more frequently than would typically be available with in-office visits was important for problem-solving to increase hearing aid use.

  - Increased consistency of auditory access, critical for spoken language development

- Both parents and clinicians were accepting of tele-support.

Muñoz, K., Kibbe, K., Preston, E., Caballero, A., Nelson, L., White, K., & Twohig, M.(2017) Paediatric hearing aid management: a demonstration project for using virtual visits to enhance parent support, International Journal of Audiology, 56:2, 77-84, DOI: 10.1080/14992027.2016.1226521

7. TECHNICAL USABILITY STUDY IN GERMANY

Schnittker, J.A., Schuepbach-Wolf, M., Boretzki, M. (2018, under analysis)

TECHNICAL USABILITY STUDY IN GERMANY

Purpose:
1. Evaluate the technical stability of Remote Support in the German market.
2. Assess the usability of the Remote Support, including all elements related to the HCP and client workflow.

Subjects: 16 hearing impaired subjects, ages 29-78

Method: Clients completed at least one Remote Support session in their home using Wi-Fi. After the session, clients and the hearing care professionals filled out questionnaires to give feedback about their experience.
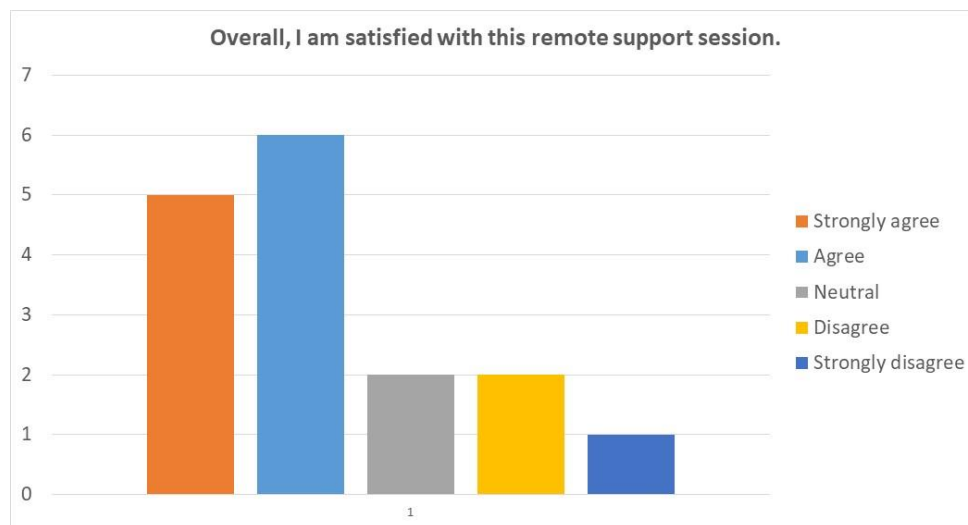
TECHNICAL USABILITY STUDY IN GERMANY

Results:

- Technical difficulties revealed a low bandwidth/connection speed for the HCP at one practice location.

  - The study had to be stopped at this location.

  - Maximum upload was 1Mbit/s from telecom provider

  - Hearing aid connection was not possible

- One practice had a strong internet connection – Appointments were successful
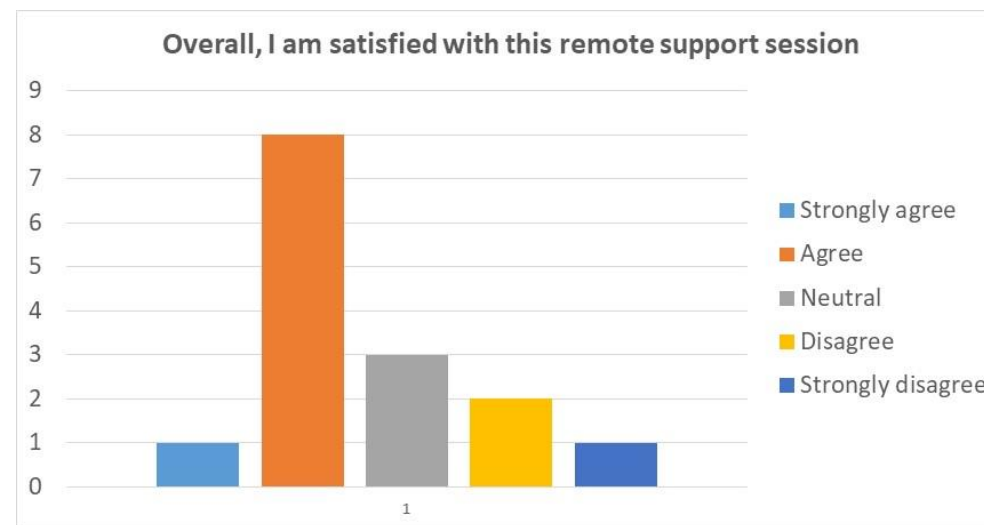
TECHNICAL USABILITY STUDY IN GERMANY

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Results: Overall Satisfaction

Client Satisfaction

HCP Satisfaction

TECHNICAL USABILITY STUDY IN GERMANY

Results:

- The set-up of the Remote Support appointment in the office went well (main issue: email not on client's phone, and not knowing the password).

- The average appointment time was 26 minutes Remote Support follow-up appointments (compared to 10 traditional follow-up appointments: 33 minutes on average).

- In both fitting methods the software adjustment of the hearing aids was the most performed action.

TECHNICAL USABILITY STUDY IN GERMANY

Results: Clients were asked about advantages and disadvantages of each fitting method. Most common answers were:
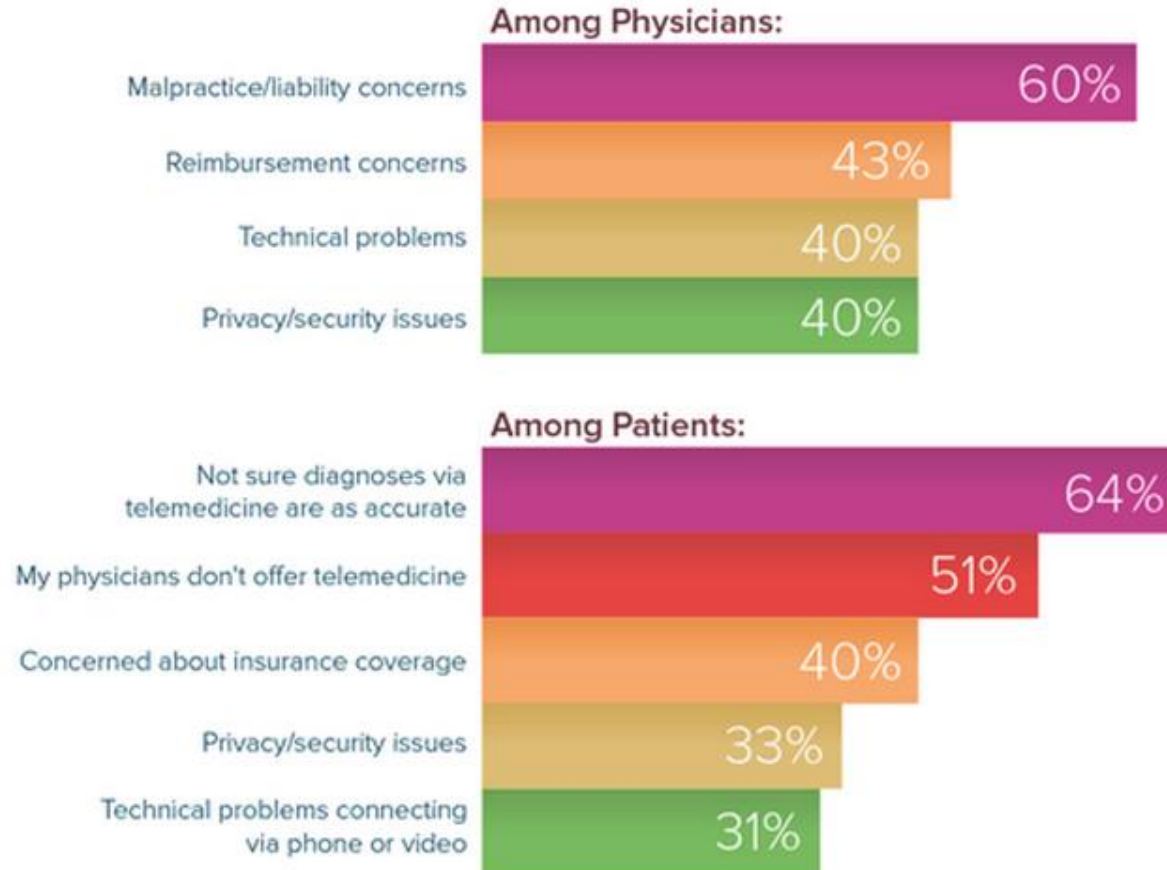
Traditional fitting
- Advantages: more personal, no smart phone needed
- Disadvantages: time, travel

Remote Support
- Advantages: "any time, any place", saves travel time
- Disadvantages: Internet/software quality, impersonal

Perceived Barriers to Telemedicine

Among Physicians:

Barrier	Percentage
Malpractice/liability concerns	60%
Reimbursement concerns	43%
Technical problems	40%
Privacy/security issues	40%

Among Patients:

Barrier	Percentage
Not sure diagnoses via telemedicine are as accurate	64%
My physicians don't offer telemedicine	51%
Concerned about insurance coverage	40%
Privacy/security issues	33%
Technical problems connecting via phone or video	31%

*Source: Miller, 2016. Medscape

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- First fit in the office
- If client is interested in Remote Support, it is easiest to get them set up at the face to face appointment.
  - Does the client have email, is the email on client's phone and do they know the password? Access to the playstore/applestore?
  - App download (if possible in the office + connection check to the HAs)
  - Take the client through the Remote Support set-up process
- Talk through app + how to accept the call (if needed)
- Explain how to clean the HAs + ear piece (how to check if it is clean – that is not always easy to see over the distance)
- Tell client it is important to have stable Wi-Fi during the RS appointment

PRACTICAL TIPS FOR REMOTE SUPPORT

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- Test your Internet Speed
- Use Phonak hearing aids that are compatible with Remote Support
- Is the client's smartphone compatible? (most iphone and Android work)
  - Compatibility Check: https://marvel-support.phonak.com/en/audeo-m-cell-phone-compatibility/
- You will need a web camera + headset in the office
  - Will work without headset, but cuts down on any background noise.
- Test Remote Support workflow before having the first real appointment
- Have a phone number for the client in case they forgot about the appointment
- Ask the client if they have new batteries in the HAs
- Turn video off (on both sides) if the connection during the appointment is not stable
- Think about how to schedule/manage the appointments + how to build it in your daily work
- Use the hearing diary + "chat function" to get more feedback from your client

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1. Basic Infrastructure/Test your Internet speed
   - Recommend 5 Mbps upload/download speed
   - A quick Google search will highlight many websites/apps that will test connection speed.
2. Check on ethical/license/billing/privacy information in your area.
3. Make sure you have a compatible hearing aid and are signed up for Phonak eServices.
4. Try a Remote Support session with a colleague, family member, or friend to get a feel for how it works.
5. Identify clients who you feel are good candidates.
6. Start with a few appointments and build up your Remote Support offering.

THANK YOU!
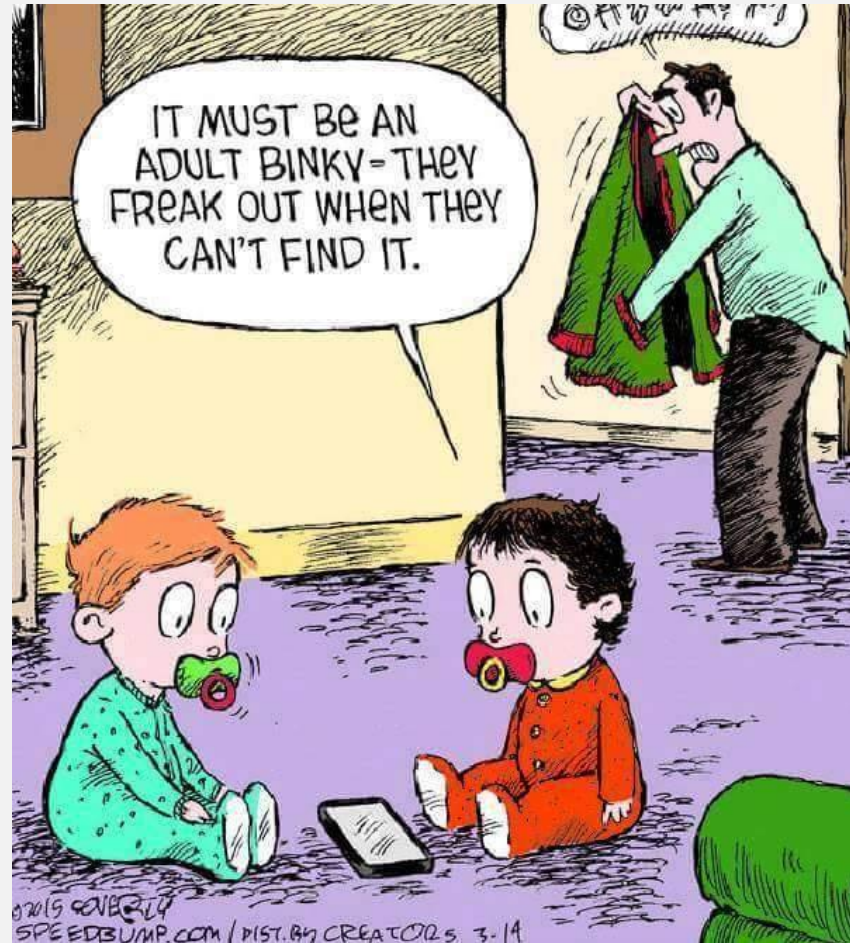
Jeananne.schnittker@sonova.com