

# Clinics from home: improving access to hearing healthcare

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# Improving access to hearing healthcare is the top priority in our field

*“Globalisation and medical and technological advances will improve hearing outcomes, but ensuring **equitable access** will be critical”*

*(Roadmap for Hearing Health, 2019)*

*“Researchers and healthcare systems should prioritize... studies to improve the evidence base for **innovative delivery models** for treating hearing loss... including **telehealth and mobile health**”*

*(NASEM Consensus Report on Hearing Healthcare for Adults, 2016)*

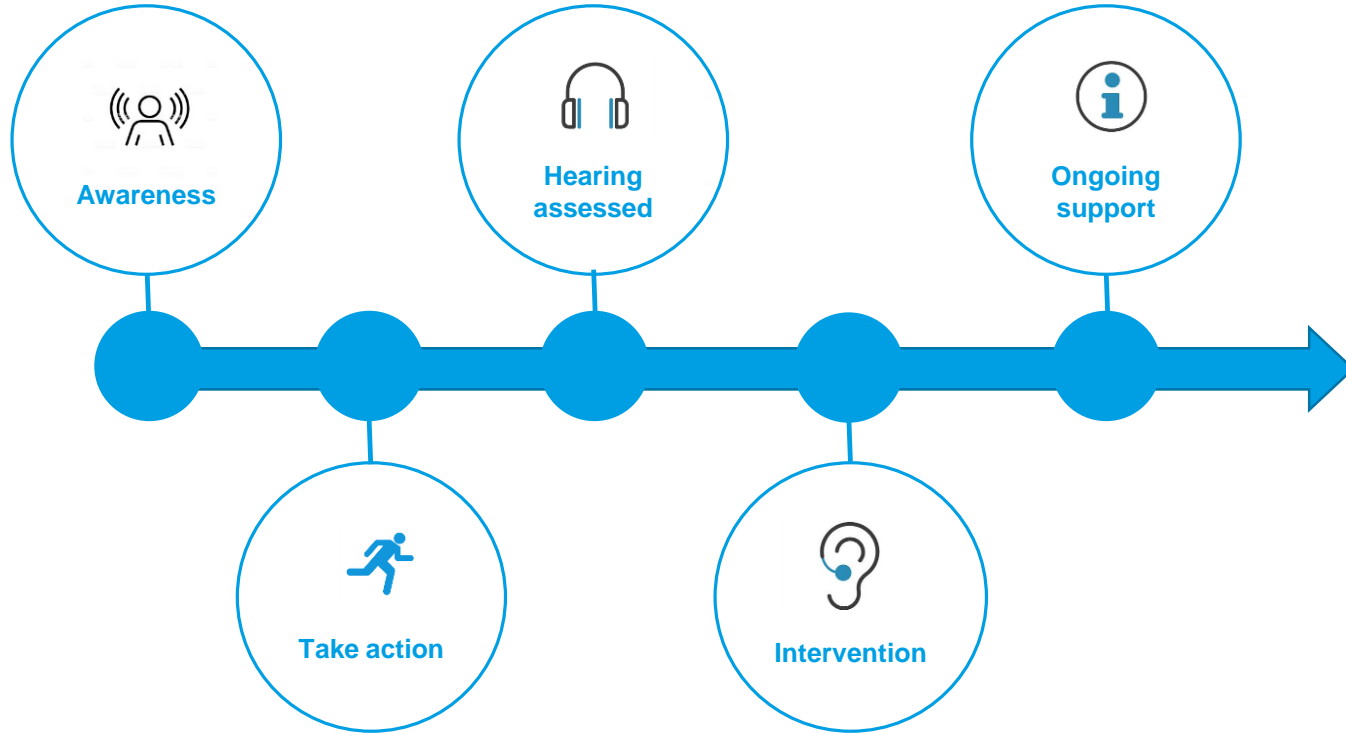
HA manufacturers are leveraging cloud-based technologies, such as apps to enable remote communication between patients and providers



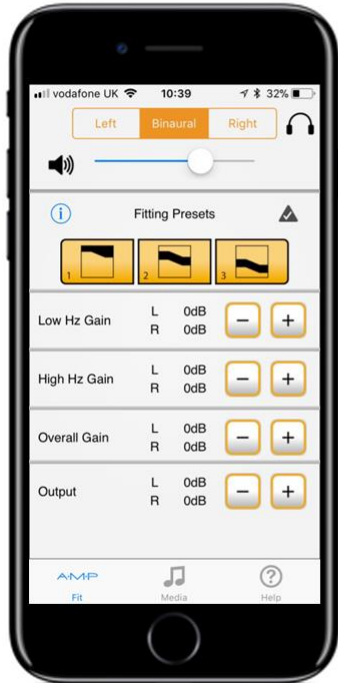
# Mobile tech for connected hearing healthcare and self-management: NAL's connected health research program



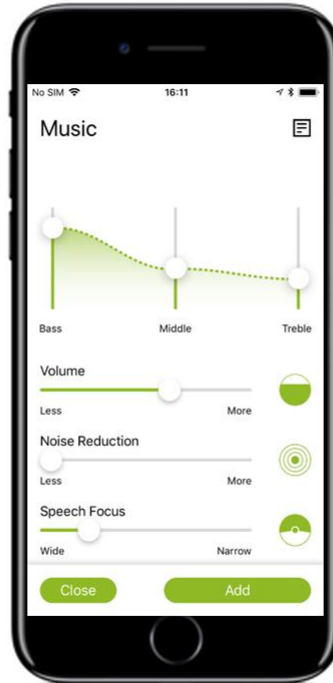
# Patient pathway



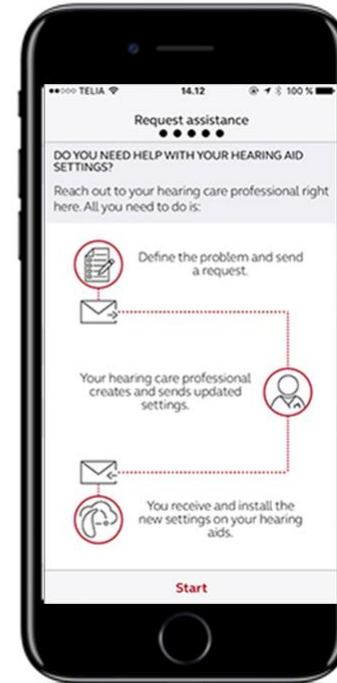
# Smartphone connectivity



Self-fitting



User-adjustment



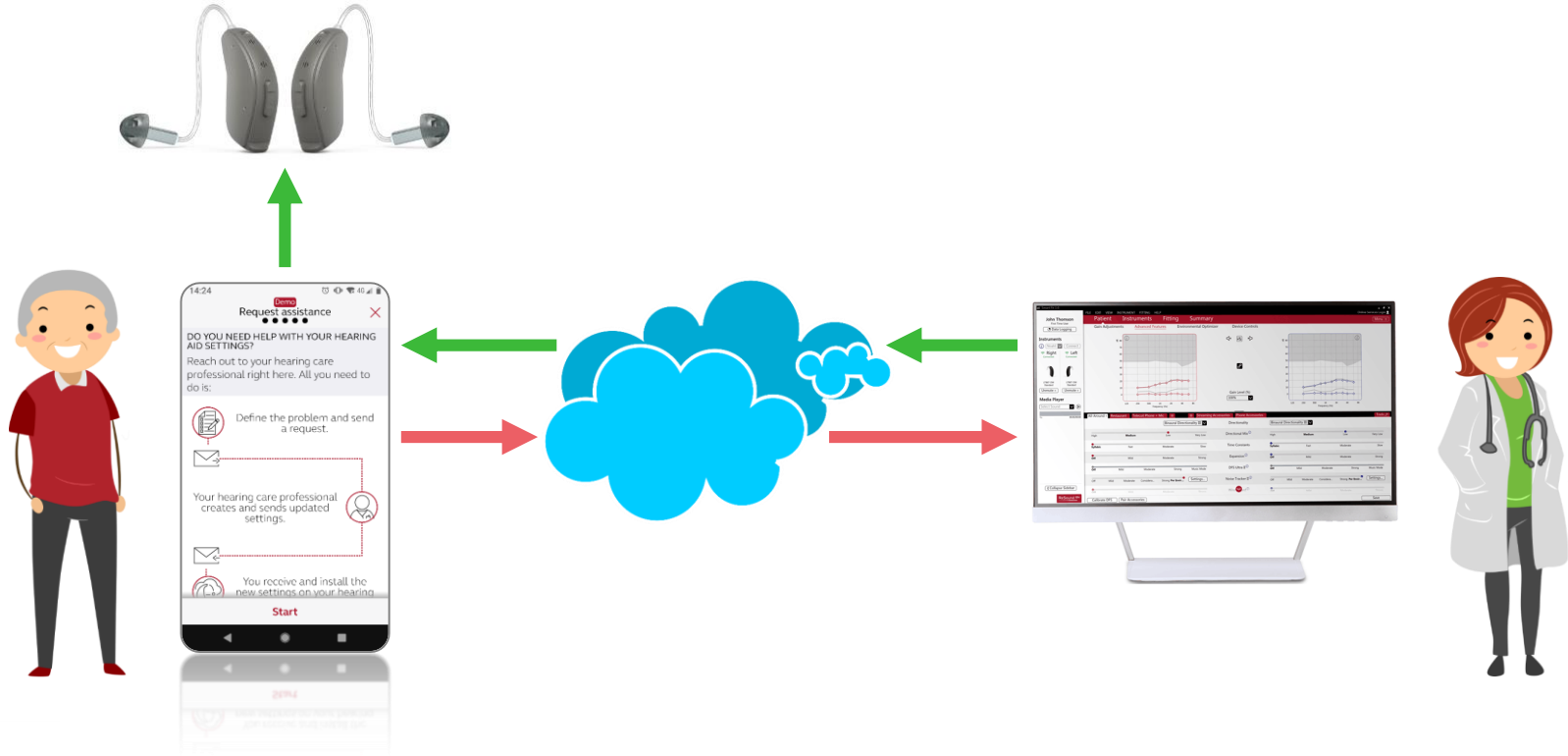
Remote delivery



Liz Convery  
Gitte Keidser  
Margot McLelland  
Jennifer Groth



# The Assist feature in the ReSound Smart 3D app



# Study objective and research questions

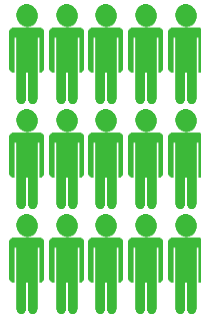
To evaluate post-fitting usage of ReSound Assist by experienced hearing aid users in real-world environments

1. How usable is ReSound Assist?
2. How does patient-provider communication via ReSound Assist compare to a face-to-face consultation?
3. Are hearing aid fitting outcomes influenced by the mode of client-clinician communication?

# Participants and methods

## 6-week field trial of ReSound LiNX 3D 962 RIC hearing aids

Intervention group



Control group



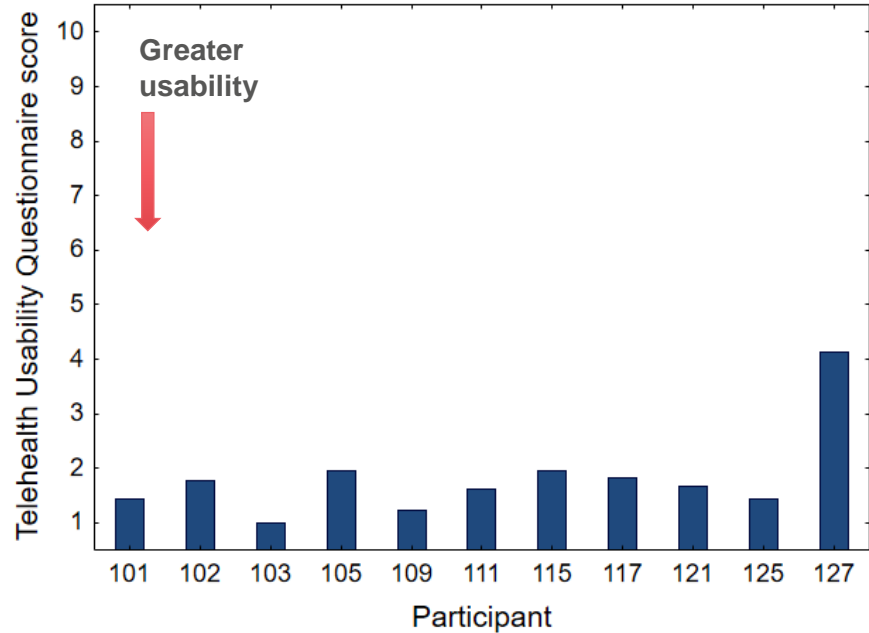
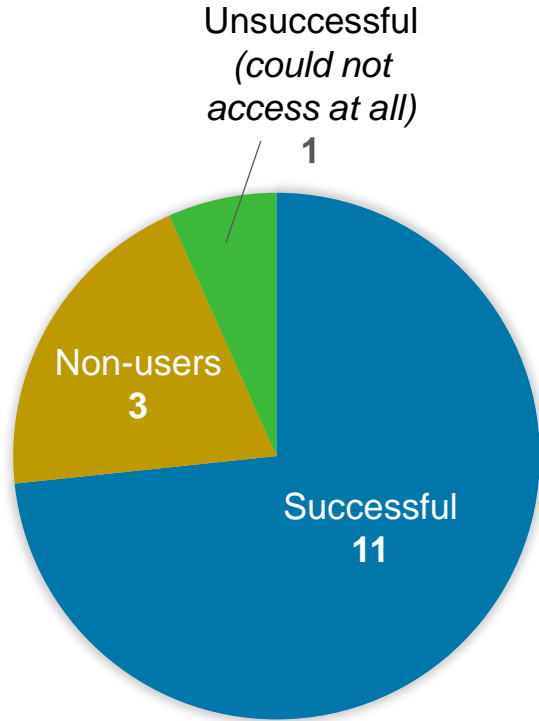
*Matched for age,  
gender, and 4FA*

- ✓ ReSound Assist
- ✗ face-to-face follow-up at wk 2

- ✗ ReSound Assist
- ✓ face-to-face follow-up at wk 2



# ReSound Assist usability (*intervention group only*)



# Hearing aid users were positive about ReSound Assist

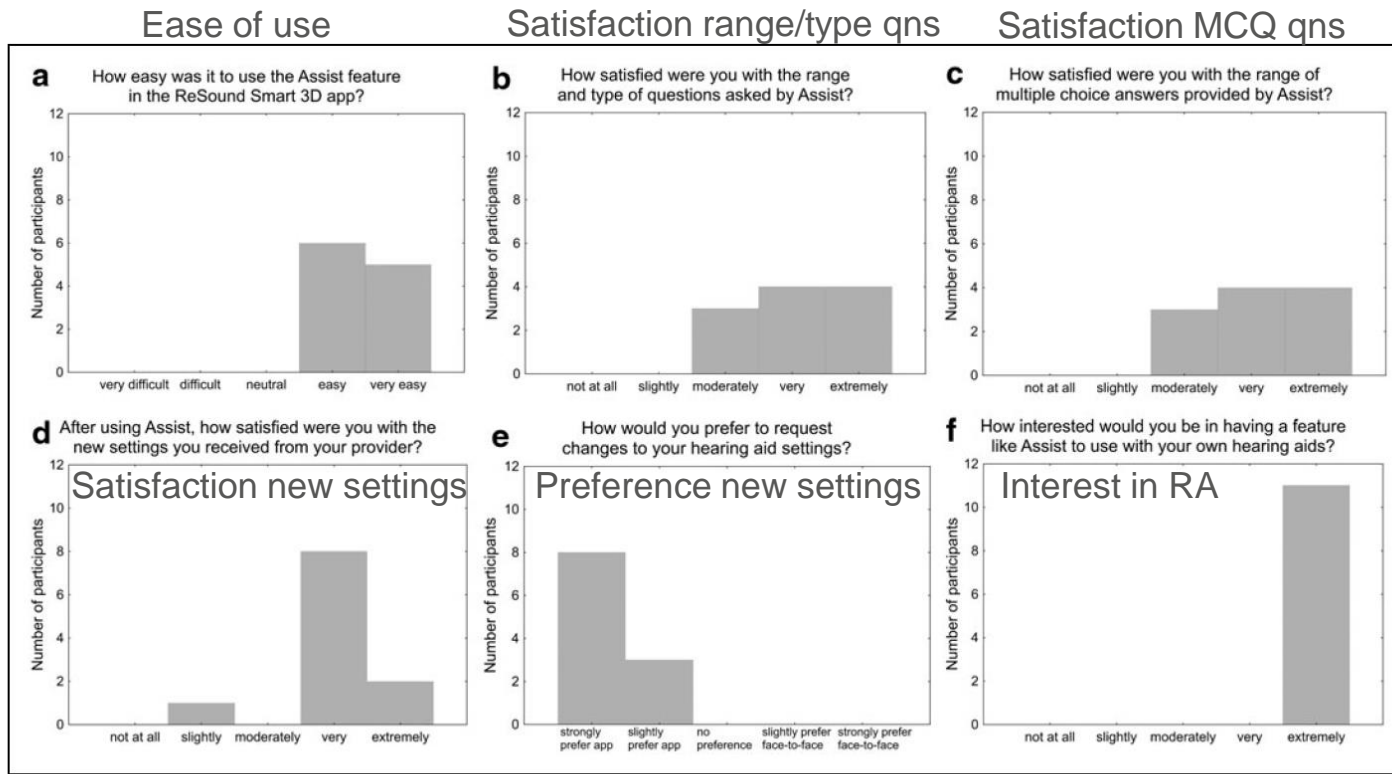


FIG. 1. (a-f) Responses to the exit interview questions by the users of ReSound Assist™ ( $n=11$ ).

# ReSound Assist usability (*intervention group only*)

## EFFECTIVENESS

How accurately and completely can users accomplish their goal?

“I managed to install the new settings without difficulty”

“I had to choose *other* as my answer to many of the questions since my issue was not covered by the questions that were asked”

## EFFICIENCY

What is the resource burden on users relative to effectiveness?

“It was quick to learn how to use it, even for me who is not that into technology”

“I felt I had to spend time typing details of my problem into the text box as well as answering all the questions”













## SATISFACTION

How pleasant and acceptable is the technology to users?

“I liked the look of the app. It didn't look like a game, so it wouldn't be overly enticing for others to look at, say, in a meeting”

“Red on black can be difficult to read”

## Patient-provider communication *(all participants)*

	Overall gain too soft/loud
	Can't maintain a Bluetooth connection
	Feedback
	Can't stream audio
	Too much background noise
	Too much HF gain
	Alert beeps too loud
	Too much wind noise
	Itchy ear canals
	Hearing aids keep slipping out of ears
	Uncomfortable domes
	Need a telecoil program








Intervention (app)



Control (face-to-face)

*Range and types of problems similar for both modes of communication (app-based vs face-to-face)*

## Patient-provider communication *(all participants)*

	Can't maintain a Bluetooth connection
	Can't stream audio
	Itchy ear canals
	Hearing aids keep slipping out of ears
	Uncomfortable domes



Intervention (app)



Control (face-to-face)

*Not all problems could not be solved by fine-tuning the hearing aids, highlights: role of face-to-face care alternate means of problem solving (e.g. C2Hear)*

## Hearing aid fitting outcomes *(all participants)*

No significant difference (all  $p > 0.05$ ) between the intervention and control groups in terms of:

- Hearing aid benefit (APHAB score)
- Hearing aid satisfaction (SADL score)
- Speech discrimination in noise threshold
- Hours of daily hearing aid usage

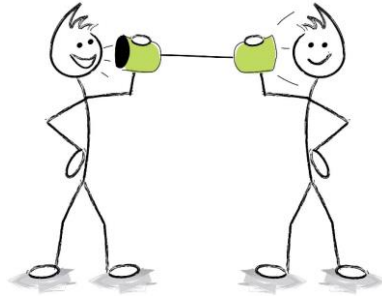
# Conclusions



## App feature usability

Participants found the app highly usable in terms of effectiveness, efficiency, and satisfaction

- **Their experiences and feedback can be used to build on and further refine the technology**



## Patient-provider communication

Similar problems were reported regardless of communication mode

- **Some problems cannot be solved at a distance – face-to-face care remains a component of hearing healthcare**

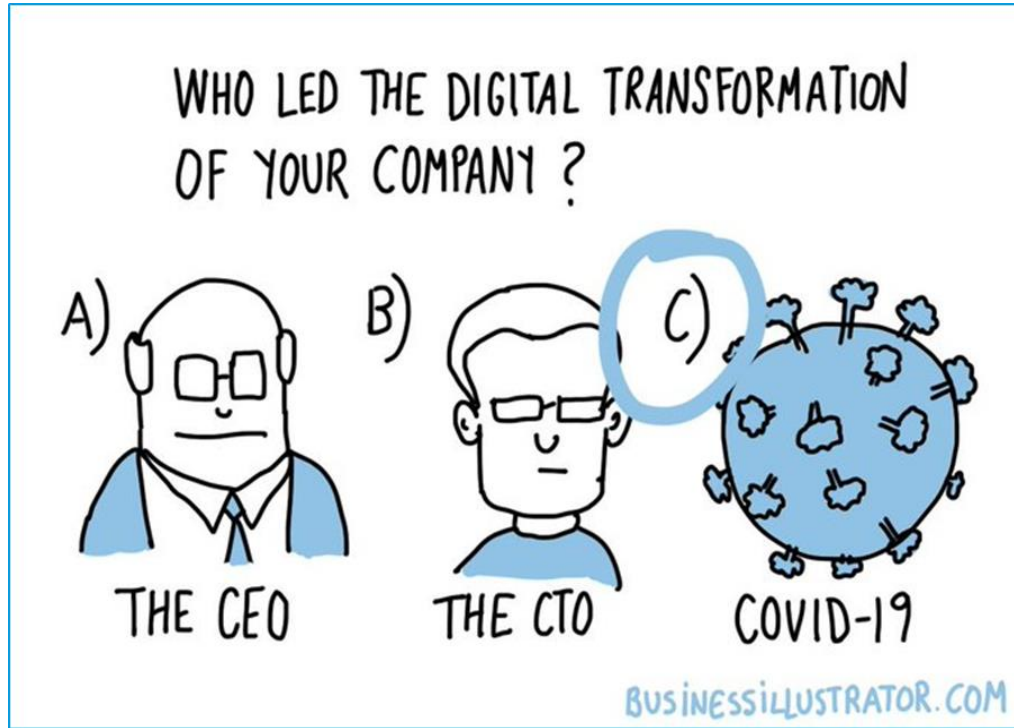


## Hearing aid outcomes

Replacing a post-fitting follow-up with an app did not have a detrimental effect on hearing aid outcomes

- **App-based communication is a viable way to improve hearing healthcare accessibility**

# What about COVID19?

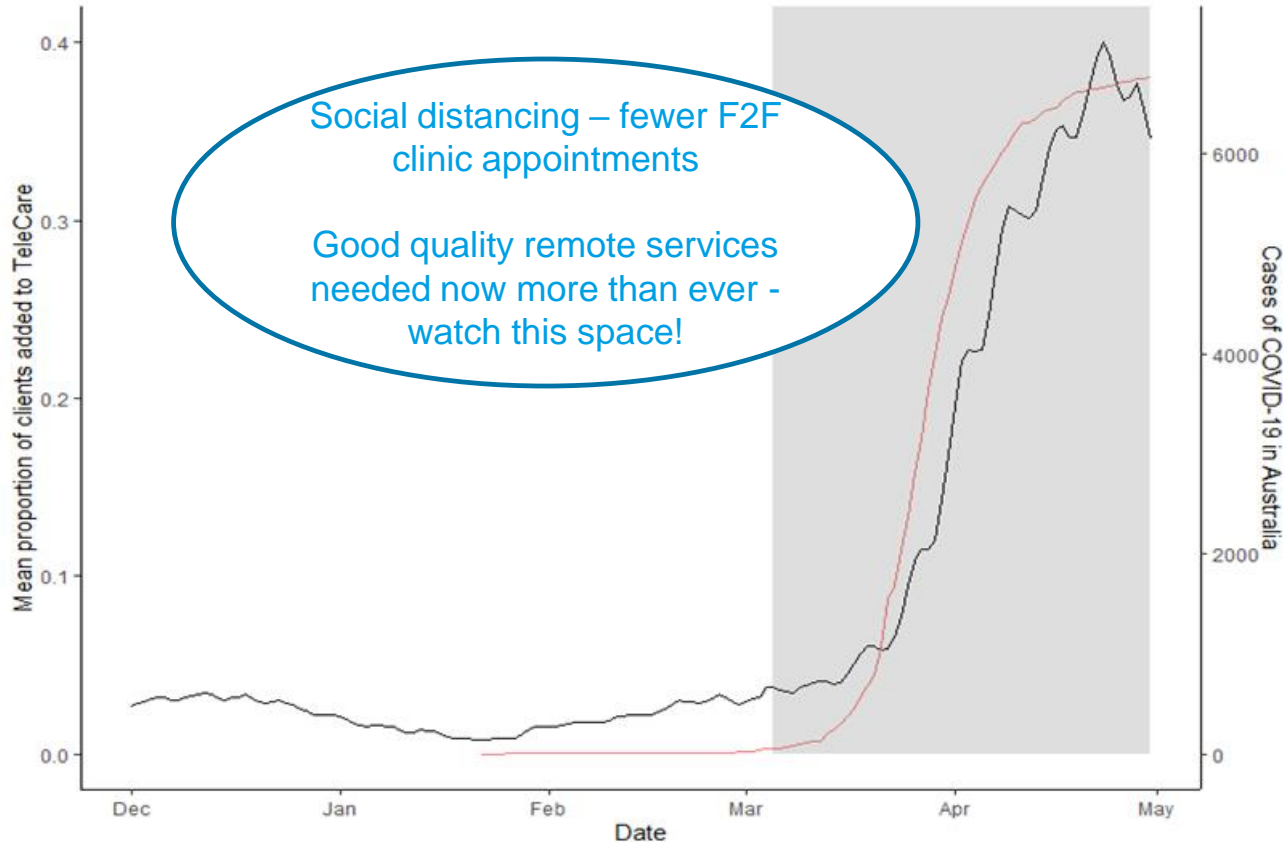




# New service models – what a difference a pandemic makes!

Telecare app

COVID19



# Thanks to....



Liz Convery



Gitte Keidser



Margot McLelland



Jennifer Groth

GN Hearing for  
funding the study  
Lisa McBride of GN  
Hearing Australia



# Connected health: other soundbites



David Allen, PhD

Connected health  
Future trends



Jermy Pang

Pre-assessment  
preparation and  
information



Taegan Young

Post-fitting  
motivation and  
information



Paola Incerti

Connected health  
guidelines



Mel Ferguson, PhD

Smartphone-  
connected HAs

Remote HA  
assistance

Remote self-  
management  
program

# Q&A

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