

October 20<sup>th</sup> 2018

## Oticon Perspective on Connected Audiology

Trends Informing  
Modern Audiology Care:

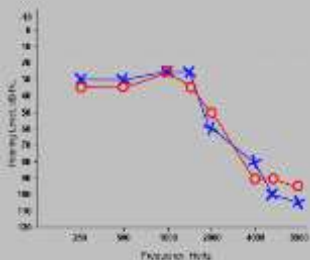
**Thomas Behrens**  
Chief Audiologist  
Director, Centre for Applied Audiology Research



# Consequences of an untreated hearing loss

Hearing loss is more than an audibility problem – research from across the globe

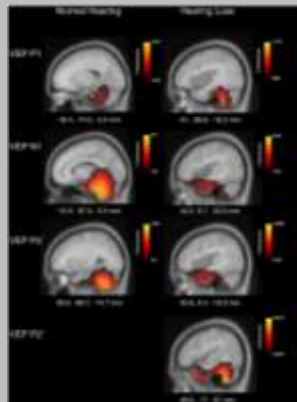
Hearing loss



Signals to the brain have lower quality



The brain will reconstruct and compensate<sup>1</sup>



<sup>1</sup>Campbell & Sharma, 2014

Fatigue<sup>2</sup> and social isolation<sup>3</sup>



<sup>2</sup>Hornsby, Naylor, & Bess, 2016

<sup>3</sup>Arlinger, 2003

A factor in health problems such as depression and dementia<sup>4</sup>



<sup>4</sup>Livingston et al, 2017

# Oticon eHealth today

Two solutions already in use

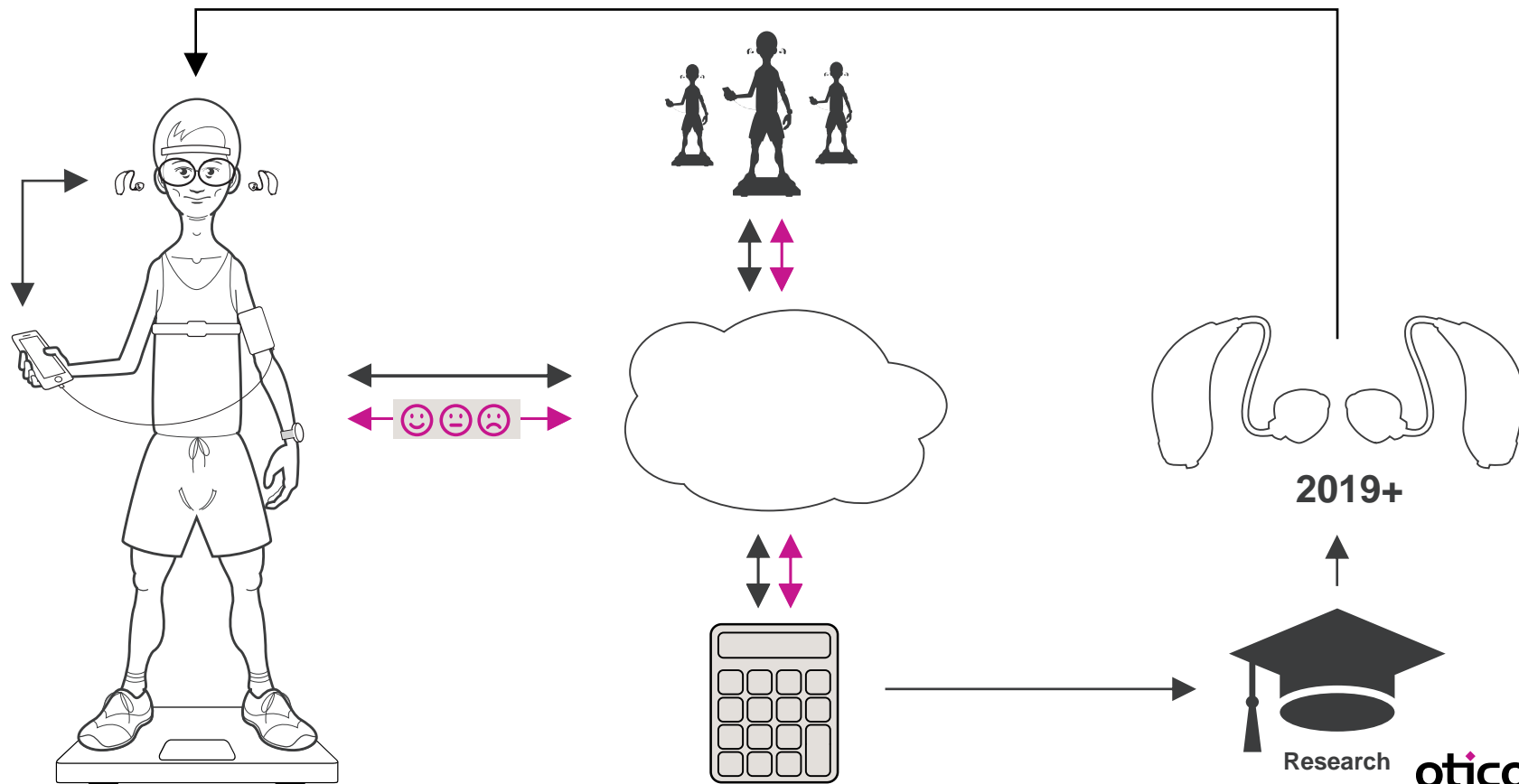


# Hearing Fitness

How does it work?

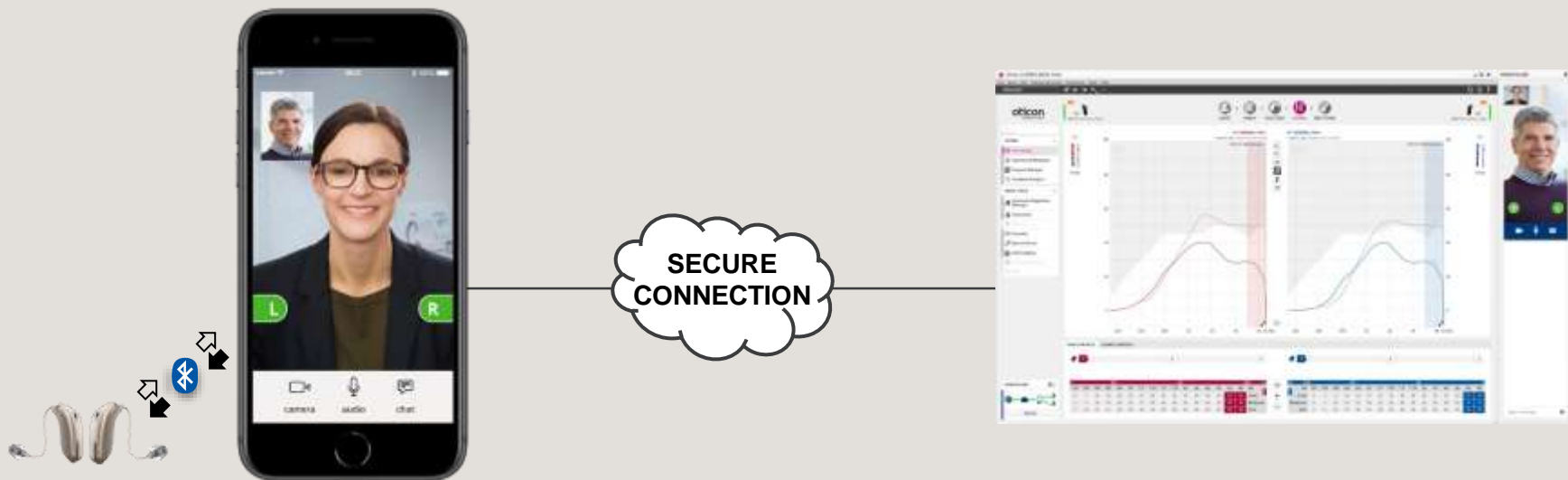


# Hearing Fitness Eco-system



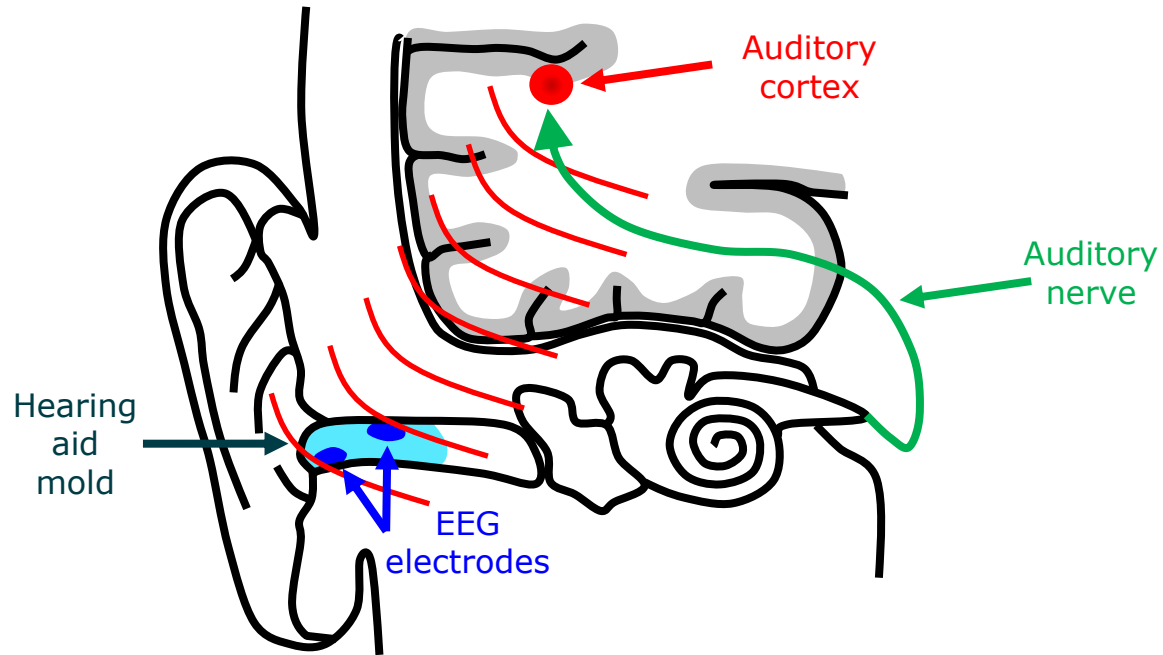
# What is Oticon RemoteCare?

Limited release in a number of countries to allow testing



**Oticon's secure, convenient and easy eHealth solution for follow-up care**

# Hearing Aids with Sensors: EarEEG device example



# EVOTION Research



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727521

- 1000+ hearing aid users in future hearing aid fitting research lead by the Eriksholm
- All using a special version of Oticon Opn and a special version of the HearingFitness app + biosensors
- This allows Ecological Momentary Assessment of:
  - *user operation patterns (programs and volume)*
  - *hearing aid use,*
  - *sound environment data and identifiers*
  - *Bio signals for stress*
  - *listening experience*



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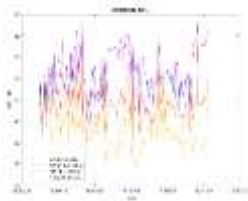
ATHENS MEDICAL  
GROUP

**EVOTION**  
BIG DATA SUPPORTING PUBLIC HEARING HEALTH POLICIES



# Learning from the real data

Sound environment



Signal processing



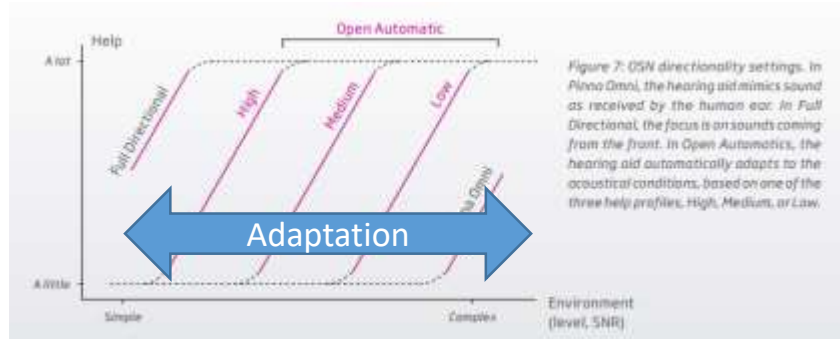
User behavior



Hearing ability



Physiological measures



# EVOTION project

Recruiting a total of 1200 users at

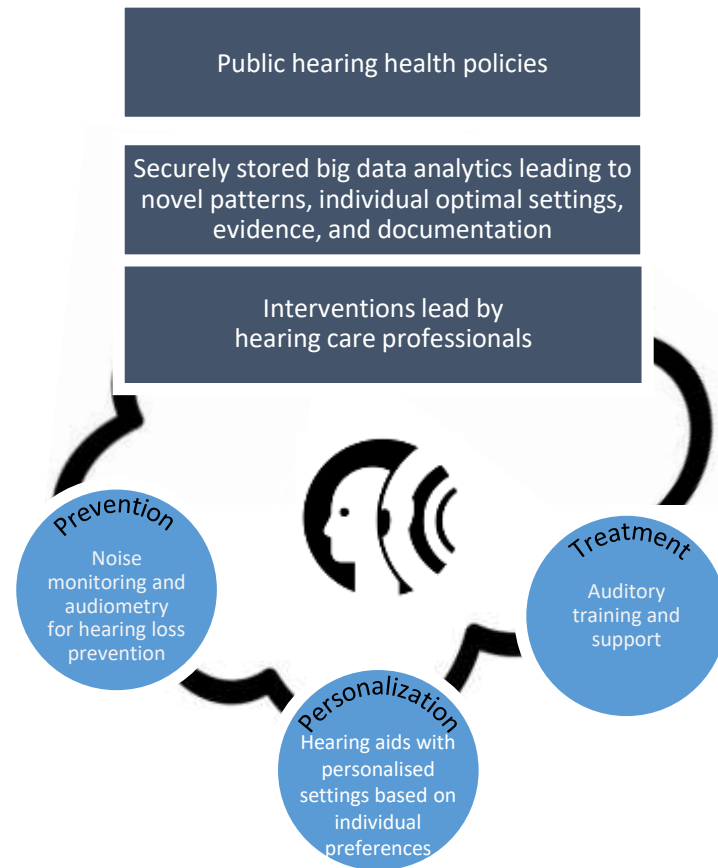
- University College London (NHS Clinic, UK)
- Guys and St. Thomas (NHS Clinic, UK)
- University of Athens (Greece)
- Athens Medical Center (Greece)

The users and hearing care professionals extend standard practice with data-driven hearing care.

Each user logs hearing care data with the app for one full year.

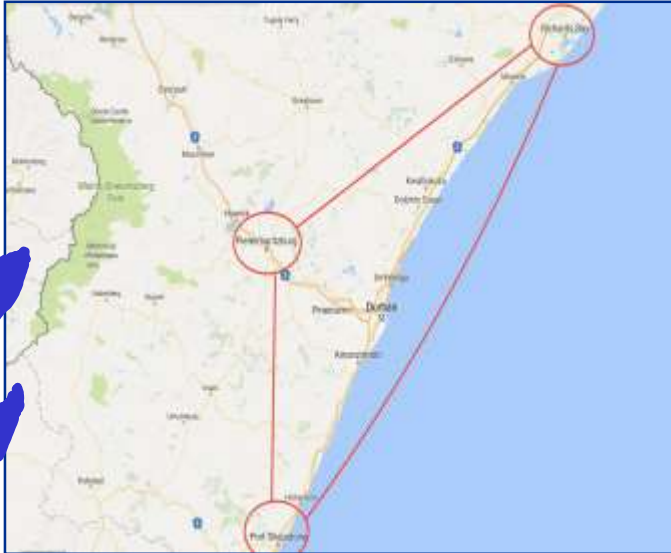
The platform collects data and makes analyses available that

- Tell users how they their hearing develops and help them utilize hearing device functionality – e.g. try this program that helped last time
- Enable hearing care professional to monitor individual progress without the need for face-to-face appointments
- Enable policy makers to monitor the general hearing situation



# Learning from new practise models

Example from South African Research Clinic



## Hearing Research Clinic

A NON PROFIT COMPANY. KNOW YOUR HEARING STATUS.



# A hybrid practise model



STEP 1

Take our online hearing screening test for free

online



STEP 2

Talk to your hearing coach for 15-minutes via audio or video call

phone call



STEP 3

Book a consultation to evaluate your hearing at your home or office

face-to-face



STEP 4

Find a hearing solution and rehabilitation plan customised to suit your needs

face-to-face



STEP 5

Live your life the way you want with our continued support from your hearing coach

online + face-to-face



# Acknowledgement

- ▶ Thomas Lunner
- ▶ The Cognitive Hearing Science Team at the Eriksholm Research Centre

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- ▶ Ariane Laplante-Lévesque
- ▶ De Wet Swanepoel

▶ Niels Henrik Pontoppidan

▶ The Evotion team

**EVOTION**  
BIG DATA SUPPORTING PUBLIC HEARING HEALTH POLICIES



Oticon Foundation

