

Title of the study:

How do NHS audiology patients use Ida Telecare and what are the 'active ingredients' of the Telecare tools?
A feasibility study

Introduction:

The NHS promotes the use of shared-decision making, 'no decision about me, without me'¹. This means patients should be actively involved in making decisions about their healthcare alongside their clinicians. By allowing patients to think about their hearing challenges and communication needs prior to audiology appointments, discussions with the audiologist can be best used. Better informed conversations may enable patients' needs to be addressed more quickly and more thoroughly.

The Ida Institute has developed a range of easy-to-use online tools (Ida Telecare) that are designed to help people with hearing loss prepare for audiology appointments, make important decisions related to their hearing healthcare and successfully manage their everyday communication. Patients who make choices that are right for them during their hearing appointments (such as obtaining a hearing aid, or not), are more likely to live well with their hearing loss.

Guided by principles of process evaluation² this study assessed:

- 1. Implementation:**

How the tools were used by patients and at which stage in the NHS audiology pathway.

- 2. Mechanisms of benefit:**

The 'active ingredients' of behaviour change used in the tools, as assessed using the COM-B system³ and the Behaviour Change Technique (BCT) Taxonomy⁴.

- 3. Context:**

Usability of the Telecare tools using Think Aloud techniques with patients.

Results provide important feasibility information to inform future research, explain how the tools operate to inform outcome selection, and inform steps that can be taken to maximise usability.

Method:

Adult patients attending NHS audiology services between November 2017 and June 2018 were invited to take part in the feasibility study prior to their initial hearing assessment via an invitation letter sent directly from the audiology department. Two audiology departments took part, Nottingham University Hospitals NHS Trust (across the full recruitment period) and Chesterfield Royal Hospital NHS Foundation Trust (May-June 2018 only). A total of 31 participants took part in the study, providing Ida Telecare tool usage data at up to 3 points in the patient pathway (pre-initial assessment, pre-hearing aid fitting and follow-up).

Participants were aged 44-89 years old (mean = 66.3 years old, SD = 9.0 years), with better ear pure tone average hearing thresholds across octave frequencies between 0.25-4k Hz of 21.6 dB HL (SD = 9.7 dB).

Those patients who expressed an interest in taking part in additional activities were invited to attend the NIHR Nottingham Biomedical Research Centre, where they participated in Think Aloud sessions to assess Telecare tool usability.

Key Findings:

1. Implementation:

Overall response rates to postal recruitment were 23.3% (Nottingham University Hospitals NHS Trust) and 11.7% (Chesterfield Royal Hospital NHS Foundation Trust).

A total of 31 patients were included in the feasibility study, 27 went on to receive hearing aids. Of the 4 patients did not receive hearing aids, 2 were recorded as patient decisions and 2 were recorded as joint patient and clinician decisions not to fit.

Telecare tool use was highest for pre-initial assessment and lowest at follow-up (see also Figure 1):

	Number of patients completing tools (plus average number of situations submitted)		
	Pre-initial assessment	Pre-fitting	Follow-up
<i>Why improve my hearing</i>	23 (1.6)	5 (1.2)	3 (1.0)
<i>My turn to talk</i>	23 (N/A)	13 (N/A)	6 (N/A)
<i>Living well</i>	28 (1.5)	14 (1.5)	4 (1.0)

2. Mechanisms of benefit:

Using the latest science in behaviour change (Figure 2), content of the Telecare tools was mapped to all three COM-B system domains of Capability, Opportunity and Motivation. However, dominant domains for each Telecare tool were:

- *Why improve my hearing (WIMH)* – **Motivation**
- *My turn to talk (MTTT)* – **Motivation**
- *Living well (LW)* – **Capability** and **Opportunity**

For each of the tools, activities were mapped to recognised Behaviour Change Techniques (BCTs) using the BCT Taxonomy v1⁴, where (+) indicates some evidence of the techniques being used and (++) indicates strong evidence of the techniques being used within the tools.

- *WIMH: 9.3 Comparative imagining of future outcomes (++)*. Prompt or advise the imagining and comparing of future outcomes of changed versus unchanged behaviour.
- *MTTT: 5.4 Monitoring of emotional consequences (+)*. Prompt assessment of feelings after attempts at performing the behaviour.
- *LW: 1.1 Goal setting (behaviour) (+)*. Set or agree on a goal defined in terms of the behaviour to be achieved, and **3.2 Social support (practical) (+)**. Advise on, arrange or provide practical help for performance of the behaviour.

3. Context:

Concurrent and retrospective Think Aloud activities⁵ were conducted to assess the usability of the Telecare tools (Figure 3). A total of n=3 patients each attended a 1.5 hour long session the NIHR Nottingham Biomedical Research Centre. Sessions were video recorded and inductively analysed to identify key recurring themes.

Barriers to usability were identified as arising from both the patients' upper-limit of IT skills and the tools' instructions:

IT Skills:

Those patients less skilled in IT struggled with some of the features of the tools. For example:

- Drop down menus on the *Living well* tool were not acknowledged
- Drag and drop wasn't intuitive in the *My turn to talk* tool
- Patients struggled to enter and/or copy and paste an email address for the sending of completed tools.

Instructions:

There was variability in the way in which patients completed the tools, due to:

- Patients skim-reading and assuming the content of a question, rather than reading it fully
- Confusion arising from a lack of detail or direction within tool instructions. For example, patients interpreted the layers of the *My turn to talk* tool differently, with some using the outer band (labelled the highest number, '3') to denote people with whom they communicated most frequently, while others interpreted this to represent least frequent communication.

It was suggested by patients that both of these barriers may be reduced with greater instruction and/or illustrative examples of the intended response approach.

Conclusion:

The present research compliments a parallel investigation into the effectiveness of the *Why improve my hearing* Telecare tool, led by Dr David Maidment, as well as important information about response rates, patient recruitment and retention, and the acceptability of research processes to inform the design and delivery of future NHS clinical research.

Although the Ida Telecare tools were developed with a significant degree of clinical and psychological experience and expertise, they were not directly informed by the latest science of behaviour change. This study provides evidence to support the inclusion of recognised behaviour change techniques (BCTs) in each of the tools.

Finally, using Think Aloud techniques that elicit in-depth information not typically externalised, two main barriers to usability of the Telecare tools were identified by patients. Findings may be used to inform additional tool instructions, which can serve to improve tool usability in the future.

ADDITIONAL INFORMATION

Images/figures

Figure 1: Number of NHS patients (total n=31) completing Ida Telecare tools prior to each stage of the patient pathway.

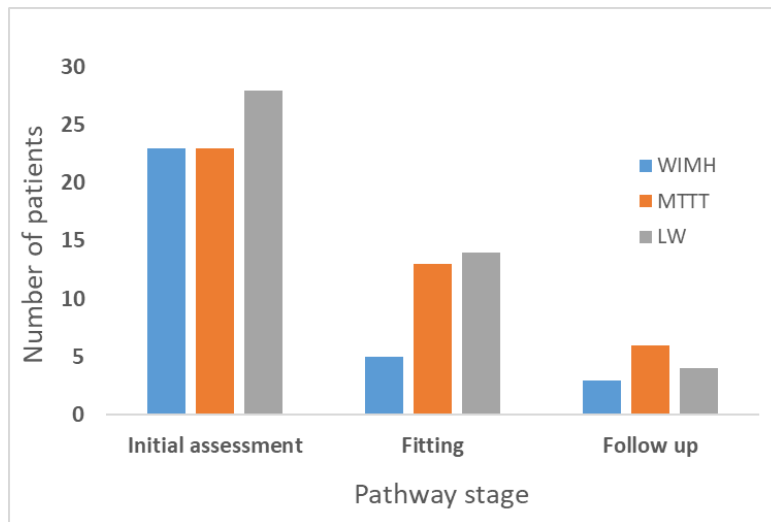


Figure 2: The Behaviour Change Wheel, linking sources of behaviour to intervention functions and policy categories (reproduced under CC-BY 2.0 from Michie et al. 2011).

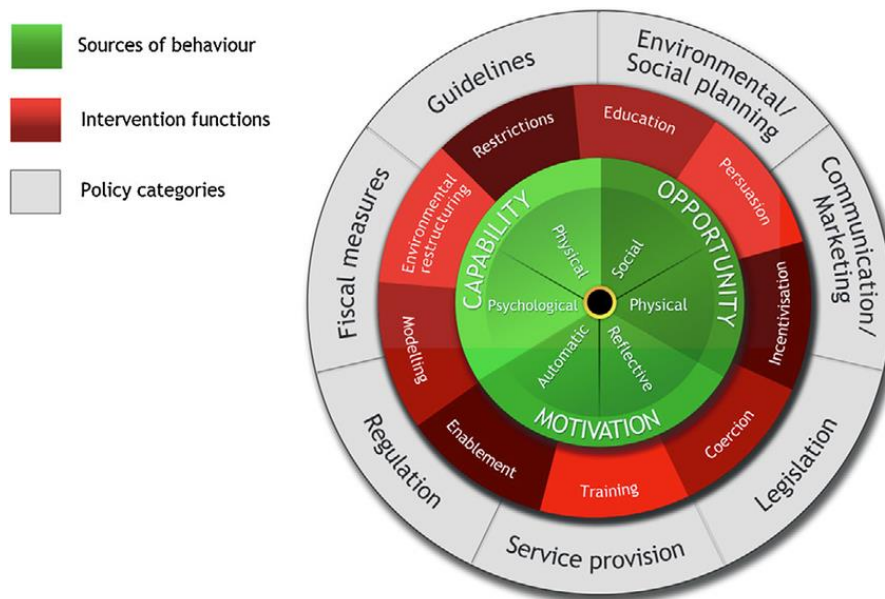
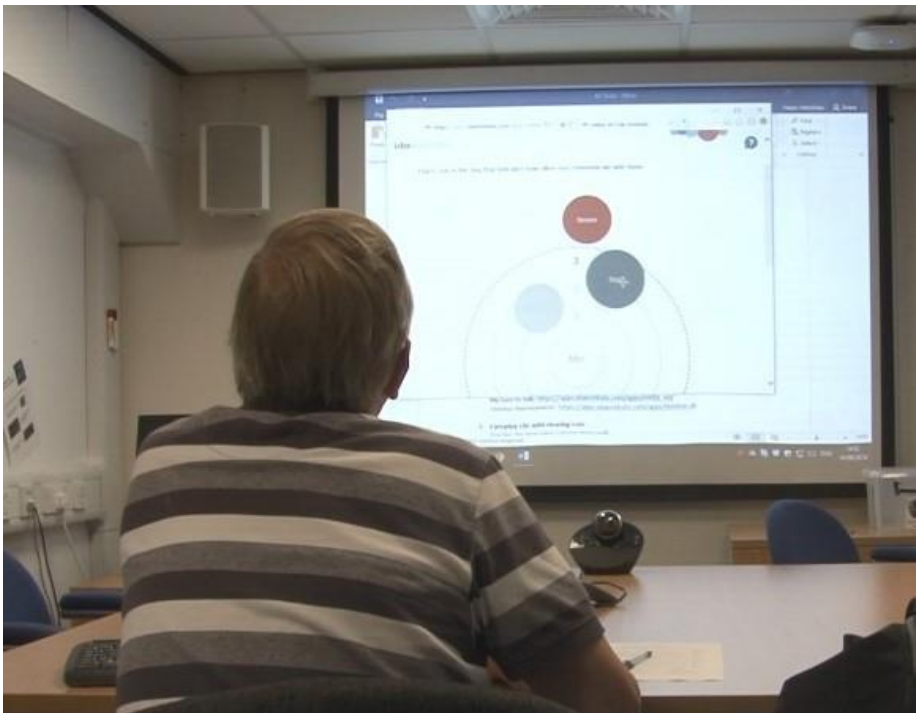


Figure 3: A patient completing a Think Aloud activity to assess usability of the My Turn to Talk Telecare tool.



About the author(s)



Helen Henshaw, BSc, PhD

Helen is a Chartered Psychologist and Senior Research Fellow at the NIHR Nottingham Biomedical Research Centre. Her research aims to improve outcomes for people with hearing loss through the development and assessment of novel interventions.



Daljit Mehton, BAAT

Daljit worked on the project as a Research Assistant. She has over 30 years' experience working as an audiologist in the NHS. She has expertise in tinnitus, as well as paediatric and adult rehabilitation.



Melanie Ferguson, BSc, MSc, PhD

Melanie is Research Lead of the Mild to Moderate Hearing Loss group at the NIHR Nottingham BRC, Consultant Clinical Scientist (Audiology) and Associate Professor in Hearing Sciences. Her research programme focusses on eHealth and self-management, listening devices, and listening and cognition, underpinned by principles of health behaviour and patient-centred care.



Claire Benton, BSc, MSc

Claire is a Clinical Scientist with over 20 years' experience and the Head of Audiology at Nottingham University Hospitals NHS Trust. Prior to her current role, Claire was the Clinical Lead for Paediatric Audiology. She is also one of the authors of the British Society of Audiology's Practice Guidance document on Assessing and Managing Children with Tinnitus.



Melanie Gregory, BA

Melanie is the CEO of The Ear Foundation. She has 20 years' experience working with families, children and adults with hearing loss. Her area of interest is person-centred practice and rehabilitative audiology. She has written numerous articles on motivational engagement, the patient journey and person-centred practice.

References

1. The King's Fund. Making shared decision-making a reality: no decision about me, without me. London: The King's Fund, 2011.
2. Moore GF, Audrey S, Barker M, et al. Process evaluation of complex interventions: Medical Research Council guidance. *BMJ* 2015; **350**: h1258.
3. Michie S, van Stralen M, West R. The Behaviour Change Wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci* 2011; **6**: 42.
4. Michie S, Richardson M, Johnston M, et al. The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. *Annals of Behavioral Medicine* 2013; **46**(1): 81-95.
5. Olmsted-Hawala E, Murphy ED, Hawala S, Ashenfelter KT. Think-aloud protocols: a comparison of three think-aloud protocols for use in testing data-dissemination websites for usability. SIGCHI Conference on Human Factors in Computing Systems; 2010; Atlanta, Georgia, USA; 2010. p. 2381-90.