SPAU332
Hearing Aids I

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Hearing Instrument Validation

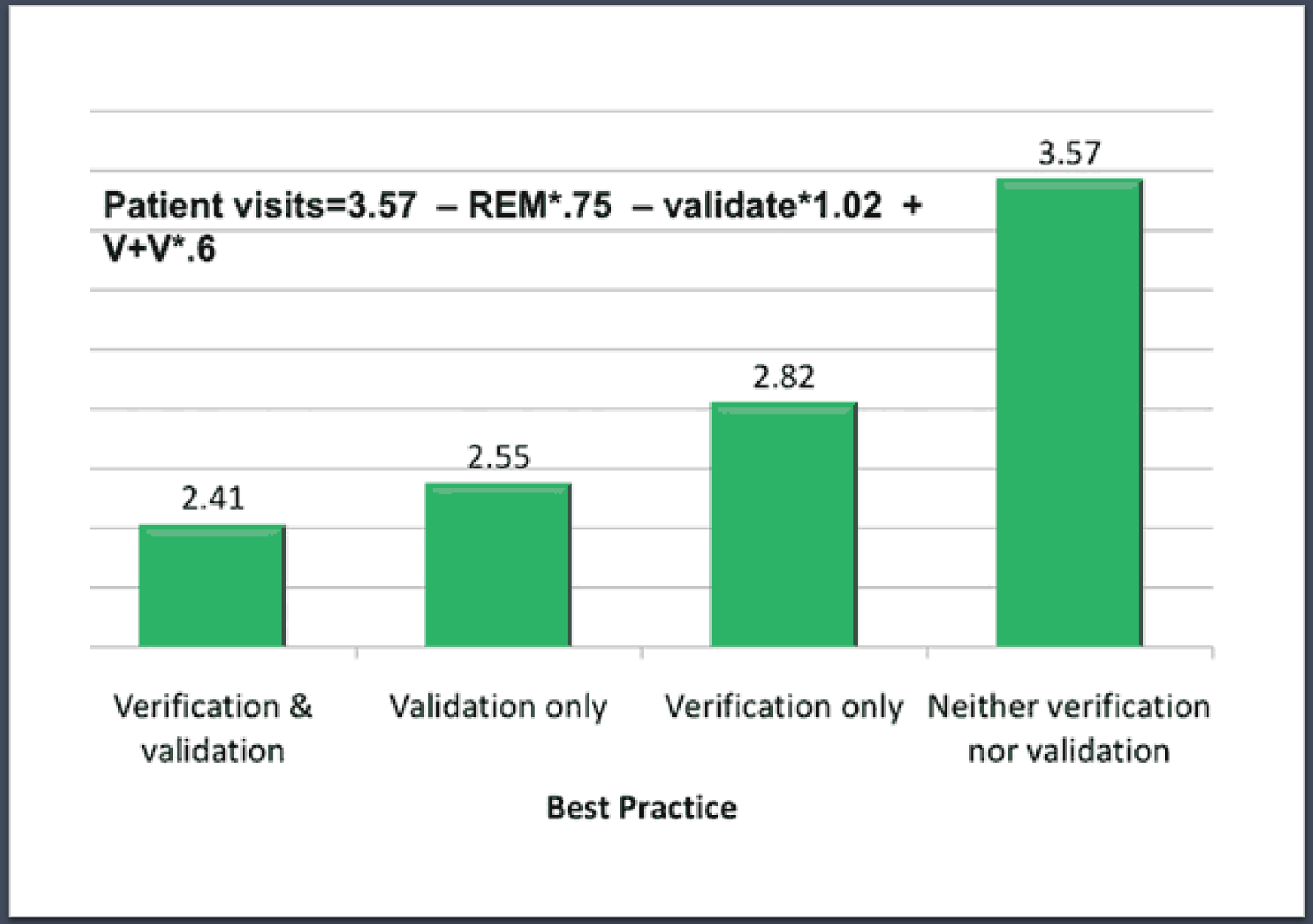
(Outcome Measures)

What are outcome measures?

- Allow us to quantify the impact of management or treatment
- Important for answering the following questions:
  - – How did the intervention impact the individual?
  - – Did the management improve the communication abilities of the individual?
  - – Did we meet our intervention goals that were identified?

Why use outcome measures

- Validate a successful hearing aid fitting
- Provide information on benefits of new technologies or protocols
- Provide information for service funders/providers that service is achieving goals
- Provide feedback to patients
- Provide feedback to suppliers (e.g. hearing aid companies, ear-mould manufacturers, …)



Why use outcome measures?

Why use outcome measures

- Comparison of different sites or staff members
- Comparison of different fitting procedures across groups of patients
- Counselling effectiveness across groups of patients
- Documentation of service effectiveness

What domains could we use as outcome measures?

- Listening effort
- Use time
- Quality of life
- Naturalness of sound
- Sound quality (especially for music)
- Annoyance for loud environmental sounds
- Sound awareness (especially for soft environmental sounds)
- Social interaction
- Satisfaction with device
- Reduced burden for the significant other(s)

Types of validation methods

- Perception methods
  - Sound quality
  - Speech perception
- Usage
- Reports from significant others
- Self-report measures (most common approach)

Usage

Person is unlikely to receive benefit from amplification unless they wear the device

- Two aspects of usage:
  - Frequency of use (how often & how long)
  - Contextual usage (in which situations)
- Investigate usage by:
  - Data logging
  - Patient diary
  - Web-based reporting system

Benefit and Satisfaction

- Benefit
  - Aided minus unaided performance
  - Lab-based measures
  - Relatively objective
- Satisfaction
  - More subjective
  - Relates to expectations

Benefit

- Used at the beginning and towards the ‘end’ of the rehabilitation process
- The improvement gained in an aided vs unaided listening conditions
- To determine if patient’s goals & expectations were met
- To indicate if aural rehab should be modified or extended

Satisfaction

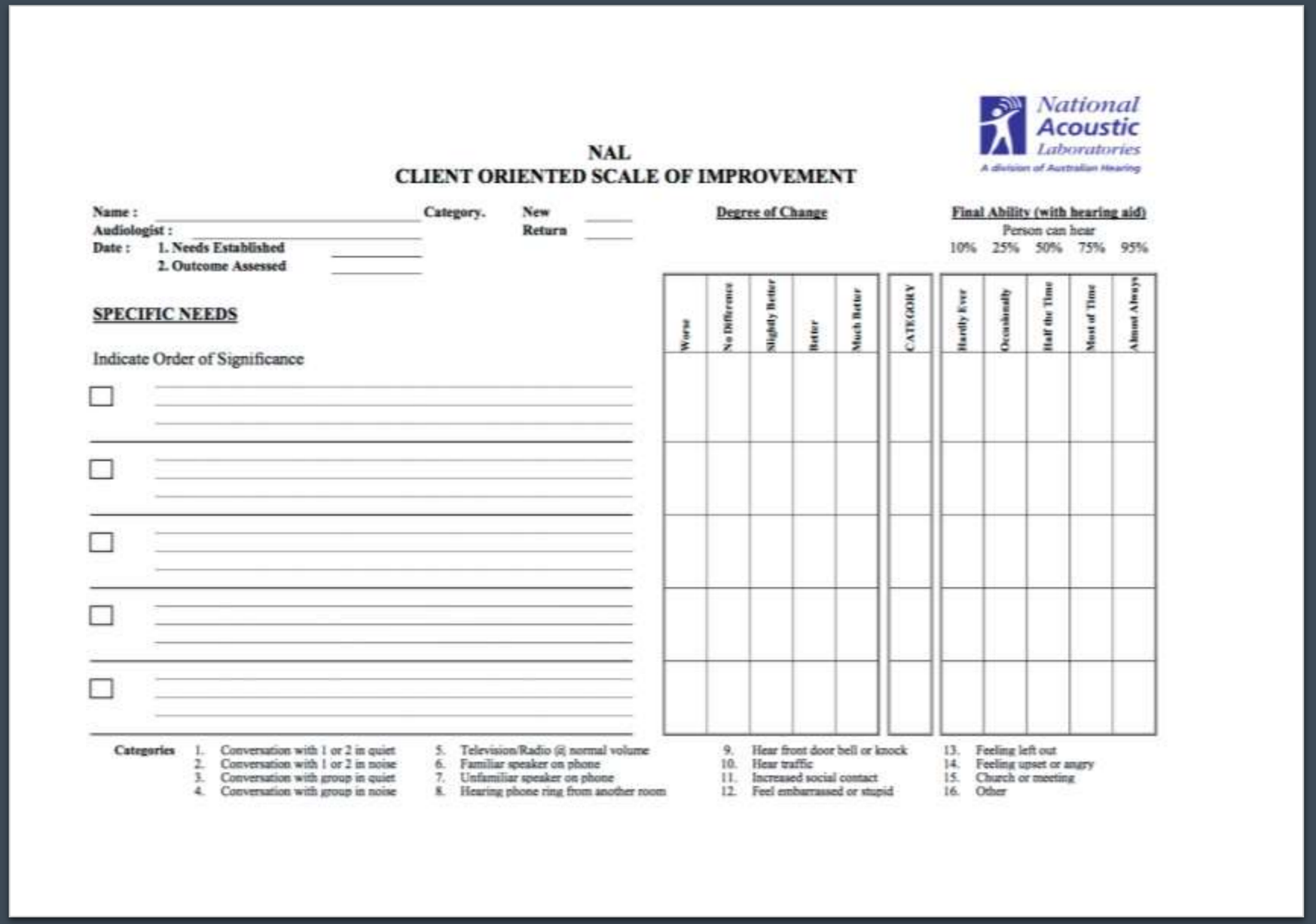
- Reflects a patient's contentment with their current situation
- Satisfaction is positively correlated with benefit, but can also be influenced by patient's expectations, professionalism of staff, cleanliness of consultation room, waiting time, and parking!

Benefit or Satisfaction?

- I love my new hearing aids
- I notice a difference with my hearing aids in noisy places
- When I put my hearing aids on I can turn down the TV
- I told a friend to come see you for getting new hearing aids
- I wear my hearing aids 12 hours a day without any trouble, they really help me understand speech
- These hearing aids don’t help

Validated Questionnaires

- Abbreviated profile of hearing aid benefit (APHAB)
- **Glasgow hearing aid benefit profile (GHABP)**
- Satisfaction with amplification in daily life (SADL)
- Device oriented subjective outcome (DOSO)
- International outcome inventory for hearing aids (IOI-HA)
- **Client Oriented Scale of Improvement (COSI)**
- Profile of aided loudness (PAL)
- Speech, spatial and qualities of hearing scale (SSQ)
- Hearing handicap inventory for the elderly (HHIE)



NAL
CLIENT ORIENTED SCALE OF IMPROVEMENT

National Acoustic Laboratories
A division of Australian Hearing

Name : _____ Category. New _____
Audiologist : _____ Return _____
Date : 1. Needs Established _____
2. Outcome Assessed _____

Degree of Change

Final Ability (with hearing aid)
Person can hear
10% 25% 50% 75% 95%

SPECIFIC NEEDS

Indicate Order of Significance

	Worse	No Difference	Slightly Better	Better	Much Better	CATEGORY	Hardly Ever	Occasionally	Half the Time	Most of Time	Almost Always
☐											
☐											
☐											
☐											
☐											

Categories
1. Conversation with 1 or 2 in quiet
2. Conversation with 1 or 2 in noise
3. Conversation with group in quiet
4. Conversation with group in noise
5. Television/Radio @ normal volume
6. Familiar speaker on phone
7. Unfamiliar speaker on phone
8. Hearing phone ring from another room
9. Hear front door bell or knock
10. Hear traffic
11. Increased social contact
12. Feel embarrassed or stupid
13. Feeling left out
14. Feeling upset or angry
15. Church or meeting
16. Other

Client Oriented Scale of Improvement

(COSI)

COSI

- Open-ended scale
- Patients target up to five listening situations for improvement with amplification
- Situations ranked by patient according to importance
- 16 general listening categories (for conducting group analysis)

COSI

Carry out on day patient decides to accept hearing aids:

- – Each item needs to be specific as possible
- – After all situations are identified, review and rank

COSI

- At follow up appointment
  - – Bring out original form
  - – Discuss items again (listening tasks that are no longer meaningful can be removed and others added if necessary)
  - – Can be assessed in two separate ways
    - Degree of change (improvement provided by the hearing-aids)
    - Final hearing ability with hearing aids (absolute measure of communication ability)

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NAL
CLIENT ORIENTED SCALE OF IMPROVEMENT

Name : _____ **Category.** **New** _____
Audiologist : _____ **Return** _____
Date : **1. Needs Established** _____
2. Outcome Assessed _____

SPECIFIC NEEDS

Indicate Order of Significance

4 Hearing friends when playing cards at the local coffee shop

2 Wife complains TV too loud –would like to listen at her level

1 Hearing at meetings at work when seated around a table

3 Hearing wife while driving car

☐

Degree of Change

Worse	No Difference	Slightly Better	Better	Much Better	CATEGORY

Final Ability (with hearing aid)
Person can hear

Hardly Ever	Occasionally	Half the Time	Most of Time	Almost Always
10%	25%	50%	75%	95%

Categories

1. Conversation with 1 or 2 in quiet
2. Conversation with 1 or 2 in noise
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GLASGOW HEARING AID BENEFIT PROFILE

Date of Assessment .....

Date of Review .....

Hospital Number.....

Name .....

Address .....

.....

Does this situation happen in your life? 0 ___ No 1 ___ Yes		**LISTENING TO THE TELEVISION WITH OTHER FAMILY OR FRIENDS WHEN THE VOLUME IS ADJUSTED TO SUIT OTHER PEOPLE**			
How much difficulty do you have in this situation?	How much does any difficulty in this situation worry, annoy or upset you?	In this situation, what proportion of the time do you wear your hearing aid?	In this situation, how much does your hearing aid help you?	In this situation, <u>with your hearing aid,</u> how much difficulty do you <u>now</u> have?	For this situation, how satisfied are you with your hearing aid?
0___N/A 1___No difficulty 2___Only slight difficulty 3___Moderate difficulty 4___Great difficulty 5___Cannot manage at all	0___N/A 1___Not at all 2___Only a little 3___A moderate amount 4___Quite a lot 5___Very much indeed	0___N/A 1___Never/Not at all 2___About ¼ of the time 3___About ½ of the time 4___About ¾ of the time 5___All the time	0___N/A 1___Hearing aid no use at all 2___Hearing aid is some help 3___Hearing aid is quite helpful 4___Hearing aid is a great help 5___Hearing is perfect with aid	0___N/A 1___No difficulty 2___Only slight difficulty 3___Moderate difficulty 4___Great difficulty 5___Cannot manage at all	0___N/A 1___Not satisfied at all 2___A little satisfied 3___Reasonably satisfied 4___Very satisfied 5___Delighted with aid
Does this situation happen in your life?		**HAVING A CONVERSATION WITH ONE OTHER PERSON WHEN**			

Glasgow Hearing Aid Benefit Profile

(GHABP)

GHABP

- Consists of four fixed listening situations and up to four listener-specified situations
- Designed to be used clinically to gather multidimensional information in a short space of time
- Sensitive enough to differentiate between the benefit of two different hearing aids
- Hard copy as well as computer version

GHABP

- For first-time hearing aid users
- Needs to be administered via conversation between patient and audiologist
- Do not suggest specific situations
  - Ask what tasks patient performs and what environments

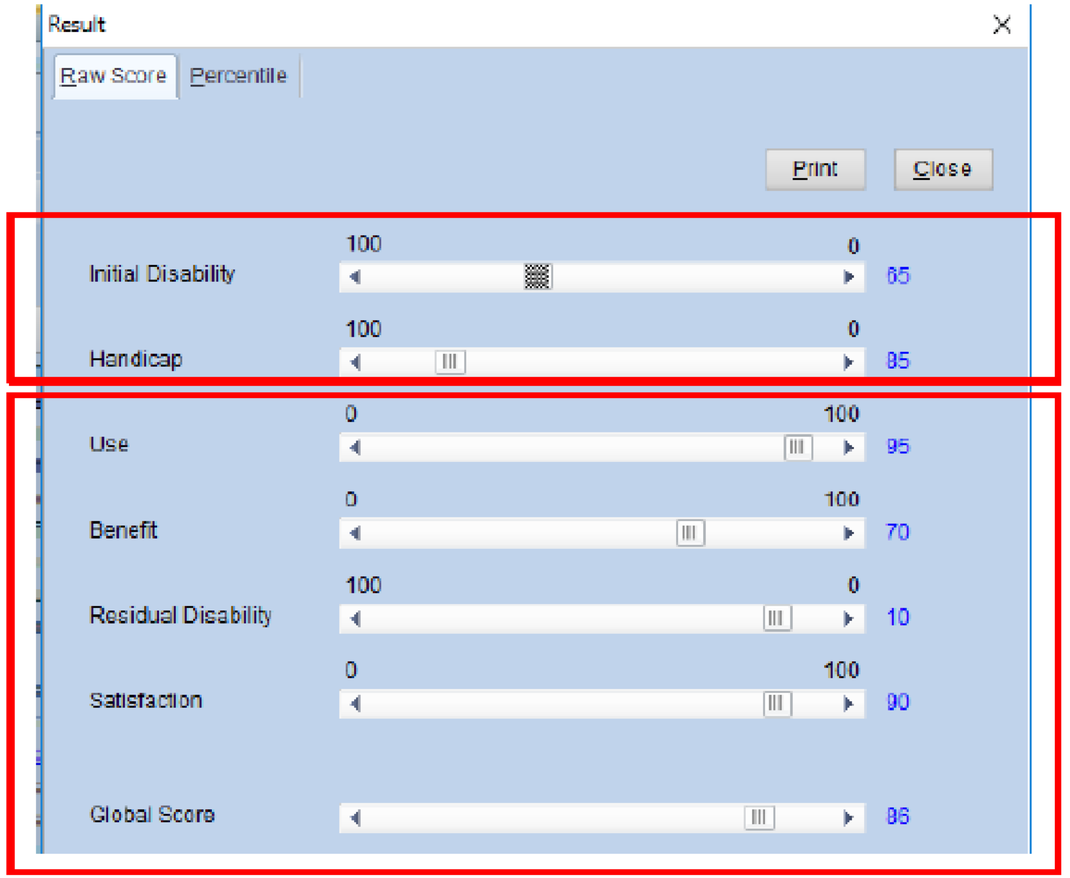
GHABP

- Automated (on AuditBase)
- For each condition
  - Patient reports whether they encounter the situation
  - Patient responds to six dimensions
  - Possible answer
    - No difficulty
    - Only slight difficulty
    - Moderate difficulty
    - Great difficulty
    - Cannot manage at all

GHABP

- Establishes
  - – The patient's initial disability and handicap prior to the fitting of a hearing aid at the initial assessment (Before Fitting -Part 1)
  - – Use, benefit, residual disability and satisfaction after patient management at the follow-up appointment, 6-12 weeks after fitting (After Fitting-Part 2).

- Part 1 results
- Part 2 results



(GHABP)