

Selecting and Using an Outcome Measure

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Session Goals

- To provide a brief review of the value of outcome measures.
- To summarize the process that has been used to select and implement an outcome measure at the national level.
- To present the process for sites to enter and use the selected outcome measure.

Acknowledgements

It is important to acknowledge the exceptional work done in this area by many of our colleagues including

Harvey Abrams, Ph.D.; Genevieve Alexander, M.S.; Kyle
Dennis, Ph.D.; Rachel McArdle, Ph.D.;
Colleen Noe, Ph.D.

Much of the material presented here is credited to each of them and their teams with my personal thanks.

Audiology & Evidence Based Measures

- “Thank you”
- “You have made such a difference in my quality of life”
- Each of us deeply appreciates these patient comments after a hearing aid fitting or related professional service. It is very satisfying.

Audiology & Evidence Based Measures

- For many third party payers, institutions and healthcare agencies, these praiseworthy comments are not adequate.
- There is an increasing expectation that we must present evidence of our success or lack thereof in patient treatment.

Value of Evidence Based Measures

- Quality assurance and total quality improvement
- Demonstration of benefit of the recommended treatment (or course of action)
- Validation of treatment efficacy
- Best practices (clinical practice guidelines)

Audiology & Evidence Based Measures

- Humes and Amos (ASHA 2009) reported that hearing aid verification and validation are underutilized.
- They also reported many audiologists used their own outcome survey rather than a carefully researched standardized instrument.
 - “About 38% of ASHA-certified audiologists indicated that they validated "treatment outcomes by self-questionnaire," but additional details regarding the nature of that self-questionnaire are not available.”

Outcome Domains

- **Impairment** - affects functioning at the level of the body and is defined as 'a loss or abnormality of body structure or physiological or psychological function.' For example: hearing loss.
- **Activity Limitation** - defines 'the nature or extent of functioning at the level of the person'. For example: difficulty hearing speech in background noise.

Outcome Domains

- **Participation Restriction** - is defined as 'the nature or extent of a person's involvement in life situations in relation to impairment, activities, health conditions, and contextual factors'. For example: limitation in participation in one's own health care.
- **Health-related Quality of Life** - is defined as 'the functional effect of an illness and its consequent therapy upon the patient.' For example: the impact of hearing loss on family.

Outcome Domains

- **Satisfaction** - is the subjective assessment by the customer or patient that his/her needs or expectations have been met. It doesn't matter how good the care or how effective the treatment was if the patient was not satisfied with the outcome.

Outcome Measure Tools

- **Impairment** - Functional gain, insertion gain, and audibility index
- **Activity** - Speech recognition scores, the Abbreviated Profile of Hearing Aid Benefit, Client Oriented Scale of Improvement, Glasgow Hearing Aid Benefit Profile

Outcome Measure Tools

- **Participation** - The Hearing Handicap Inventory for the Elderly, the Hearing Handicap Inventory for Adults, the Abbreviated Profile of Hearing Aid Benefit, the Client Oriented Scale of Improvement
- **Satisfaction** - we can use The Satisfaction with Amplification in Daily Life and the ASHA Consumer Satisfaction Measure

Outcome Measure Tools

- **Health Related Quality** - The HHIE, the Communication Profile for the Hearing Impaired, the Sickness Impact Profile, the MOS-36 Short Form Health Survey and the Health Utilities Index
- **Crossing All Domains** - The international outcome inventory – hearing aids (IOI-HA)

Should We Measure Outcomes?

- General agreement:
 - There is little doubt that using outcome measures is a valuable process.
 - There are many instruments to choose from which are well established and effective.
 - The measure should cover those domains which are most important to our patients.
 - Using a preferred outcome measure in VA Audiology has clear value on many levels.

Which Measure is the Right Measure

- Areas of Concern:
 - Is the measure easy to use
 - Will the measure require a significant time commitment for the patient and/or the audiologist
 - How will the results be collected and analyzed
 - Will the selected measure cover those domains that are most important to my patients.

Selecting a Measure

- A goal in the National A&SP Strategic Plan is to:
 - Improve the quality of health care and increase awareness of satisfaction of service delivered to Veterans by Audiologists and Speech Language Pathologists.
- The FAC asked Dr. Abrams to lead a group to assess which outcome measure would most likely address the concerns that were raised.

Recommendation was the IOI-HA

- It was agreed that indicators for patient specific outcomes might be better served with the HHIE, COSI and SADL.
- It was agreed that the IOI-HA was more generic than other measures but covered all domains of interest.
- Notwithstanding, it offers ease of use for the patient and the audiologist, ease of data capture and ease of data analysis.

Results from the Mayo Clinic

- In an article by Cook and Hawkins (2007), they concluded that the IOI-HA
 - Was implemented easily with little incremental cost.
 - It was also effective to demonstrate to administrators, patients, and payers that the clinic's rehabilitative hearing aid services have positive outcomes and that program quality is being monitored.
 - Works well with limited staff resources.

Published VA Results

- Smith, Noe and Alexander (2009) used the IOI-HA with a veteran sample
 - The psychometric properties were virtually identical to the veteran population as compared to a private pay population in the original work.
 - Veterans generally reported higher outcomes, possibly due to better technology or other factors.

IOI-HA Questions (After Dillon, 2004)

1. On an average day, how many hours did you use the hearing aid?

(USE)

2. How much has the hearing aid helped in the situation where you most wanted to hear better?

(BENEFIT)

3. How much difficulty do you still have in that situation?

(RESIDUAL ACTIVITY LIMITATIONS)

4. Overall, is your hearing aid worth the trouble?

(SATISFACTION)

IOI-HA Questions (After Dillon, 2004)

5. How much do your hearing difficulties still affect the things you can do?

(RESIDUAL PARTICIPATION LIMITATION)

6. How much are other people still bothered by your hearing difficulties?

(IMPACT ON OTHERS)

7. How much have your hearing aids changed your enjoyment of life?

(QUALITY OF LIFE)

The Scoring Scale

- Scoring is based on a five point scale.
- A higher number represents a better outcome
- The responses are tailored to each question.
- For example question 3 on residual difficulty
 - How much difficulty do you still have in that situation?
 1. *Very much difficulty*
 2. *Quite a lot of difficulty*
 3. *Moderate difficulty*
 4. *Slight difficulty*
 5. *No difficulty*

An Additional Question

- In an article published by Cox in 2003 we see an 8th question.
 - How much hearing difficulty do you have when you are not wearing a hearing aid?
- This question is not included in the overall scoring, but is used to group results for norm comparisons.
- It is good indicator of how a patient perceives their hearing difficulty.
 - Response scaling is the same.

Considerations for Implementation

- Questionnaire easily obtained
- Assure a simple data capture process
- Responses centrally collected
- Assure that method of collecting responses conform to expected variables
- Be able to sort responses to look for trends at varied levels
- Allow for future modification and other outcome options

Implement IOI-HA for Clinical Use

- With the cooperation of the Denver Acquisition and Logistics Center (DALC) we have developed an “on line” version of the IOI-HA.
- There is individual patient data via CPRS or the desktop ROES application
- There is aggregate report data available via the desktop ROES application.

Implementation Details

- Entering responses and viewing a patient's responses may be done via CPRS or from the desktop ROES application
- The IOI-HA paper form may be printed ONLY from the Desktop ROES application
- The response is associated with the most recent devices issued to the patient.

Obtaining Responses

- A patient's responses should be obtained using a return mail format.
 - Mail the paper form to the patient 30 days after issue and ask them to complete and return using postage paid envelopes.
 - Give them the form after a clinic visit and ask them to return by a certain date using postage paid envelopes.

Obtaining Responses

- To improve our comparability with norms,
 - Have patients return an IOI-HA via the mail only.
 - Do not use the phone or face to face.
 - Enter results at least 30 days post issue
 - Not later than 6 months post issue

Recording Responses

- A completed form may be entered into the patient's record by any authorized person with ROES access.
- You can mark the patient's response with the corresponding radio button.
- Once you click submit, the data is scored for the individual patient, may be printed to use in counseling and is associated with the hearing aids that were most recently issued.
- Once completed, you may not enter another form unless there is a new set of aids issued.

The ROES Screen

Station
Parameters

Tools

Pending Actions

Authorized Aids

Audiogram
Search

Enter Outcome
Measures

- The option to select and enter an IOI-HA is located from the main ROES screen when accessed via CPRS or via the desktop ROES application after selecting a patient.
- You can not re-enter new results unless the patient has a new set of aids.
- Once submitted, the results cannot be deleted.

An Entry Screen

Outcome Measures Module IOI-HA - Windows Internet Explorer

Method of entry should be by returned mail only.

1. Think about how much you used your present hearing aid(s) over the last two weeks. On an average day, how many hours did you use the hearing aid(s)?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
None	Less than 1 hour per day	1 to 4 hours per day	4-8 hours per day	More than 8 hours per day

2. Think about the situation where you most wanted to hear better, before you got your present hearing aid(s). Over the past two weeks, how much has the hearing aid helped in those situations?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not at all	Slightly	Moderately	Quite alot	Very much

3. Think again about the situation where you most wanted to hear better. When you use your present hearing aid(s), how much difficulty do you still have in that situation?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very much	Quite alot	Moderate	Slight	None

4. Considering everything, do you think your present hearing aid(s) is worth the trouble?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not at all	Slightly	Moderately	Quite alot	Very much

5. Over the past two weeks, with your present hearing aid(s), how much have your hearing difficulties affected the things you can do?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very much	Quite alot	Moderately	Slightly	Not at all

6. Over the past two weeks, with your present hearing aid(s), how much do you think other people were bothered by your hearing difficulties?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Sample Complete IOI-HA

Outcome Measures Module IOI-HA - Windows Internet Explorer

Method of entry should be by returned mail only.

The following IOI-HA questionnaire was submitted on FEB 17,2010@09:30.
Submitted questionnaires may not be edited.

1. Think about how much you used your present hearing aid(s) over the last two weeks. On an average day, how many hours did you use the hearing aid(s)?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
None	Less than 1 hour per day	1 to 4 hours per day	4-8 hours per day	More than 8 hours per day

2. Think about the situation where you most wanted to hear better, before you got your present hearing aid(s). Over the past two weeks, how much has the hearing aid helped in those situations?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Not at all	Slightly	Moderately	Quite alot	Very much

3. Think again about the situation where you most wanted to hear better. When you use your present hearing aid(s), how much difficulty do you still have in that situation?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Very much	Quite alot	Moderate	Slight	None

4. Considering everything, do you think your present hearing aid(s) is worth the trouble?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Not at all	Slightly	Moderately	Quite alot	Very much

5. Over the past two weeks, with your present hearing aid(s), how much have your hearing difficulties affected the things you can do?

<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very much	Quite alot	Moderately	Slightly	Not at all

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A Scored IOI-HA

Outcome Measures Module IOI-HA - Windows Internet Explorer

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very much	Quite alot	Moderate	Slight	None

4. Considering everything, do you think your present hearing aid(s) is worth the trouble?

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Not at all	Slightly	Moderately	Quite alot	Very much

5. Over the past two weeks, with your present hearing aid(s), how much have your hearing difficulties affected the things you can do?

<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very much	Quite alot	Moderately	Slightly	Not at all

6. Over the past two weeks, with your present hearing aid(s), how much do you think other people were bothered by your hearing difficulties?

<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very much	Quite alot	Moderately	Slightly	Not at all

7. Considering everything, how much has your present hearing aid(s) changed you enjoyment of life.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Worse	Not at all	Slightly better	Quite a lot better	Very much better

8. How much hearing difficulty do you have when you are not wearing a hearing aid?

<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Severe	Moderately severe	Moderate	Mild	None

Total score (average of questions 1-7): 3.86

Submit Quit

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Viewing Aggregate Data

- Aggregate data may be viewed in the desktop ROES application.
- You may sort on many variables and perhaps see trends in the data.
- Consider that more filtering will reduce the N of the sample

Sort Variables

- Site, VISN or National
- Date range
- Degree of hearing loss (based on 3 or 4 PTA)
- Age range of patient (in decades)
- When the response was collected (days post issue)
- Vendor
 - Model or Shell type (may not select both)

Report Selection Page

Calculate Report for:

Facility <input checked="" type="radio"/>	<input type="checkbox"/>	630-NEW YORK	All Facilities in VISN <input type="radio"/>	VISN 3	National Results <input type="radio"/>
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Date range: Results available starting with November 2008.

Starting with month:	February	Year:	2010
Ending with month:	February	Year:	2010

Selection parameters: These parameters will narrow the results. The model list is activated *only* when a vendor is selected. You may select *either* a model or a shell type, but not both.

No of days post-issue:	All	Patient Age:	All
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Vendor:	All	Model:	All
Pure Tone Average:	<input checked="" type="radio"/> 3 Frequency <input type="radio"/> 4 Frequency	Shell type:	All
Severity of Hearing Loss:	All		

Exit to Desktop Entry Page

Reset

Display to screen

Print Report

Report Selection Page

Pilot National Results

Outcome Measures Display - Windows Internet Explorer

Outcome Measures Results - IOI-HA National Results for dates 01/01/09 to 12/31/09

Severity of Hearing Loss: All
Patient Age: All
Vendor: All
Model: All
Aid Type: All
Number of days post issue: All
of entries included: 825

Question	Average	Standard Deviation
1.Think about how much you used your present hearing aid(s) over the last two weeks. On an average day, how many hours did you use the hearing aid(s)?	4.43	0.79
2.Think about the situation where you most wanted to hear better, before you got your present hearing aid(s). Over the past two weeks, how much has the hearing aid helped in those situations?	3.91	0.90
3.Think again about the situation where you most wanted to hear better. When you use your present hearing aid(s), how much difficulty do you still have in that situation?	3.65	0.93
4.Considering everything, do you think your present hearing aid(s) is worth the trouble?	4.20	1.00
5.Over the past two weeks, with your present hearing aid(s), how much have your hearing difficulties affected the things you can do?	3.55	1.14
6.Over the past two weeks, with your present hearing aid(s), how much do you think other people were bothered by your hearing difficulties?	3.75	1.15
7.Considering everything, how much has your present hearing aid(s) changed you enjoyment of life.	3.92	0.84
8.How much hearing difficulty do you have when you are not wearing a hearing aid?	2.34	0.87
Total score (average of questions 1-7):	27.41	4.18

Print Report Back [Text Link](#)

Outcome Measures Display - Windows Internet Explorer

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A Blatant Plug!!!

- **CAPTURE AND TRANSMIT** all audiometric data on all patients.
- Having audiometric data on all our patients improves our ability to look for trends of hearing loss in the population we serve.

The Pilot Sites

- Three to five sites have been collecting initial data since November 2008.
- After review and modifications, we have expanded the number of sites which may collect and post outcome measures to 20.
- We plan to expand to all sites within a year.

Expanding the Sites

- Ann Arbor VAMC
- Bay Pines VAMC
- Boston HCS
- Chattanooga
- Clarksville
- Greater LA HCS (ALL SITES)
- Houston VAMC
- Iowa City VAMC
- Mt. Home VAMC
- Murfreesboro
- Nashville
- New York Harbor HCS (ALL SITES)
- Northport VAMC (in pilot collection)
- Phoenix VAMC
- Rochester VAMC
- San Francisco VAMC
- South Texas HCS (ALL SITES)
- Tennessee Valley HCS (ALL SITES)
- Washington, DC VAMC

What Does This Mean?

- The decision to identify and use a preferred outcome measure at the national level was very carefully reviewed before being implemented.
- It will provide a wide base of uniform evidence to support the subjective reports of our patients.
- As this is “rolled out” each site is encouraged to use the IOI-HA as a primary outcome measure.

But I like using the.....

- It does not discourage your use of different standardized outcome measures (HHIE, APHAB, COSI, etc.) in addition to the IOI-HA.
- It is envisioned that with the continued support of the DALC we will be able to “e-format” other outcome measures.

Questions or Comments

