Incorporating Rehabilitative Audiology into Clinical Practice

Patricia McCarthy, Ph.D.
Professor & Program Director
Rush University Medical Center
Chicago, IL
USA
Contemporary Healthcare Milieu

- More demands!!!
- Less time!!
- Patient satisfaction!!
- High tech AND high touch!!
- Evidence based practice!!
Contemporary Healthcare Milieu

- Increasing expectations and demands re: quality:
  - Patients
  - Third Parties (insurance, accrediting bodies, etc.)
  - Government

- How to prove the value of audiologic services to these stakeholders?
  - Outcome Measurement
Purpose of this presentation:

• Describe the role of outcome measurements in Evidence Based Practice

• Describe the role of outcome measurement in Rehabilitative Audiology

• Relate outcome measurement to busy clinical practice
Relationships!

Evidence Based Practice

Outcome Measurement

Rehabilitative Audiology
• Health state of a patient resulting from care
  - Measures “end result”
  - Make a difference?
  - Central to quality of care (Agency for Healthcare Research and Quality, 2013)

• Central concept of “quality of care”
• Can facilitate decision making and enhance/improve quality of care
• Increasingly required by stakeholders
Clinical Quality Measurement

- **Includes:**
  - **Structure:** Characteristics of the provider and/or setting in which health care was provided
  - **Process:** What is actually done and how it is done during the treatment
  - **Outcome:** Actual change in patient health status or behavior as a result of a treatment or procedure...will treatment be good, bad, indifferent?

(Donabedian, 1992)
Outcome Measures

• Quality of care concepts:
  - Treatment efficacy
  - Treatment effectiveness
  - Benefit
  - Satisfaction
  - Quality of Life
Treatment Efficacy

- Probability of benefit to individuals
- Does treatment work?
- Determined by evaluating formal studies done on a disorder
- *Idealized* concept of what can be expected from a particular clinical procedure at its best
Treatment Effectiveness

- Probability of benefit under *ordinary conditions* by average practitioner for typical patient
- Treatment's efficacy may be greater or lesser than its *effectiveness* in the real clinical world
- Refers to results of everyday practice
• Advantage accrued as the result of treatment

• In audiologic practice:
  - Difference in hearing performance with and without hearing aids
  - Overall advantage conferred by amplification
    - Abbreviated Profile of Hearing Aid Benefit
      - APHAB (Cox, 1995)
    - Hearing Aid Benefit Profile - GHABP (Gatehouse, 1999)
Clinical Outcome Measurement: Satisfaction

- Subjective assessment by patient: needs, desires or expectations have been met
- Elements of service and product only peripherally related to clinical outcomes (Abrams, 2000)

In audiology practice:
- Meeting a patient’s expectations of hearing aid performance and follow-up rehab process
- Can involve structure and process
  - Expected Consequences of Hearing Aid Ownership - ECHO (Cox & Alexander, 2000),
  - Satisfaction with Amplification in Daily Life - SADL (Cox & Alexander, 1999)
• Health-related Quality of Life (HRQoL): Multi-faceted outcome domain
  - Physical
  - Mental
  - Social
  - Emotional
  - Cultural
  - Financial
  - Subjective well-being (NIH, 1993)
Measuring QOL Changes

• Pre/post intervention changes in **QoL** domain
  - Improved QoL as result of hearing aid use, cochlear implant, audiologic rehabilitation?

• **Disease-Specific HRQoL** measures effects of disorders (e.g., hearing loss) on daily functioning and well being
  - Hearing Handicap Inventory for the Elderly - HHIE (Ventry & Weinstein, 1992)
  - International Outcomes Inventory - Hearing Aids IOI-HA; (Cox, Hyde, & Gatehouse, 2000).

• **Generic self-report QOL** instruments measures self-perceived overall health status
  - WHO-DAS II (Disability Assessment Schedule II)
  - MOS-SF36V (Medical Outcomes Study Short Form-36 ),
  - SIP (Sickness Impact Profile)
Clinical outcome measures should:

- Address relevant outcome domains (i.e., benefit, satisfaction, QoL)
- Apply and satisfy psychometric standards of reliability (norms)
- Low respondent burden (i.e., easy to complete, appropriate to reading level) for the patient, communication partner, family
- Feasible and clinically useful for clinical decision making

» (Dennis, 2000)
Can we use outcome data to influence clinical decision making?

(Hint: Answer on next slide...
Evidence Based Practice

Outcome Measurement
What is Evidence-Based Practice (EBP)?

- “Current use of best evidence in making decisions about care of individual patients”

(Primary Care Clinical Practice Guidelines)
How do we make clinical decisions??

- “That’s what I learned in graduate school…”
- “It works for my patients!”
- “It is published, so it must be true!”
## Levels of Evidence

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>Ia</td>
<td>Well-designed meta-analysis &gt;1 randomized controlled trial</td>
</tr>
<tr>
<td>Ib</td>
<td>Well-designed randomized controlled study</td>
</tr>
<tr>
<td>IIa</td>
<td>Well-designed controlled study without randomization</td>
</tr>
<tr>
<td>IIb</td>
<td>Well-designed quasi-experimental study</td>
</tr>
<tr>
<td>III</td>
<td>Well-designed non-experimental studies, i.e., correlational and case studies</td>
</tr>
<tr>
<td>IV</td>
<td>Expert committee report, consensus conference, clinical experience of respected authorities</td>
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Adapted from the Scottish Intercollegiate Guidelines Network. [www.sign.ac.uk](http://www.sign.ac.uk)
• **Study Quality**
  - Elaborates on the Level of Evidence
  - Assesses how well the study was designed and implemented
  - Some common quality problems
    • Lack of randomization
    • Absence of blinding
    • Inadequate subject sample size
    • No account for dropouts
    • Inappropriate statistics (Cox, 2005)
Assessing the Evidence

- Aggregated evidence about a procedure or treatment is **graded, synthesized and analyzed**
- Clinical decision making based on the **strength of the evidence**
- Those responsible for making rehabilitation recommendations should expect and demand appropriate evidence to support those recommendations \(\text{(Cox, 2005)}\)
Is there strong evidence that audiologic rehabilitation can produce positive outcomes?
Evidence re: Health Related Quality of Life & Hearing Aids
(Chisholm, Johnson, Danhauer, Portz, Abrams, Lesner, McCarthy & Newman, 2007)

- Systematic Review: Does use of hearing aids compared to not using hearing aids result in improvements in Health Related Quality of Life for adults with sensorineural hearing loss?
Evidence re: Health Related Quality of Life & Hearing Aids
(Chisholm, Johnson, Danhauer, Portz, Abrams, Lesner, McCarthy & Newman, 2007)

- Method:
  - 16 studies met inclusion/exclusion criteria
  - Level IIb or above
  - Subjects mean age > 60 years
  - Used 9 different outcome measures (5 generic and 4 disease-specific HRQoL)
  - Conducted meta-analysis
Evidence re: Health Related Quality of Life & Hearing Aids
(Chisholm, Johnson, Danhauer, Portz, Abrams, Lesner, McCarthy & Newman, 2007)

• Results:
  - Hearing aid use has a robust, medium to large effect on HRQoL when outcomes are measured using disease-specific instruments
  - Generic HRQoL measures did not demonstrate HRQoL benefits from hearing aids
Evidence re: Health Related Quality of Life & Hearing Aids

(Chisholm, Johnson, Danhauer, Portz, Abrams, Lesner, McCarthy & Newman, 2007)

• Conclusions:
  - Hearing aid use improves adults' HRQoL by reducing psychological, social & emotional effects of sensorineural hearing loss
  - Audiology has sufficient disease-specific HRQoL instruments; generic HRQoL measures sensitive to hearing aid use should be adapted or developed
Evidence re: Health Related Quality of Life & Hearing Aids

(Chisholm, Johnson, Danhauer, Portz, Abrams, Lesner, McCarthy & Newman, 2007)

• Conclusions:
  - Future research needed with randomized control designs
  - ****Patients, physicians, health care providers & 3rd party payers should be encouraged that hearing aids provide considerable non-acoustic benefits****
Evidence from outcome measures that a variety of audiologic rehabilitation procedures are beneficial

- Evidence found in hearing aid, cochlear implant, group counseling and other areas of rehabilitative audiology
“It is becoming clear that our interventions are significantly minimizing the negative impact of hearing impairment on activities and participation and, consequently, on HRQoL among individuals with sensorineural hearing loss” (Chisolm & Abrams, 2007)
**Take Home Message**

- **Outcome Measures:**
  - A 21\textsuperscript{st} Century reality in healthcare
  - Have and will continue to provide data for evidence-based practice. Systematic Reviews re: QoL related to the hearing aid fitting process
  - Can provide data about the success of rehabilitation with individual families
  - Can be easily incorporated into clinical practice
  - Will increasingly be required by third party payors (insurers, government) and accreditation agencies
CONCLUSION

AR → Outcome Measure → Evidence

Thank you for your interest!