Interventional Audiology: When is it time to move out of the booth?

Catherine V. Palmer, Ph.D.
Jenifer Fruit, AuD
Lori Zitelli, AuD

Thank You

Learning Objectives

• Participants will be able to describe questionnaires with psychometric data used to determine signal processing and feature selection in modern hearing aids based on patient needs.

• Participants will be able to describe the evidence currently available to support the use of signal processing and hearing aid features for specific communication challenges.

• Participants will be able to discuss cases where the evidence base does not apply to individual patients.
Interventional Audiology

Taylor & Tysoe (2013)

Interventional Medicine

• Increased costs of healthcare
• Focus on preventing illnesses

Interventional Audiology

• Goal: Minimize impairment
• Goal: Maximize Function

Targeting patients whose primary concern may not be “hearing”.
Interventional Audiology
Taylor & Tysoe (2013)

Why focus on earlier treatments for hearing loss?
Hearing loss interferes with a patient's ability to be treated for other medical conditions.
Hearing loss may accelerate some disabilities (cognitive dysfunction, etc).

Prevention, early detection, & evidence-based treatment result in:
Improved quality of care
Patient compliance
Improved outcomes
Reduced overall cost of care

Impact of Untreated HL & Poor Communication on Healthcare
- Inpatient & Outpatient Care
- Healthcare Providers’ Attitudes
- Does Hearing Matter?

Consider the ways that hearing loss may affect an inpatient's care...

- Outpatient care
- Inpatient care
- Understanding discharge instructions
- Communicating with EMTs
- Communicating with ER physicians
- Masks for infection control
- Understanding treatment options
- Understanding test instructions
- Understanding diagnosis or results

• Inpatient & Outpatient Care
• Healthcare Providers’ Attitudes
• Does Hearing Matter?
Consider the ways that hearing loss may affect an outpatient’s care…

Scheduling the appointment

Getting directions to clinic

Noisy reception area

Hearing their name being called

Hearing case history questions

Hearing test instructions

Healthcare Providers’ Attitudes About Patients With Disabilities

Healthcare providers often perceive accessibility to be a matter of physical access only (Sanchez, 2000)

Many physicians feel more comfortable referring patients with disabilities to other physicians for care (Grabois, Nosek, & Rossi, 1997)

Physicians indicate a lack of awareness about ADA and their obligation to serve patients with disabilities (Grabois, Nosek, & Rossi, 1997)

Providers perceive many communication difficulties (increased time, effort, & frustration) when serving patients with hearing loss (Hemsley et al., 2001)

Can Hearing Loss Negatively Affect Healthcare Outcomes?

Communication disabilities can lead to poor adherence to treatment recommendations and clinical outcomes that may include accidental injury or further medical difficulties

Patients with communication problems are 3 times more likely to experience a preventable adverse event than patients without such problems

Older adults with a communication disability reported dissatisfaction with overall quality, accessibility, and receipt of information related to their healthcare

YES!
Resurgence of Interdisciplinary Healthcare

(Baldwin, 1996)

- Development of interdisciplinary practice in the USA
  - Phases I (1940s) – VII (emerging)
- Why the resurgence now?
  - Declining availability of PCPs
  - Increasing number of patients w/o health insurance
  - Rising costs of healthcare
  - TQM / CQI

Interventional Audiology in the UPMC system

- *Existing:* Trauma Clinic
- *Emerging:* HearCARE: Hearing and Communication Assistance for Resident Engagement
- *Future:* Home Health/OT?

UPMC Falk Trauma Clinic
History of the UPMC Falk Trauma Clinic

- Has existed for years as a way for the Trauma Dept to follow-up with patients who have been discharged
- January 2014

Members of the Falk Post-Trauma Clinic Team

Audiology
Speech Language Pathology
Physical Therapy
Occupational Therapy
Nutrition
Rehabilitation Counseling
Nursing
Medical Assistants
APPs
Administration

Factors Affecting Success of Interprofessional Teamwork

- Size of the team (Poulton & West, 1999) → small = effective
- Composition of the team (Borrill et al, 2000) → diversity = effectiveness
- Leadership (Field & West, 1995) → necessary for decision making
- Stability of the team (Cashman et al, 2004) → full time staff = effective
- Organizational support (Borrill et al, 2000) → predictor of success
- Regular team meetings (Harbor & McArthur, 2004) → exposure
- Interpersonal relationships (Mohrman, 2001) → necessary for effective teamwork
- Team goals (Poulton & West, 1999) → necessary for effective teamwork
- Understanding professional roles (Steinbrucher et al, 2001) → role
- Audit/evaluation (Field & West, 1995) → makes team feel valued
Ideality vs. Reality

<table>
<thead>
<tr>
<th>Ideality, the UPMC Falk Trauma Clinic</th>
<th>Really, the UPMC Falk Trauma Clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td>has a small group of people.</td>
<td>has 8 rehab professionals, MAs, APPs, &amp; nurse</td>
</tr>
<tr>
<td>is occupationally diverse.</td>
<td>represents 9 professions.</td>
</tr>
<tr>
<td>has established a clear leader.</td>
<td>leader is a registered nurse.</td>
</tr>
<tr>
<td>has members who are consistently present.</td>
<td>has 1-2 members from each profession who are consistently present.</td>
</tr>
<tr>
<td>is supported by their organization.</td>
<td>is supported by UPMC &amp; Pitt.</td>
</tr>
<tr>
<td>holds regular team meetings.</td>
<td>meets 2 times per week.</td>
</tr>
<tr>
<td>is comprised of members who enjoy working together.</td>
<td>is comprised of members who enjoy working together!</td>
</tr>
<tr>
<td>has established mutual goals.</td>
<td>goal is to use APPs/clinicians to consolidate rehab resources &amp; facilitate a speedy recovery.</td>
</tr>
<tr>
<td>has a clear understanding of each member's role.</td>
<td>members each contribute something unique &amp; specific to the group.</td>
</tr>
<tr>
<td>has a way of evaluating their performance.</td>
<td>seeks patient feedback. Also, we are working with the Health Policy Institute to track outcomes.</td>
</tr>
</tbody>
</table>

Barriers to Effective Interdisciplinary Education

(Aladin, 1996)

- Limitations of curriculum (timing)
- Lack of interdisciplinary role models
- Limitations of traditional model of professional education
- Profession & disciplinary "turf-guarding"
- Certification & accreditation requirements
- Administrative resistance
- Difficulty matching schedule & skill level of students
- Initial expense of new programs

Can UPMC’s Falk Trauma Clinic be an effective teaching tool?

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Does our Trauma Clinic overcome it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limitation of curriculum (timing)</td>
<td>Held during clinic time, not class time.</td>
</tr>
<tr>
<td>Lack of interdisciplinary role models</td>
<td>Several clinicians who are excellent role models</td>
</tr>
<tr>
<td>Limitations of traditional model of professional education</td>
<td>Students are not required to memorize or recite information, but synthesize &amp; act.</td>
</tr>
<tr>
<td>Profession &amp; disciplinary &quot;turf-guarding&quot;</td>
<td>Disciplines work together to achieve higher quality of care.</td>
</tr>
<tr>
<td>Certification &amp; accreditation requirements</td>
<td>APPs/clinicians are not constrained by accreditation requirements in clinic.</td>
</tr>
<tr>
<td>Administrative resistance</td>
<td>No additional work required by University Administrative personnel.</td>
</tr>
<tr>
<td>Difficulty matching schedule &amp; skill level of students</td>
<td>3rd year AuD students have enough experience &amp; no expense to the University to appreciate higher levels of learning.</td>
</tr>
<tr>
<td>Initial expense of new programs</td>
<td>No expense to the University.</td>
</tr>
</tbody>
</table>

Can UPMC’s Falk Trauma Clinic be an effective teaching tool?
Interventional Audiology

- GOALS FOR TRAUMA CLINIC:
  - Intervening ON the day of clinic
  - Referring for help AFTER the day of clinic
  - Helping future patients BEFORE the day of clinic
  - Preventing FUTURE trauma
  - Promoting AWARENESS of our services

Trauma Clinic Data: Pass/Fail

<table>
<thead>
<tr>
<th>Americans who can’t pass a 25 dB hearing screening</th>
<th>Post-Trauma Clinic patients who can’t pass a 25 dB hearing screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>42%</td>
</tr>
</tbody>
</table>

Intervening ON The Day Of Clinic

Intervention options:
- Hearing screen
- Inexpensive amplifier
- Repair personal hearing aid
- Instruction to patient, family and staff on communication strategies
Normal Hearing – no communication aid/appliance necessary.

Pt with hearing loss.

Remember: clear speech, face-to-face, good lighting, reduce noise.

Pt with significant hearing loss.

Please use listenaider for appt.

Remember: clear speech, face-to-face, good lighting, reduce noise.

Pt with significant hearing loss.

Pt to use personal hearing aids for appt.

Note: clear speech, face-to-face, good lighting, reduce noise.

Intervening ON The Day Of Clinic

• Patients Under 65
  - (As of 2/18/15)
  - Listenaider (8%)
  - Repaired HA (6%)
  - Has Functioning HA (1%)
  - Communication Strategies (30%)
  - Passed Hearing Screening (19%)
  - n = 337

• Patients 65 & Older
  - (As of 11/6/14)
  - Listenaider (13%)
  - Repaired HA (%)
  - Has Functioning HA (%)
  - Communication Strategies (%)
  - Passed Hearing Screening (%)
  - n = 119

Helping Future Patients BEFORE The Day Of Clinic

Ideally: Audiology consult for each trauma patient who is 65+ would determine whether the patient can communicate effectively, whether they need listening strategies, or whether they need amplification/ALDs.

Really: Physicians don't remember to consult audiology.

Solution? Have an automatic consult system in place.

Really: You may not have the resources to see all of these patients.

Solution? Use a co-morbidity risk assessment screening tool to identify patients at the highest risk.
Multifactorial Risk Assessment
Weinstein (2013)

<table>
<thead>
<tr>
<th>Health Condition</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you smoke cigarettes?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2. Do you or a family member believe that you have difficulty hearing or understanding?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3. Have you been told that you now have diabetes?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4. Have you been told that you have cardiovascular disease at this time?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5. Have you been told that you now have arthritis?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6. Are you taking aminoglycoside antibiotics, cisplatin, an anti-inflammatory agent, or a loop diuretic?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7. Have you had a fall within the past year?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8. Have you been told that you have low vision or blindness?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9. Have you been told that you are suffering from depression?</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL SCORE:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Helping Future Patients BEFORE The Day Of Clinic

<table>
<thead>
<tr>
<th>Year</th>
<th>Listenaiders Distributed to PUH/MUH Inpatients (Yearly)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>56</td>
</tr>
<tr>
<td>2012</td>
<td>39</td>
</tr>
<tr>
<td>2013</td>
<td>59</td>
</tr>
<tr>
<td>2014</td>
<td>110</td>
</tr>
<tr>
<td>YTD</td>
<td>83</td>
</tr>
</tbody>
</table>

HearCARE: Hearing and Communication for Resident Engagement

8% increase
51% increase
86% increase

Listenaiders Distributed to PUH/MUH Inpatients (Yearly)

YTD 83
Consider the ways that hearing loss may affect a resident’s care...

Move to assisted living for:

- Socialization
- Communication groups
- Group activities
- Devices for group activities/television/activities stop working
- Ear full of wax
- Hearing aids stop working or need routine maintenance
- Unable to coordinate visits to outside providers
- Withdrawal from activities
- Unable to communicate with other residents, family, members/friends via phone

Creation of a new position: Communication Facilitator

Non-audiologist (cost effective)
Internal training program
Daily presence in assisted living facility
- Meals
- Assistance with personal and group televisions
- Group activities
- Device maintenance

Audiology Clinic / overseeing audiologist

Communication Facilitator

Assisted Living Facility

- 40 hours/week
- Devices for facility, television, telephones, activity room
- Personal device maintenance/repairs
- Recommendations for higher level care (i.e., audiology or ENT)
- Staff education
- Social interaction

Contact as needed
Future Directions: Home Health/Occupational Therapy

Embed into existing home health services

Interventional Audiology: When is it time to move out of the booth?

Thank you!