Development of a Community-based Hearing Health Education and Support Program for Adults with Hearing Loss and their Families

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Healthy People 2020 Progress Review
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Overview

**Seeking Comprehensive Audiologic Care**
- Importance of equity in access to quality care
- National challenges
- Barriers in our region

**Developing a Community-based Program**
- Needs assessment
- Our innovation

**Tracking Promising Outcomes**
- Results of pilot program
- Overcoming barriers in access to care
- Future directions
Access to comprehensive hearing health care is important for the health and wellbeing of all Americans.

**Medical services**  
e.g., Screening and assessing the auditory system; Otolaryngology

**Diagnostic audiology services**  
e.g., Evaluate degree, type, configuration of hearing loss and its functional impacts on daily life

**Rehabilitative audiology services**  
e.g., Family-centered care, counseling, amplification, assistive technology, ongoing management and aural rehabilitation

**Preventive services**  
e.g., Health education, hearing conservation  
(“It’s a Noisy Planet: Protect Their Hearing”)

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**The University of Arizona**
Hearing loss affects health and quality of life, like other sensory and communication disorders.

Hearing health impacts:
- Communication access
- Participation in communities
- Overall health & quality of life

National Academies of Sciences, Engineering, and Medicine, 2016

Nearly 2 in 3 Americans age 70+ are living with hearing loss.
Challenges in access to comprehensive audiologic care in the U.S.

- **Significant gaps in care**, between self-reporting hearing loss and receiving evaluation, treatment, and rehabilitation services (Mahboubi, Lin, & Bhattacharyya, 2017).

- **Nationally, rehabilitative services from audiologists are not covered by Medicare** (National Academies of Sciences, Engineering, and Medicine, 2016).

- **Coverage varies across state Medicaid systems** for adults (Arnold, Hyer, & Chisolm, 2017).
  - Adults with **lower socioeconomic status** are less likely to use hearing aids (Bainbridge & Ramachandran, 2014).
Hearing Aid Use in the U.S. by race/ethnicity

Rate per 1,000 Adults 70+ years with moderate or greater hearing impairment

Healthy People 2020 Target

White Americans

Black or African Americans

Hispanic or Latino Americans

Data Source:
HP2020
ENT-VSL-3.3
2011-2013
Accessed 02/01/18
Error bars ± 95% CI

See also Nieman, Marrone, Szanton, Thorpe, & Lin (2016), *J Aging Health*
Availability of Health Care Providers in Rural Areas

- **Rural USA**: shortages of health care providers (Chan et al., 2017; Goins et al. 2005; Rosenblatt et al., 2006).

- **Arizona**: 6 non-metro counties without any audiologists (Coco, Sorlie Titlow, & Marrone, submitted)

Data Source: Licensed dispensing audiologist practice locations; list accessed 06/17/17 from Arizona Department of Health and Human Services
Our Approach:
Community-Based Participatory Research

A strategy for reducing health disparities in underserved communities that:

• Helps define health needs;
• Increases trust and bridges cultural gaps;
• Enhances relevance of research and accuracy of study findings.
**Our Innovation: Collaboration between Audiologists and Community Health Workers**

<table>
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<tr>
<th><strong>Audiologists</strong></th>
<th><strong>Community health workers</strong></th>
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<tr>
<td>are health care professionals who provide care in the prevention, diagnosis, treatment, and management of hearing loss, other auditory and balance disorders (Bureau of Labor and Statistics, 2018).</td>
<td>are “frontline,” lay public health workers who share sociocultural characteristics with their community and provide culturally-relevant health education (American Public Health Association).</td>
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- For our research, audiologists have trained community health workers on recognizing hearing concerns and communicating effectively with people with hearing loss in their programs and community (Sánchez et al., 2017).
Community Needs Assessment

Ingram et al. (2016), *Frontiers in Public Health*

\[ n = 206 \]

**Community engagement**
- Community hearing screenings
- Trainings for community health workers

**Data collection**
- Community survey (\( n = 100 \))
- 5 community focus groups (\( n = 47 \))
- 20 patient interviews
- 3 family focus groups (\( n = 27 \))
- 12 provider interviews

**Data analysis**
- Theory-based within Health Belief & Social-ecological models
Key barriers to be addressed

- **Lack of knowledge and resources on hearing loss**
  - Perception that the “only” intervention (i.e., hearing aid) is out of reach

- **High perceived severity of issue**
  - Many concerns related to depression, reduced participation

- **Low perceived self-efficacy**
  - Social withdrawal and lack of support
  - Frustrations of family

- **Gaps in access to care**
  - Medical providers not referring to Specialists due to perceived costs
  - Limited availability of local options
  - Limited trust of care requiring out-of-pocket expenses

Illustrative Quotes

“Ingram et al. (2016), Frontiers in Public Health

**Illustrative Quotes**

“Many people assume, ‘well, this is how I am, and this is how I’ll stay.’ We don’t seek help, but the problem is serious.”

“I know it is expensive so I don’t do anything.”

“Other health concerns have more attention and resources.”
Hearing assessment and counseling by an audiologist at enrollment in program

Each weekly session facilitated by community health workers

Week 1
Communication Strategies Overview

Week 2
How We Hear & Visual Cues

Week 3
Coping and Emotions

Week 4
Hearing Aids, Assistive Devices, & Americans with Disabilities Act

Week 5
Hearing Health Care Pathways, Self-Advocacy & Hearing Protection

Outcomes assessment

Pilot study: n = 21 (2 communication partners withdrew)

Marrone, Ingram, Somoza, Sánchez, Sanchez, Adamovich, & Harris (2017) Seminars in Hearing
See also: Colina, Marrone, Sánchez, & Ingram (2017); Coco, Colina, Atcherson, & Marrone (2017)
Pilot study results: Spoke slowly & clearly

Error bars: ± 1 standard error

Before Oyendo Bien
- Almost always: 5
- Often: 4
- Sometimes: 3
- Rarely: 2
- Never: 1

After Oyendo Bien
- Almost always: 4
- Often: 4
- Sometimes: 3
- Rarely: 2
- Never: 1

Persons with Hearing Loss: n = 10

Communication Partners: n = 9
Pilot study results: Helped plan activities so partner with hearing loss can hear and participate

Almost always
Rarely
Sometimes
Often
Never

Before Oyendo Bien
After Oyendo Bien

Persons with Hearing Loss
n = 10

Communication Partners
n = 9

Error bars: ± 1 standard error
**Pilot study results: Enjoyment of Life**

International Outcomes Inventory –Alternative Interventions Scale (Noble, 2002)

- **Persons with Hearing Loss** (n = 10)
  - After Oyendo Bien: 5
  - 3 months post program: 4
- **Communication Partners** (n = 9)
  - After Oyendo Bien: 5
  - 3 months post program: 4

Error bars: ± 1 standard error
Overcoming barriers in access to care: Hearing health care utilization outcomes 1 year post pilot study

“You all taught us something new. Before attending the classes, I had almost no hearing. I now have one hearing aid and I have to go back in three weeks for a second…”

Pilot study outcomes:
Marrone et al. (2017)

Current research:
Ongoing randomized trial ClinicalTrials.gov NCT03255161
Returning to our example …

After Oyendo Bien, a person may have more effective communication through:

- Improved social supports;
- Family working together to overcome barriers in access to care;
- Developing skills in clarifying misunderstandings and confidence in using assistive technology;

... topics of ongoing and future research.
Summary

• Collaboration between audiology, public health, and the community has led to a novel, culturally competent program with promising outcomes in quality of life and access to hearing health care (Marrone et al., 2017).

• Community health workers may serve as a feasible link between underserved communities and the hearing health care system; continued research is needed in this area and in other communities across the U.S. (e.g., Baltimore HEARS, Nieman et al., 2017).

• Achieving health equity includes increasing access to, and use of, comprehensive audiologic care for all Americans.
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