Hearing Care For Older Adults In Rural Maryland

Bridging the gap between people and technology to enable access to hearing help

Access HEARS, Inc.

Table of Contents

Problem Statement

Hearing loss affects nearly two-thirds of adults 70 years and older in the United States of which 23 million go untreated. It is strongly and independently associated with an increased risk of social isolation, depression, accelerated cognitive decline, falls, decline in physical functioning, increased healthcare expenditure, and hospitalization. Age-related hearing loss is now recognized as one of the largest potentially modifiable risk factors for dementia. Of older adults who have hearing loss, *only 20% of white older adults, and less than 10% of minority and low-income older adults, use hearing aids regularly*. Hearing loss is increasingly recognized as a core component of healthy aging and hearing care is an essential tool for aging well, not only improving quality of life, but reducing depression, strengthening social engagement, slowing cognitive decline, and improving patient safety.

Age-related hearing loss is generally managed with amplification, typically in the form of hearing aids, along with education and counseling on communication strategies and living well with hearing loss. Despite advances in technology, rates of hearing aid use have remained low for decades and disparities in care exist based on race/ethnicity, socioeconomic status, and rurality. *The current hearing care model of clinic-based, fee-for-service hearing care does not accommodate the needs of the majority of low-income, minority, and vulnerable older adults*. The existing model of care demands resources, such as mobility and transportation, large out-of-pocket costs (avg. cost of $4,700 for hearing aids), and extensive know-how and literacy in order to navigate the complex referral systems involved. For example, the vast majority of hearing aid manuals are written at a 9th grade reading level, far above the recommended 6th grade reading level for older adults. Although 2018 Maryland legislation expanded coverage of hearing aids to adults on Medicaid, the majority of these barriers to care remain in place, and few adults have received hearing aids through this program due to the need for multiple visits to multiple offices and limited access to Medicaid providers. Additionally, there are no hearing aid providers outside the Baltimore metro area that accepts Medicaid which creates an enormous burden on older adults in rural counties across Maryland. *Access HEARS works to address each of these barriers through a highly time- and cost-efficient, client-centric model*.

While older adults residing in the Baltimore City area are relatively close to the few healthcare providers that offer hearing aids covered by Medicaid, these providers are almost completely inaccessible for older adults in rural locations like Western Maryland. According to a 2010 census done by the State of Maryland, there are approximately 13,212 older adults living in Garrett County and Allegany County, and those numbers are expected to increase. With >8% of the older adult population residing in poverty, as highlighted in the Maryland Department of Aging's 2014 Annual Report, we estimate that there are at least 705 (2 out of every 3 older adults experience age-related hearing loss) older adults who might be candidates for hearing aids covered by Medicaid, but have little to no access to the hearing devices that they need. However, we realize that there are many adults above this poverty threshold who also lack access to affordable hearing care. Aging Communities provide needed support for many of these older adults; however, it is not able to provide hearing care, and although many residents may have hearing aid coverage through Medicaid, the reality of multiple visits to hearing care providers based in the Baltimore-area while managing multiple co-morbidities and limitations in activities of daily living functionally equates to care that remains inaccessible. An innovative, affordable, and accessible hearing care delivery model that provides access to communication support directly to the congregate housing community will be a powerful model of expanding access and ensuring that our most vulnerable older adults have access to the tools they need to age well.

Founded by a team of otolaryngologists, researchers with expertise in hearing care and older adults, and social entrepreneurs at Johns Hopkins University, and with initial support from the AARP Foundation, Access HEARS is a Baltimore-based 501(c)(3) with the mission of systematically addressing each of the barriers to provide hearing help to those who have not

traditionally accessed care. Access HEARS is a social enterprise working to ensure all older adults have access to hearing care. We overcome disparities in hearing care among vulnerable older adults in Maryland, including those unserved and under-served, through an evidence-based consumer-driven care model that has been co-designed by a diverse group of older adults. Moving beyond the traditional confines of clinic-based hearing care, our program is delivered in the community, with materials written at an appropriate literacy level, tailored specifically for older adults, using low-cost, high-quality over-the-counter hearing technology that have been found to be comparable to gold standard hearing aids. Following multiple national efforts that identified the need for expanding options for hearing care, including a year-long committee through the National Academies of Science, Engineering, and Medicine, federal legislation passed in August 2017 that created the designation of over-the-counter hearing aids. With the legislation passed, the FDA has until 2020 to finalize the details of the regulations. With the anticipated expansion of over-the-counter hearing technology in the near future, the need to help older adults, particularly older adults with functional limitations, cognitive impairment, low levels of literacy, and/or limited technology self-efficacy, navigate the market, select a device, and learn how to use it successfully will also grow. The development of a sustainable and scalable model of hearing care that connects older adults with the technology they need represents the future of hearing care. As the leading model of community-delivered, affordable, and accessible hearing care, the proposed project provides the foundation for Access HEARS and the State of Maryland to begin the process of redefining hearing care for all.

Goals & Objectives

We plan to implement the Access HEARS program in congregate housing sites, Catholic Charities Centers and low-income housing apartment complexes across the Garrett and Allegany Counties in Western Maryland. We also plan to partner with local organizations, such as the Garrett County Community Action Committee, to provide our services for low-income older adults participating in senior services, such as the “Eating Together” program, which serves around 300 older adults at 5 separate locations. Although not a part of this proposal, we will offer our services for older adults with hearing loss who are not considered low-income for an out-of-pocket cost that depends on the PSAP they choose. We plan to serve 50-100 out-of-pocket clients concurrently with the 500 low-income clients in this proposal. 1-Month post-intervention outcomes for clients served in September will not be included in the final report but will provided to the Maryland Department of aging after the grant ends.

Our primary project goals and objectives are:

1. **Goal:** Increase access to affordable hearing care services and support.
   Objective: Deliver targeted, accessible hearing care one-on-one and in small groups through education and counseling on age-related hearing loss as well as access to low-cost, high-quality over-the-counter hearing technology. Despite growing understanding of the impact of age-related hearing loss on healthy aging and increased efforts to support hearing care access through Medicaid coverage of hearing aids, hearing care remains inaccessible for most older adults, particularly vulnerable older adults aging outside of the Baltimore metro area. Access HEARS systematically eliminates barriers through community-delivered instruction and support.
   Measure: Number of older adults with hearing loss who attend an education session and/or receive an amplification device.

2. **Goal:** Strengthen communication and connection among older adults aging at home.
   Objective: Provide communication support to older adults living in group housing and community-based settings to enable clients to remain meaningfully engaged. Hearing is fundamental to effective communication. Empowering older adults with the education,

communication strategies, and hearing technology they need, Access HEARS helps clients feel more connected with those around them while maintaining social networks, strengthen quality of life, and, ultimately, support their ability to age in place well.
Measure: Communication difficulty as measured by the HHIE (Hearing Handicap Inventory for the Elderly - screening version) and social support as measured by the DSSI (Duke Social Support Index), comparing baseline before the intervention and 1-month post-intervention.

3. **Goal:** Support older adults' ability to live well with hearing loss.
   Objective: Improve quality of life among older adults with hearing loss living in the community through participation in the Access HEARS program and joining a community of clients within their home.
   Measure: Quality of life as measured on the SF-12, comparing pre-intervention baseline to 1-month post-intervention score.

4. **Goal:** Enable congregate housing residents with hearing loss to age in place.
   Objective: Growing literature demonstrates the cost of untreated hearing loss, specifically increased hospitalizations and 30-day readmissions as well as increased Medicare spending, primarily driven by costs related to skilled nursing facilities and home health care. Delaying the transition to skilled nursing facilities is a primary goal of the congregate housing program. By addressing hearing loss, we aim to demonstrate delays in transitions to higher levels of care and reductions in healthcare-related spending among Access HEARS clients compared to baseline rates.
   Measure: Number of inpatient hospitalizations, total days hospitalized, number of emergency department visits, number of days with at least 1 outpatient visit in the 1-month period following participation in the Access HEARS program. Number of Access HEARS clients who transition to a higher level of care during the 1-month follow-up period.

Outcomes & Performance Metrics

Key measures were collected at baseline from the client by the Client Services Manager, prior to the client participating in the Access HEARS program, and then again approximately 1 month following participation in the Access HEARS program, following a pre-post study design.

Outcome: Increase access to affordable hearing care services and support.
Measure: Number of older adults with hearing loss who attend an education session and/or receive an amplification device.

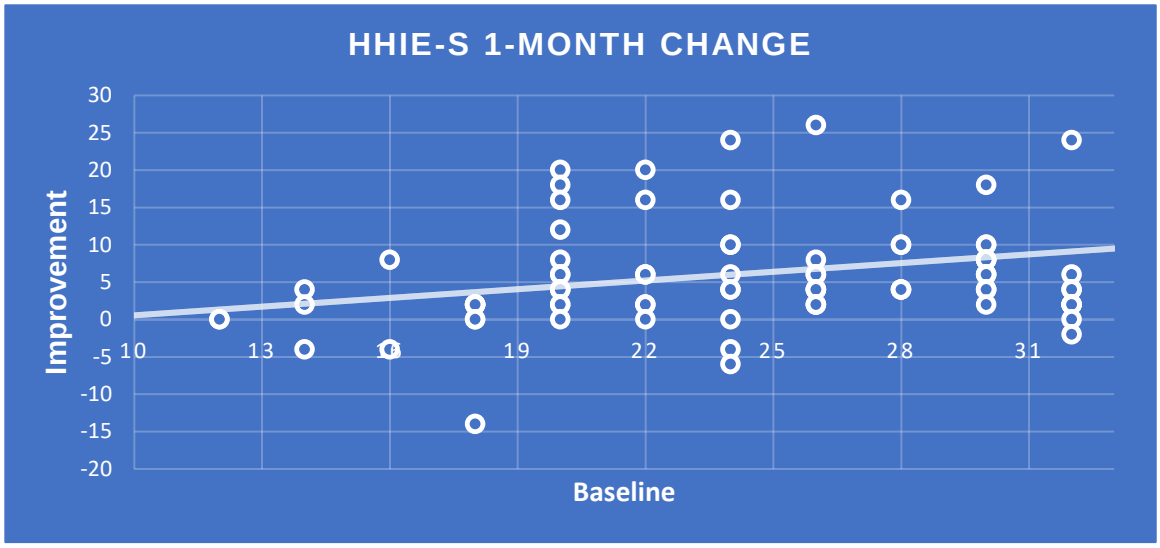
A total of 674 older adults attended an educational session and 504 enrolled in our program to receive a PSAP. These educational sessions were typically performed at senior centers, activity rooms at congregate housing and LTC facilities, and the Allegany Human Resources Development Commission (HRDC)

Outcome: Strengthen communication and connection among older adults aging at home.
Measure: Communication difficulty as measured by the HHIE (Hearing Handicap Inventory for the Elderly - screening version) and social support as measured by the DSSI (Duke Social Support Index), comparing baseline before the intervention and 1-month post-intervention.

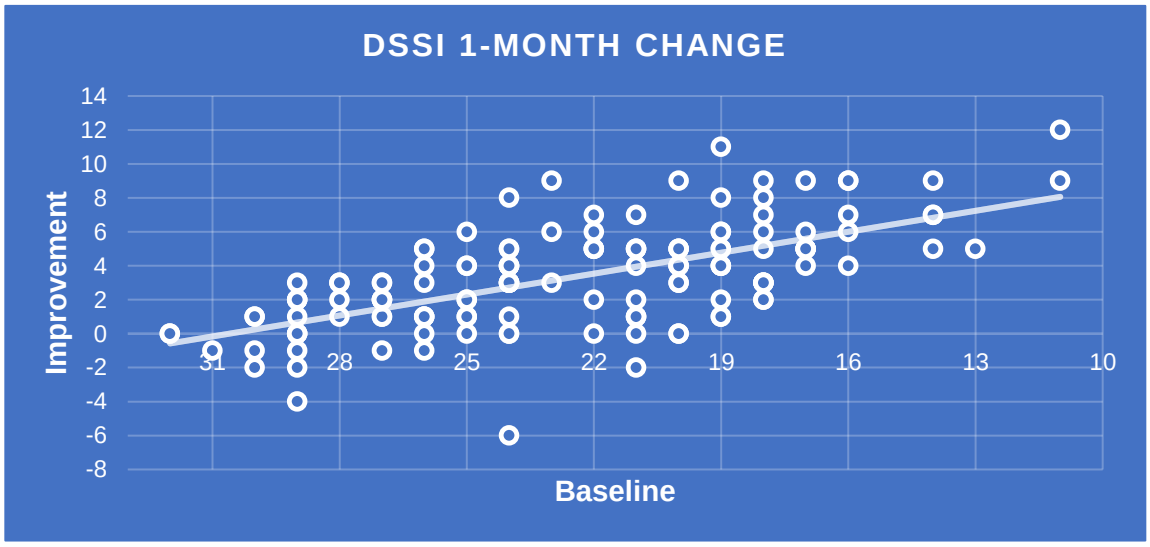
HHEIE-S: A total of 136 clients submitted complete baseline and 1-month data. The scores range from 4 to 40 points out of 44. The average change from baseline to 1-month was 7.56 points. There were 119 clients (87.5%) who showed improvements, 10 (7.4%) had no change and 7 (5.1%) reported a worst score. Overall, clients averaged 28.0 points at

baseline which is considered “Significant Hearing Handicap”. There was an average improvement of 7.56 points (27.0%) one month later. As expected, older adults with worst social support (social connectedness) showed the largest improvement as illustrated by the figure below.

0-8: No Hearing Handicap 10-24: Moderate Hearing Handicap 26-44: Significant Hearing Handicap



DSSI: A total of 138 clients submitted complete baseline and 1-month data. The scores range from 11 to 32 points out of 33. The average change from baseline to 1-month was 3.36 points. There were 115 clients (83.3%) who showed improvements, 13 (9.4%) had no change and 10 reported a worst score. Overall, clients averaged 22.4 points at baseline with and average improvement of 3.4 points (15.2% improvement) one month later. As expected, older adults with worst social support (social connectedness) showed the largest improvement as illustrated by the figure below.



Outcome: Support older adults’ ability to live well with hearing loss.
Measure: Quality of life as measured on the SF-12, comparing pre-intervention baseline to 1-month post-intervention score.

PCS-12 (Physical Score): A total of 125 clients submitted complete baseline and 1-month data. The scores range from 17.2 to 24.8 points. The average change from baseline to 1-month was 3.15 points. Eighty-six of 125 clients (68.8%) showed improvements. These numbers are comparable to what we found in terms of improvement among participants in the Baltimore HEARS pilot.

MCS-12 (Mental Score): A total of 125 clients submitted complete baseline and 1-month data. The scores range from -22.19 to 17.36 points. The average change from baseline to 1-month was 1.87 points. Sixty-seven of 125 clients (53.6%) showed improvements. These numbers are comparable to what we found in terms of improvement among participants in the Baltimore HEARS pilot.

Outcome: Enable congregate housing residents and community dwelling clients with hearing loss to age in place
Measure: Number of inpatient hospitalizations, total days hospitalized, number of emergency department visits, number of days with at least 1 outpatient visit in the 1-month period following participation in the Access HEARS program. Number of Access HEARS clients who transition to a higher level of care during the 1-month follow-up period.

Healthcare Utilization
A total of 127 clients submitted complete baseline and 1-month data. The number who had been hospitalized in the 1-month follow-up was 11 (8.7%) which equated to a total of 13 hospital stays and 27 days in the hospital. Among those with complete data, this represents 2 more hospital stays in the 1-month following participation in HEARS than the 1-month prior to participating in the program. A longer-term evaluation of this outcome will be need to understand whether our program will have any effects.

A total of 130 clients submitted complete baseline and 1-month data. The total number who had more outpatient visits were 10 (7.7%) with an average of 2.3 more visits. The total number who had fewer outpatient visits were 17 (13.1%) with an average of 1.9 fewer visits. Overall, there were 9 fewer outpatient visits reported in the 1-month after completing HEARS as compared to the number of visits reported in the month prior to the baseline visit. The total number who had fewer emergency room visits at the 1-month follow-up compared to the 1-month before participating in our program was 3 (2.3%). The total number who had more emergency room visits at the 1-month follow-up compared to the 1-month before participating in our program was 2 (1.6%). A longer-term evaluation of this outcome will be need to understand whether our program will have any effects.

Care Transitions
A total of 125 clients submitted complete baseline and 1-month data. The total number who were in long-term care in the past month was 4 (3.2%). The total number who are still in long-term care was 4 (3.2%). Compared to baseline, 100% of HEARS clients remained “in place” over the course of the 1-month follow-up with 3% living in a facility and 97% living in the community. In comparison, among Medicare beneficiaries, around 2% of individuals are institutionalized over the course of 2 years.

Process Metrics

- 127 congregate housing residents who attend an information session
- 71 congregate housing residents completed the Access HEARS program and obtain an amplification device
- 2 devices were returned
- 1 additional visit and about 20 minutes spent per client in booster sessions and follow-ups for 141 clients

- 123 clients live in Garrett Co.
- 381 clients live in Allegany Co.
- 433 clients are community dwelling

Miscellaneous

- 461 Sidekicks
- 7 CS50
- 36 SuperEars

Summary

The HEARS program has been studied through NIH-funded trials in Baltimore based out of Johns Hopkins University, and preliminary results demonstrate improvements in communication function comparable to improvements seen with gold-standard hearing aids. This program demonstrated reductions in depression severity similar to non-pharmacologic programs that specifically target treatment of depression among older adults.

Overall, we feel this program supported by the generous funding from the Maryland Department of Aging was a resounding success, especially given the abbreviated 4 months to deliver. We touched 674 older adult lives through educational sessions with 504 older adults enrolling in the program to receive one of three PSAPs we support. Our clients had an average age of 76.2 years old with 1.6 persons per household and were at 145% of the Maryland Poverty Guidelines. Women were 58.3% of the clients. Minorities comprised 8.9% of the clients. Over 91% of clients chose the Sidekick. All SuperEars were given out to clients in LTC who had difficulties accessing the small buttons on either the Sidekick or the CS50. Due to the popularity of the Sidekicks, we exceeded our original estimate of $188,000 in device cost. We finished at $212,780 in device cost. The $24,780 over original budget was supplemented by Access HEARS because we wanted to complete our goal of helping 500+ vulnerable older adults with hearing loss. Additionally, we cannot turn away those asking for our help.

Hearing loss can be a major handicap for many older adults causing them to feel embarrassed and frustrated when trying to communicate with others. Following a one-month enrollment into the Access HEARS program, 88% of clients report feeling that their hearing loss is less of a handicap or burden as measured by the HHIE-S. Another outcome that demonstrates the deleterious effects of hearing loss is the DSSI which measures the level of social support of older adults. We found that 83% of clients report feeling more connected and supported following enrollment into our program. Additionally, 69% of clients reported an improvement in the physical quality of life and 54% reported and improvement in their mental quality of health.

The hope is that the improvements in the HHIE-S, DSSI and SF-12 would reflect in the healthcare utilization scores. The 1-month follow-up did not show a reduction in hospitalization and 9 fewer outpatient visits. We were able to show over the course of one month that clients remained in place with 4 clients in LTC at baseline and 4 clients in LTC at the one-month follow-up. We believe a 6 to 12-month follow-up study would better answer these questions.

Finally, we asked the question (NPS or Net Promoter Score) “how likely is it that you would recommend this program or project to a friend or family member?” on a scale from 0-10 where Zero is “not likely at all” and a Ten is “extremely likely”. The average baseline NPS was 9.3 out of 10 points. The 1-month follow-up averaged 9.6 points.

In conclusion, we believe that this fully funded program through the Maryland Department of Aging had a significantly positive impact on the lives of 674 older adults, many of whom feel ignored and

forgotten. The overall average program cost was $401.54 per older adult. When considering only the 504 who received PSAPs, the cost was $536.98 per client. Approximately $25k was matched by Access HEARS to complete our goals of 500+ clients. The cost savings from the Access HEARS program is still about 90% compared to the traditional hearing aid care model. What makes us unique is that we come to our clients to deliver services and provide them with on-going support as needed. Clients and program partners alike feel that the ACCESS HEARS program should be funded to meet the needs of those most vulnerable in rural areas across the state of Maryland.

Testimonials

Testimonials are very old fashion but are powerful reminders to all of us on how we affect the lives of others in need through the good work that we do daily. Below are testimonials from clients and program partners.

*"**SMILED** because I can hear again!"*
- E. Tasker of McHenry, MD

*"First time that I've been able to **HEAR CLEARLY** in a long time. This is a God send. Thank you!"*
- K. Hausman of Cumberland, MD

*"I am so happy that I qualify for the program, because my mild hearing loss affects my **RELATIONSHIP** with my son."*
- E. Luning of Cumberland, MD

*"I **COULDN'T AFFORD** to buy a hearing device. I was given other devices from people whose relatives died, but couldn't get to work properly. Just want to hear and so far, this seems to work. Instructor was great."*
- R. Dockey of Oldtown, MD

*"The instructor **PATIENTLY** took the time with each person. He explained each part of the hearing device clearly. Answered each person's questions."*
- B. Bummer of Cumberland, MD

*"They are very friendly people to talk to, they **LISTEN** to my problems and try to help me out."*
- G. Willis of Lonaconing, MD

"Program was very good. Agent was very helpful and courteous*. He explained all aspects thoroughly and patiently. Wonderful **EXPERIENCE**!!"*
- L. Haines of Bloomington, MD

*"**PROFESSIONAL** presentation and impressive product."*
- R. McKenzie of Cumberland, MD

*"It worked so well for me that I had two **FAMILY** members sign up!"*
- L. Lease of Cumberland, MD (program partner)

*"We need more programs like this to in western Maryland because we feel **FORGOTTEN** often."*
- D. Schroyer of Garrett Co. (program partner)

*"I can hear! This is a wonderful program and shows that the government **CARES**."*
- LP of Mountain Lake Park, MD