ORIGINAL RESEARCH

Barriers and Facilitators in Using Personal Hearing Amplifiers from the Perspective of Healthcare Providers

Mansi A. Arora, MEng, MD[1,2*], Janice Xu, BSc, MD[1,2*], Kristina M. Kokorelias, PhD[1,2,3,4,5,6], Raphaelle Koerber, MD, PhD[1,2,7], Hamsa Krishnapillai, RN, GNC(c)[8], and Samir K. Sinha, MD, DPhil[1,2,6,7]

[1]Division of Geriatric Medicine, Department of Medicine, Sinai Health System and University Health Network, Toronto, ON; [2]Temerty Faculty of Medicine, University of Toronto, Toronto, ON; [3]Department of Occupational Sciences and Occupational Therapy, Temerty Faculty of Medicine, Toronto, ON; [4]Rehabilitation Sciences Institute, Temerty Faculty of Medicine, Toronto, ON; [5]KITE-Toronto Rehabilitation Sciences Institute, Toronto, ON; [6]National Institute on Ageing, Toronto Metropolitan University, Toronto, ON; [7]Division of Geriatric Medicine, Department of Medicine, University of Toronto, Toronto, ON; [8]Department of Nursing, Sinai Health System, Toronto, ON

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ABSTRACT

Background

Hearing loss is experienced by two-thirds of hospitalized older adults and is associated with poor access to healthcare and negative health outcomes. Personal hearing amplifiers (PHAs) are evidence-based assistive devices provided in many hospitals to improve accessibility. However, studies note difficulties in implementing the appropriate use of PHAs. This study seeks to identify barriers and facilitators in using PHAs by healthcare providers in an academic hospital.

Methods

An ethnographic interview protocol was developed and used to guide voluntary semi-structured interviews with 33 geriatricians, nurses and other allied health professionals, and patient-facing volunteers at Mount Sinai Hospital. The audio interviews were transcribed verbatim and a reflexive thematic analysis was performed. Finally, member checking was completed by sharing results with interviewees who consented to re-contacting and interest-holders within the hospital's geriatrics program to receive feedback.

Results

Thematic analysis revealed that regardless of profession, PHAs were perceived as valuable yet underutilized. Under this overarching theme, three key themes were identified around PHA use: barriers to accessibility and availability, lack of designated responsibility, and lack of integration into clinical practice. These findings highlight both the facilitators and barriers associated with implementing PHAs.

Discussion

PHAs are important accessibility tools, and this study has identified barriers and facilitators to their use by healthcare providers and volunteers communicating with patients with hearing loss. These findings lay the groundwork to test future interventions to promote the increased uptake of PHA devices and greater access to healthcare for older patients experiencing hearing loss.

Key words: hearing loss, assistive device, qualitative, hospital care, healthcare providers

INTRODUCTION

Hearing loss affects at least two-thirds of hospitalized older adults, with increasing prevalence with age.(1) Patients with hearing loss report receiving insufficient information about their care and being excluded from shared decision-making, placing them at increased risk of adverse health outcomes.(2) A systematic review found that all included studies reported a negative impact of hearing loss on patient–provider communication.(3) As population ageing accelerates, supporting accessible communication within hospital care is increasingly important.

*These authors are co-first authors.

Hearing aids are a valuable intervention for improving accessibility and quality of life.[4] However, stigma and cost hinders uptake, and even when procured, are often not brought to hospital by inpatients who fear losing them.[1,5–7] Among multiple studies evaluating alternative interventions, personal hearing amplifiers (PHAs) consistently improved patient–provider communication.[3] One widely used example is the Pocketalker.

PHAs are increasingly being adopted by healthcare settings; however, their use remains inconsistent.[8] Significant barriers to their increased uptake and effective implementation in hospitals include a lack of awareness of PHAs and challenges with their availability and distribution among healthcare providers (HCPs).[9] These concerns are amplified in large hospitals with high volumes of patients and multidisciplinary teams. While all major hospitals in Ontario, Canada are required to post accessibility policies, these generally miss details on identifying and distributing accessibility devices like PHAs.[10] Our study was conducted at Mount Sinai Hospital (MSH), a large urban teaching hospital in Toronto, where inpatient hearing accessibility and audiologic involvement were once an explicit clinical priority, evidenced by a dedicated audiology department and development of structured approaches to managing hearing-impaired inpatients outlined in past literature.[11]

This qualitative study aimed to identify and analyze the barriers and facilitators to PHA use from the perspective of multidisciplinary HCPs. Barriers were defined as factors that impede or reduce the use of PHAs in clinical practice, while facilitators were defined as factors that promote or increase use. The study extends the existing understanding of clinical PHA use and fills gaps in the literature identified in a recent scoping review of PHA use in clinical settings.[9] It also highlights the current state of hearing accessibility in a hospital that was once a leader in this area. By integrating diverse perspectives at individual, team, and institutional levels, more theory-informed and responsive interventions can be designed for sustainable practices that improve care accessibility.[12]

METHODS

Study Design

A qualitative descriptive study was conducted at MSH in Toronto, Canada between July and August 2023. Semi-structured interviews were conducted with HCPs working with older patients (aged 65 years or older) to explore their experiences using PHAs. The study addressed the following research question: What barriers and facilitators influence PHA use by HCPs within care units at MSH?

Data Collection

Baseline demographic data included participant occupation and previous PHA use. Interview questions were informed by established ethnographic interviewing principles, including a "grand tour" question eliciting experiences of attempting to use a Pocketalker or similar handheld hearing amplifiers from start to finish.[13] For participants without personal experience using a Pocketalker, questions were framed hypothetically (Appendix A). This approach allowed participants to situate PHA use within the context of their routine clinical work, supporting the identification of practical steps, decision points, and contextual factors that shaped device use. Probing questions were used as needed to elicit detail (Appendix A). Interviews were audio-recorded and targeted for approximately 15 minutes.

Participant Recruitment

Participants were recruited through printed advertisements distributed to geriatricians, nurses, allied health professionals, and volunteers across 10 patient care units at MSH. All units that received the Pocketalker brand PHAs in 2021 were invited. Represented units included general internal medicine, surgical services, cardiac care, psychiatry, and the emergency department. Unrepresented units included the intensive care unit, neonatal intensive care unit, and labour and delivery. Inclusion criteria for eligible participants were full-time healthcare professionals and volunteers working at least 10 hours per week with older adults, to maximize the perspectives of experienced participants. Participants were not required to have personally used a Pocketalker but were required to be familiar with their intended use.

Interested individuals contacted the research team after reviewing the study information letter. Criterion purposeful sampling was used to select participants meeting the inclusion criteria and to ensure representation across professional roles. Recruitment continued until thematic saturation was achieved, defined as no new themes emerging during analysis. Saturation was reached after interviews with 33 participants (Table 1).

Data Analysis

Interviews were transcribed verbatim and analyzed using reflexive thematic analysis following Braun and Clarke's six-step approach.[14] Coding was both inductive and theory-informed, done using NVivo 12 software (QSR International, Melbourne, Australia). Initial open coding was followed by iterative development and refinement of themes and subthemes. Member checking was conducted with 13 participants who consented to recontact. They confirmed credibility and relevance of preliminary findings. Though results required no changes, the feedback informed the discussion.

Ethics Approval and Informed Consent

This study was approved by the Mount Sinai Health Research Ethics Board (REB 22-0135-E). All participants provided informed consent.

TABLE 1.
Characteristics of study participants

Baseline Characteristics	*Full Sample*	
	n	*%*
Occupational Role		
Nurse	13	39.4
Social worker	6	18.2
Clinical nurse specialist	2	6.1
Occupational therapist	2	6.1
Physiotherapist	2	6.1
Geriatrician	4	12.1
Volunteer	4	12.1
Reported Prior PHA Use		
Yes	32	97.0
No	1	3.0

n = 33.
PHA = personal hearing amplifier.

RESULTS

Qualitative interviews with HCPs lasted on average 27 minutes and ranged from 11 to 58 minutes. Thematic analyses of interview transcriptions identified five emerging themes regarding factors that affect PHA use among the participants.

Overarching Theme: PHAs are Perceived as Useful but Underused

Key facilitators of PHA use were an HCP's personal experience and perceived beneficial outcomes of increased communication effectiveness and positive response to their use. They were described as crucial in restoring patients' capacity to participate in their healthcare:

> Using the Pocketalker, like it made it so much easier … we basically had this free conversation about exploring her capacity to refuse medical care and her capacity to choose to go back home. (Geriatrician)

Many HCPs also noted positive patient and family responses: "you can see that their face brightens" (Nurse). They also described more positive and efficacious patient encounters for HCPs. "Instead of yelling, yelling back and stuff, I just got the Pocketalker, it made the conversation a lot easier" (Nurse). This ease of conversation was repeatedly described as a facilitator of more effective communication "which helps them to calm down and speak in their natural tone, more than, like, shouting your truth" (Nurse). One volunteer summarized the positive impact of PHAs as "that connection through speech and hearing is so important and fundamental and if we don't have that, these older adults are—they're not getting the care they truly deserve."

Despite the perceived benefits and positive responses, several barriers limited PHA use and uptake in the hospital setting. This issue presents slightly differently between healthcare specialties. A social worker described "I think sometimes nursing feels like the communication [without a Pocketalker] is still good enough for what they're doing" (Social Worker) compared to other disciplines where "for more specific questions … they're more forced to have to actually get the Pocketalker to get the information they need" (Nurse).

Theme 1: Barriers to PHA Accessibility and Availability

Subtheme 1: Low Physical Accessibility: Participants consistently reported insufficient PHA availability and numerous physical barriers in the process of PHA retrieval:

> I think once they're there at the bedside, we use them … I think my setback would be having to locate one or troubleshooting. Like, if I find it but it doesn't have everything there, or it's not working, then I'm not going to spend the extra time to troubleshoot. But if it's there and it's working, and I know where it is—sure, I'll use it. (Nurse)

Concerns around PHA accessibility were at times quite physical. "I think if they're more visible, because right now they're kind of just in a cupboard high up … I need a stool to climb up there to get them" (Social Worker).

PHA accessibility was perceived as low when they were not readily available at the patient's bedside. Multiple HCPs repeated this sentiment: "If the patient doesn't have a Pocketalker already available, I guess I just never attempted to initiate using one" (Nurse). Similarly, a geriatrician posed the question, "When do you know where to find or access a Pocketalker unless it's at the patient's bedside already?" Another nurse stated, "When it's not visible, then people are not going to use it" (Nurse). Across participants, bedside PHA setup by another team member was reported to facilitate its accessibility and use. When the barrier of low physical accessibility was addressed, participants described patients advocating for their own communication. One social worker described how one patient said "'There's a Pocketalker over there. Can you please use it?' So there it was just sitting right on their bedside table … and the communication worked much better" (Social Worker).

Subtheme 2: Lack of Time and Resource Constraints: Not knowing in advance that a patient had hearing loss interacted with time constraints to reduce PHA use:

> Let's say we go see a new patient and they are in isolation. So then we have to put on all the PPE, go in, and then we realize, okay, the person is not understanding us, can't hear us … Do we just try and mumble through, or do we go out and try and find one? So everything is just time-consuming. (Social Worker)

Indeed, locating PHAs could be very time-consuming. One nurse reported "I've gone to four units before just to hunt one down for a patient." Ironically, one prominent reason for device misplacement was a lack of time: "no one is going to put it back, everyone is too busy" (Geriatrician), "all it takes is like one

person to walk off with it and then, it's gone" (Geriatrician). As a result, PHAs are not readily available. One geriatrician shared that to address the resulting PHA shortage "geriatricians often will pay out of pocket to get their own Pocketalker which can be a barrier as well and unfair for geriatricians to have to do."

As per participants, lack of time and competing job demands lead healthcare professionals to choose alternatives to PHA use. "When nurses are busy, they just go in with their assessment and all that stuff, like, physically. And then they won't have the chance to use the Pocketalkers" (Geriatrician). Due to time constraints and the desire to be efficient, one geriatrician described how "sometimes it's easier to speak with a family member than kind of like speak to five different people and then at the end still not get any fruitful asset of trying to find a Pocketalker."

Theme 2: Lack of Designated Responsibility for the Use of PHAs

The absence of a clearly assigned individual or role responsible for PHA management and advocacy perpetuated confusion and reinforced existing barriers:

> No one person is in charge so who does it fall upon to make sure we have batteries available and … headphones available? … Because it isn't clearly one discipline or one person's role, it's tricky. (Physiotherapist)

Uncertainty around who managed device availability made it harder for HCPs to initiate use: "I actually am not sure who to contact with regards to, like, initiating a Pocketalker. I just receive a patient already having one" (Nurse). The lack of a designated contact for troubleshooting perpetuated barriers on low physical accessibility: "If it's not functional, then who's responsible to fix it? Replace it? There's no good system really" (Social Worker). However, HCPs perceived difficulty assigning a responsible department due to compounding barriers involving limited time and role scopes mentioned in theme 1: "Because there's so many players—I don't know because like everyone is already so busy, so to add something to their task list is a challenge" (Social Worker).

Theme 3: Lack of Integration of PHAs into Clinical Practice

Across occupations, HCPs described need for greater awareness and education regarding PHAs, beginning with basic knowledge of their existence, location, and unit-specific retrieval processes:

> I didn't really realize we had them on the unit. And so off the top of my head, even right now, I wouldn't know where to get them. I'm assuming if I just asked the team lead or the unit clerk or our CNS, they would be able to tell me, but it's not kind of top of mind, I guess. (Social Worker)

Limited awareness was compounded by inconsistent device availability and absence of a uniform hospital-wide system governing retrieval, cleaning, storage, and return. "Some of these [floors] don't even know that they have them, more so the surgical ones," said one social worker. This variance further decreased accessibility to these devices as "[each unit has] a different way of managing them … so that can be challenging if I don't know where to go and how to, you know, how to get all the different parts I need" (Social Worker). The lack of standardization is also evident in work-up and processing of patients with hearing loss, as the designation was "not considered part of the medical record because patients aren't disclosing it and it just doesn't seem to get the voice that it needs" (Social Worker).

Certain interviewees identified this lack of hospital-wide standardization as a barrier to PHA uptake: "like the question is who funds these Pocketalkers and what are the policy on Pocketalkers, like maybe that needs to kind of be further clarified in terms of when are the indications for use, like can we leave it with patients or not, like are there cleaning procedures that we need to be aware of" (Geriatrician).

HCPs across disciplines reported their colleagues were unaware of PHAs, stating that "they didn't know about it, so they didn't use it" (Geriatrician) and "half of people don't even know we have one or where it is" (Social Worker). The lack of knowledge was also connected to limited formal training in PHA use: "it doesn't come naturally to use a Pocketalker" (Nurse). Nurses specifically voiced a desire to bridge these knowledge gaps: "I think it's more so we, as at least the nursing staff, we need more education on the resource itself. Like, who initiates it, who do we contact to initiate it, can we initiate it ourselves?" (Nurse) and "Our social worker and our rehab people are very good in using those because they give more instructions. Like for us, we just sometimes we use boards or papers or actions to communicate with our patients" (Nurse).

DISCUSSION

Older hospitalized patients with hearing loss experience impaired patient–provider communication limiting their participation in care and increasing the risk of adverse outcomes.[3,15] PHAs, such as Pocketalkers, are recommended technologies to address this gap.[16–20] However, their effectiveness and uptake depends on how well their use is integrated in clinical settings. While existing literature has highlighted the benefits of PHAs and identified general barriers to their use, there is limited understanding of how these challenges manifest within complex inpatient settings, particularly across multidisciplinary teams. By capturing perspectives from diverse HCPs in a large urban hospital, this study provides novel insights into the system-level and workflow-related determinants of PHA use, extending beyond previously described individual or device-level factors.

Participants reported that PHAs improved communication through improved audibility, fostering natural conversations that respect patient autonomy to engage in complex discussions and decision-making. These prior experiences were motivating factors that increased PHA use. However, several barriers limited their consistent use. These included poor device accessibility, a lack of clearly assigned roles and responsibilities supporting device use, and their limited

integration into routine clinical workflows. Together, these findings highlight the importance of examining the full process of PHA use within care settings.

Perceived benefits and physical accessibility emerged as key facilitators of PHA use. Participants described how their recognition and experience of benefits resulting from PHA use served as a key intrinsic facilitator within implementation contexts. Participants also reported that devices were more likely to be used when visible, functional, and readily available at the bedside. Difficulties locating misplaced devices discouraged use, particularly in time-constrained clinical environments. Similar challenges have been reported in other healthcare settings, suggesting that limited accessibility is not unique to this single institution.[21–23] Prior studies highlight device availability and readiness as central to effective equipment use in clinical care.[24] Improving inventory management systems and assigning responsibility for device maintenance may therefore support more consistent PHA use.

A second key finding was the absence of a designated role responsible for PHA oversight. The use of clinical champions has been shown to promote best-practice adoption and support the implementation of healthcare technologies.[25–27] Designating trained staff responsible for PHA advocacy, maintenance, and education may facilitate uptake. Prior work examining inpatient experiences with PHAs showed that even when left at the bedside, 62% of participants used the device with hospital staff, but only 39% used it with their doctors because they were not given enough time to put on the headphones.[28] Thus, physical accessibility of the device must be combined with interprofessional advocacy for use. There are several examples of embedded audiology services in outpatient clinics and long-term care (LTC) homes, associated with high device use and functionality.[29–31] A Toronto-based LTC home had residents using amplification regularly (88% daily use for PHAs) and nearly all devices in good working order (95%) due to audiologists advocating for and supporting routine device checks, servicing, and integration into daily care workflows.[30] Brief, hands-on training sessions have also been shown to improve use of medical devices and assistive hearing technologies in care settings.[26,32] Accordingly, healthcare organizations adopting PHAs should identify responsible roles and provide targeted training to support effective use.

Finally, participants emphasized the need for PHAs to be better integrated into existing clinical systems via policy and interprofessional collaboration. In this study, suggested facilitators included routine staff education, clear workflow guidance, and documentation of hearing loss and device use within the electronic medical record. An example of this being done is with audiologists in a post-trauma interdisciplinary clinic performing hearing screens, then attaching colour-coded labels to charts used by other providers.[31] Evidence from the broader healthcare literature demonstrates that targeted education and system-level integration improves awareness and appropriate initiation of medical technologies.[33–35] Integrating PHAs into clinical and educational systems will likely support sustainable practice change and improve accessibility of inpatient care.

LIMITATIONS

This study has some limitations related to transferability. Data were collected at a single large urban teaching hospital and may not reflect practices or systems in other settings. Additionally, despite efforts to recruit participants from multiple professional groups, most participants were nurses, and some relevant professions were not represented (e.g., none of the hospital's few inpatient speech-language pathologists responded to study invitations, no audiologists currently serve the hospital's inpatient units). Findings reflect perspectives of those interviewed and may not capture the full range of experiences with PHAs. Demographic data collection was intentionally limited to reduce participant burden and preserve anonymity in this single hospital setting, but this restricts contextual interpretation of findings. Voluntary participation could have introduced self-selection bias toward HCPs interested in hearing accessibility and PHAs.

Data were collected at a single time point, relying in part on participants' recollections of prior experiences, which may introduce recall bias. Finally, data collection occurred during the post-COVID-19 recovery period, when resource constraints and infection control procedures may have influenced perceptions of device availability and use.

CONCLUSION

PHAs hold promise in enhancing communication for older adults with hearing loss in hospital settings, yet their effective use is hindered by significant barriers. Physical accessibility and availability of PHAs emerged as critical challenges, exacerbated by time constraints and resource limitations. The lack of designated roles and responsibilities for managing these devices further complicates their integration into clinical practice. Addressing these issues through strategic placement, standardized use protocols, and designated roles to support their use could significantly improve both PHA accessibility and utilization. These insights underscore the need for systematic changes to support the effective use of PHAs and ultimately enhance patient-centred care for older adults with hearing loss in hospital settings.

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CONFLICTS OF INTEREST DISCLOSURE

We have read and understood the *Canadian Geriatrics Journal's* policy on conflicts of interest disclosure and declare that we have none.

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Correspondence to: Mansi A. Arora, MD, Temerty Faculty of Medicine, University of Toronto, Toronto, ON M5S 1A8
E-mail: mansia0803@gmail.com

APPENDIX A. Ethnographic interview questions related to PHA use

- Grand tour question: "Can you tell me, from start to finish, about the last time you used, or tried to use, a Pocketalker, or other handheld hearing amplifier with a patient with hearing loss?"
  - [If you have not personally used a personal hearing amplifier, can you tell me, from start to finish, about how you understand it would be used with a patient with hearing loss?]
- Probing questions, if required (to ask in theoretical scenario framing for participant(s) who did not have prior experience with a PHA):
  - What strategies did you use to communicate with this patient before you decided they needed the Pocketalker?
  - How did you know the patient needed a Pocketalker?
  - How did you procure the device?
  - Were there any difficulties in bringing the amplifier and its accessories to the patient?
  - How did you set the device up?
  - How did the patient respond to the Pocketalker?
  - What was the impact of the Pocketalker on communication?
  - Were there challenges in returning the amplifier, or arranging for the patient to continue using it?