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Optimising Healthcare Communication for People with Aphasia in Hospital: Key Directions for Future Research

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Abstract

Purpose of Review People with aphasia and their healthcare workers have difficulty communicating, leaving people with aphasia at risk of poorer quality care, experiences and health outcomes. It is not yet known how best to optimise healthcare communication for this population. This literature review provides directions for future research regarding interventions aiming to optimise communication between healthcare workers and people with aphasia in hospital.

Findings This paper offers four key foci to consider when planning or evaluating interventions: (1) individual and (2) systems-level environmental factors must be targeted to facilitate successful implementation, (3) reliable and feasible outcome measures must be developed to measure communication change in actual clinical interactions and (4) studies must be designed and reported adequately to ensure replicable and comparable research.

Summary This paper provides direction for research on interventions to enhance patient-provider communication, and quality care for people with aphasia in hospital, to enable better participation and care outcomes for this population.

Keywords Healthcare communication · Aphasia · Patient-provider communication · Environmental intervention

Introduction

Person-Centred Care aims to improve the quality of health through individualisation of and patient involvement in care [1]. It is valued so highly that governments internationally have endorsed a person-centred approach to healthcare [e.g., 2–4]. International accrediting bodies and service providers emphasise person-centred care as a core element of high-quality healthcare [e.g., 5–7]. It is associated with a range of positive health and service outcomes including greater patient satisfaction with and experience of healthcare services, and reduced lengths of hospital stay and rates of readmission [8]. Effective communication is embedded within person-centred care [1, 9–12]. One responsibility of health organisations, therefore, is to ensure effective patient-provider communication in practice so that patients can be central to and active in their healthcare and ultimately receive safe and quality care.

Healthcare providers often struggle to communicate with patients with communication disability about their healthcare needs [13–16], which leaves these patients at risk of poorer care and care outcomes. Ineffective communication is one of the most frequently identified root causes of sentinel events in healthcare [7], and research shows that people with communication disabilities are at greater risk of experiencing preventable adverse events in hospital [17]. Unsurprisingly, people with communication disabilities are less satisfied with their medical care than those without [18].

Aphasia is one example of a communication disability, which occurs when the language networks of the brain are damaged due to stroke or other acquired brain injury [19]. About one-third of stroke patients are likely to have

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aphasia [20, 21], which according to the World Stroke Organisation is more than four and a half million people globally in a single year [22]. In acute settings, aphasia is associated with longer length of hospital stay and death while in hospital, and 2 years post-stroke, patients with aphasia have greater disability than those without [20]. In other words, having aphasia is associated with poorer health outcomes.

Aphasia negatively impacts the care experience in hospital for both people with aphasia and their healthcare workers. People with aphasia report negative emotional experiences while in hospital [23–25], which is concerning given that there is an association between patient experience and both clinical effectiveness and patient safety [26]. Healthcare workers caring for people with aphasia also experience unpleasant emotions when communication is unsuccessful [24, 25, 27, 28] and have expressed that aphasia hinders usual care [27].

Given the association between effective communication and care experience and outcomes for people with aphasia, there is a need to optimise interactions with their healthcare workers to ensure they receive person-centred care. Understanding how to optimise interactions is especially important because educating healthcare workers about ways to communicate with people with aphasia is central to all aspects of aphasia management [29], and currently, there is no proven intervention to enable healthcare workers and people with aphasia to communicate effectively.

While there has been extensive research in related areas of environmental models for healthcare communication [e.g., 30], Communication Partner Training [e.g., 31, 32] and other forms of augmentative and alternative communication for people with aphasia [e.g., 33, 34], there has been no known attempt to integrate knowledge from across these literature bases to understand how best to improve healthcare communication for people with aphasia while in hospital.

Aims

The aim of this paper is to provide an integrated synthesis of the literature to identify key directions for future research that aims to optimise communication between healthcare workers and people with aphasia in hospital. Specifically, we integrate the theoretical development of environmental approaches to improve healthcare communication for people with aphasia with literature on potential behavioural and technological solutions. The goal of this paper is rooted in empowering and enabling people with aphasia to participate in their healthcare more fully through modification of their communicative environment.

Methods

We conducted a narrative review of three relevant literature bases: (i) environmental approaches to supporting communication, (ii) Communication Partner Training in aphasia and (iii) mobile technology as a communication support tool. We rejected using a systematic or scoping review methodology for this manuscript for two reasons. First, given there are no existing interventions known to effectively improve communication between healthcare workers and people with aphasia, reviewing the literature for these interventions would be ineffectual. Second, reviewing existing interventions in isolation will not help generate novel approaches that are required to tackle the complex problem of supporting communication for people with aphasia in hospital.

Theoretical Understanding of Environmental Approaches to Improving Healthcare Communication for People with Aphasia

Initial Recognition of the Role of the Environment in Healthcare Communication

The role of the environment on healthcare communication with people with communication disability was first explored in the seminal work of Lubinski et al. [35], who investigated the perspectives of long-term care facility residents on spoken communication in their institutional setting. The authors proposed that speech pathologists should look beyond the individual and consider the possibility of a 'communication-impaired environment' [35 p412] and incorporate it as a target of intervention alongside the individual. Lubinski's [35] findings were given conceptual clarity by the World Health Organisation's International Classification of Functioning, Disability and Health (WHO-ICF) [36]. This framework identifies the inter-relationship and potential influence of (i) personal characteristics such as age and cultural background (Personal Factors); (ii) the physical, attitudinal, and social environment (Environmental Factors); and (iii) any anatomical, physiological or psychological impairments (Body Functions and Structures) on an individual's ability to communicate and therefore participate in everyday life, including their healthcare (Activities and Participation). Many researchers have adopted the WHO-ICF as a guiding framework to investigate the complex issue of optimising healthcare communication for people with communication disability [e.g., 16, 37–39]. This approach has been further strengthened by the United Nations Convention of the Rights of

Persons with Disabilities (UNCRPD) and the growing public awareness that an accessible environment is key in enabling participation in society [40]. Some examples are discussed in the next section.

Improving Communication for People with Communication Disability Involves Modifying the Environment: Training Healthcare Workers and Changing the 'System'

In light of the need to create accessible environments to maximise life participation, there have been several qualitative investigations and reviews of the influence of the hospital *communicative* environment on people with communication disabilities [e.g., 14, 16, 37–39, 41]. One qualitative metasynthesis derived a taxonomy of environmental factors that influence successful communication between healthcare workers and patients with communication disabilities (a range of acute, acquired and lifelong disabilities) in acute hospital stroke units [38]. Environmental factors that acted as barriers or facilitators to successful communication related to (i) healthcare workers (e.g., their skills in using communication strategies and attitudes towards communication) and (ii) the healthcare system that is the stroke unit structure and processes (e.g., the nature of the physical environment such as noise and lighting and staffing factors). Healthcare workers play a critical role in enabling effective communication for people with communication disabilities [37] but must be supported by adequate systems and processes to create a supportive environment and opportunities for effective communication [38].

Recommendations to improve communication in hospital from a subsequent metasynthesis of hospital-based communication for people with severe, lifelong and acquired, non-progressive communication disabilities reiterated the need to improve both the communication skills of hospital staff and systems-level factors [41]. A multipronged approach is needed to improve patient-provider interactions: through local interventions to upskill and support healthcare workers and through broader systems-level modifications. While not developed specifically for people with aphasia, the recommendations above provide theoretical support for future models aimed at creating communicatively accessible environments for people with aphasia in hospital.

Improving Healthcare Communication for People with Aphasia Reflects the Broader Communication Disability Research and Includes Addressing the 'System'

Aphasia-specific research has identified key elements in the environment that may be useful for improving communication access in healthcare. For example, Connect—the communication disability network in the UK—developed the 'Way In' project, which collaborated with people with aphasia to improve communication accessibility in health and social care services [42]. The resultant framework conceptualised that a health service can enhance communicative accessibility by identifying potential improvements in three key areas across care delivery: documents, interactions and environments. The key areas and the framework align with the recommendations to improve healthcare communication for people with communication disability more broadly [38]. They suggest that communication access is supported by addressing multiple levels of the communicative environment—not only at an individual level, such as the skills of communication partners (interactions), but also at a systems level (documents and the physical environment).

Other aphasia research has shown that there is a need to reshape healthcare services at a systems level to improve communication access for people with aphasia [43–45] because the healthcare context influences the uptake of trained behaviours [44, 46], but improving communication access at this level requires advocacy and policy change [43]. To improve healthcare communication for people with aphasia, it is necessary to go beyond conversation-focused interventions (such as communication partner training for healthcare workers) and to include the wider context of the organisation and healthcare policy as foci for intervention.

Conceptual Models for Optimising Healthcare Communication for People with Aphasia

Goal-Setting as an Example of Healthcare Communication and a Target for Intervention

Conceptual models have also been developed to optimise a specific function of healthcare communication for people with aphasia, such as goal-setting [47•]. The model to support person-centred goal-setting with people with aphasia comprises two tiers. Components in the lower tier (support and training for rehabilitation teams, ensuring time for patient-provider interactions and including people with aphasia in interactions) form an essential foundation for those in the upper tier (providing a supportive physical environment, using and having a positive approach to communication strategies). The tiers suggest that systemic factors may underlie the successful implementation of interventions aimed at improving the skills and attitudes of healthcare workers or the ward environment.

The goal-setting model suggests that interventions aiming to optimise communication between healthcare workers and people with aphasia in hospital cannot target barriers to effective communication in isolation (e.g., improving the skills and behaviours of healthcare workers). It suggests that there are likely to be inter-dependencies requiring other

organisational and practice factors that need to be considered (e.g., adequate time). For novel interventions, researchers must consider potential systems-level factors that may underly successful implementation. Although developed for the purposes of goal-setting, the model may contribute to recommendations for communicative accessibility generally [47•]. More recent qualitative studies exploring the experiences of healthcare workers [25, 27, 28] and people with aphasia [25] communicating together have also validated the model's components, finding a need for supportive conversation strategies, a supportive physical environment, more time for interactions, training of healthcare workers and inclusion of people with aphasia in conversations.

Healthcare Communication as a Complex and Multi-Faceted Notion That Includes Emotional Dimensions

Another model drawn from the lived experiences of healthcare workers, people with aphasia and their carers (see Fig. 1) offers a different view [24]. It depicts the dynamic relationships between the 'context' of an interaction (that the hospital environment is confusing and unfamiliar and that people with aphasia have needs that go beyond their physical needs and goals), the 'people' interacting (the response of people with aphasia, healthcare workers and carers to the post-stroke rehabilitation context and process) and the 'interactions' themselves (supportive strategies, such as the need to increase time for communication and educating staff) [24]. It suggests that all three elements can present barriers and facilitators to communication and can become targets for interventions aimed at enhancing patient-provider interactions. While different to the earlier, two-tier model, this model reiterates some of the key factors already discussed; for example, that the hospital environment has a unique impact on people and interactions, and that improving communication involves more than implementing conversation-level strategies in isolation.

The two separate models described above inform our understanding of healthcare communication with people with aphasia. Both draw on the complex inter-relationship between the communicative context, the role of the individuals communicating (patient, carer and healthcare worker) and nature of interactions. To optimise interactions between healthcare workers and people with aphasia, there is a need to consider the person with aphasia's unique situation, staff training and creating a ward environment that is supportive of the communication needs of people with aphasia, which includes access to communication aids and resources and addressing systemic factors such as ensuring adequate time for communication.

Assessment of Communicative Accessibility

A greater understanding of how the hospital system can influence communication access has driven the development of assessments that evaluate the level of communication access in the hospital environment. For example, the Inpatient Functional Communication Interview (IFCI) [48] includes an interview tool for speech pathologists to determine the kinds of communication support an individual patient needs to communicate in hospital situations and can be used with people with aphasia. It also includes three audit tools to be administered by the multidisciplinary team to evaluate the number and type of communication supports present in the hospital system at the level of (i) the ward, (ii) the hospital and (iii) agencies and organisations external to the hospital (e.g., the government or accrediting bodies).

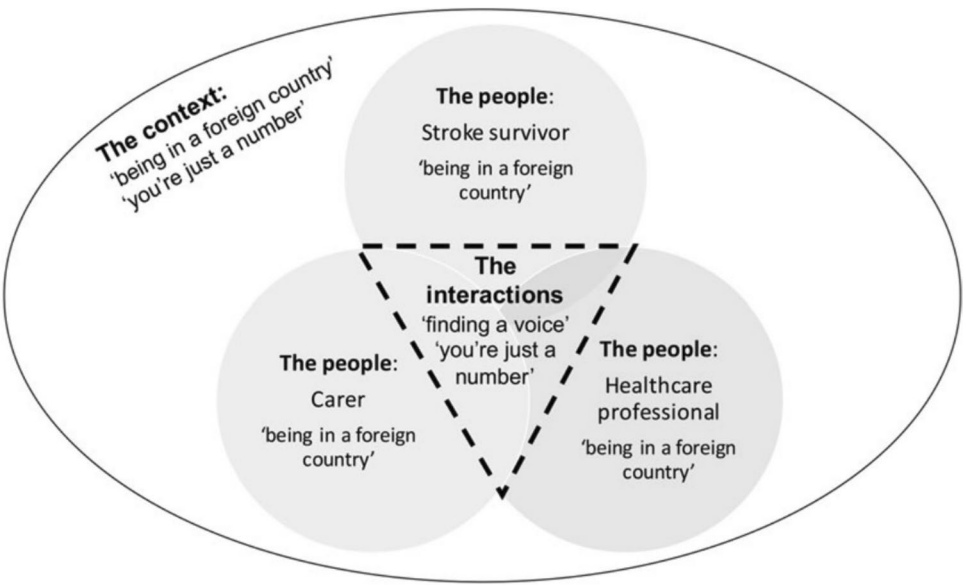

Fig. 1 Preliminary model of communication between healthcare workers and people with aphasia in inpatient stroke settings [24]. (Permission obtained from Taylor & Francis Ltd [www.tandfonline.com] to reproduce figure on 21/03/23)

Another example of an environment-level assessment is the Communicative Access Measures for Stroke (CAMS) [49], which consists of three surveys to assess the communicative accessibility within an organisation for people following stroke, especially people with aphasia. Used together, the IFCI and CAMS could identify (i) the unique needs of an individual with aphasia in common hospital situations and (ii) the level of communicative support provided by the healthcare environment within which the individual is based. While these assessments highlight specific targets for intervention, they provide only limited direction for addressing the issues. Two potential interventions will be discussed next.

Potential Environmental Interventions for People with Aphasia to Improve Healthcare Communication—Communication Partner Training and Mobile Technology as a Communication Support Tool

There are both established and emerging environmental interventions to improve communication with people with aphasia that are strong candidates for improving healthcare communication for people with aphasia in hospital. Communication partner training is an established intervention that aims to modify the communicative environment of people with aphasia by training their communication partners to use communication supports and strategies (e.g., Supported Conversation for Adults with Aphasia [50], Connect's Communication Partner Scheme [51] and Making Communication Access a Reality [52]). The use of mobile technology in healthcare is emerging and has the potential to increase accessibility to communication aids and resources to support healthcare workers to implement communication strategies. This section will explore both interventions and current gaps in the research.

Communication Partner Training

Implementation of Communication Partner Training in Hospital Is Complex and Its Effects Are Not Yet Fully Understood

A recent systematic review of international clinical practice guidelines for stroke revealed that multiple guidelines strongly recommend Communication Partner Training for a range of communication partners including healthcare professionals [29]. However, a deeper look at supporting evidence shows that Communication Partner Training can be recommended to support functional communication of people with *chronic* aphasia [31, 32] and that it can improve the communication behaviours of student healthcare workers [53] and their knowledge of and attitudes towards aphasia [54]. There is insufficient evidence that Communication Partner Training of healthcare providers improves communication with people with acute aphasia in hospital. This is due to inadequate reporting and heterogeneity of interventions and outcome measures, preventing comparison of results across studies [31, 32]. The research that has been conducted indicates that implementing Communication Partner Training programs in healthcare is feasible [31, 32], but not without challenges.

Despite the widespread interest in developing and using Communication Partner Training programs to improve the skills of healthcare workers when interacting with people with aphasia [28, 44, 55–65], only three studies have directly investigated the application of learned skills in the natural and complex healthcare environment [32, 44, 55]. While evidence shows that providing Communication Partner Training to healthcare workers and students has a positive effect on their attitudes/confidence when communicating with people with aphasia and their knowledge of aphasia and communication strategies [56, 58, 59, 61, 62••, 63•, 65–67], it is noted that an increase in confidence and knowledge does not necessarily translate to change in communicative behaviour [44, 62••]. Further research is needed to determine whether learned skills are being employed in clinical practice, and if the application of learned skills is leading to more effective communication.

Individual and Systems-Level Barriers Influence Implementation of Communication Partner Training in Hospital Settings

The literature suggests that there may be barriers and facilitators to implementation of Communication Partner Training in hospital—both delivering training and embedding trained skills in everyday practice—relating to (i) the system/organisation, (ii) healthcare workers, (iii) the nature of the intervention and (iv) people with aphasia. The barriers to implementation of Communication Partner Training derived from the literature parallel features presented earlier in the models for communicative accessibility for people with aphasia and the domains of factors influencing effective communication for people with communication disability. That is, systems-level and individual-level factors likely influence the implementation of interventions. Some examples of systems-level barriers are lack of time to implement supported conversation strategies [28, 61] and staffing issues that prevent access to training [61, 62••]. Examples of individual-level barriers include the attitudes and motivations of healthcare workers influencing the use of supported conversation strategies [63•, 65] and the severity of aphasia or concurrent cognitive impairment limiting a healthcare worker's ability to

successfully implement strategies [61]. These findings reiterate that improving healthcare communication for people with aphasia involves systems- and individual-level factors (such as time constraints, access to resources and healthcare worker attitudes towards communication) that must be considered. An important driver of practice change may be to develop a tailored implementation strategy that is adjusted according to feedback from healthcare workers [62••] or the way that training is delivered [63•].

Outcome Measures Must Be Identified to Understand the Effect of Communication Partner Training on Clinical Interactions in Healthcare

Changes in healthcare worker's interactions with people with aphasia have been observed in simulated interactions and self-reports by healthcare workers [53, 59, 60, 62, 65]. Only one study has assessed change in communicative behaviour in actual clinical settings [62••]. Finding reliable and feasible outcome measures for communication change in clinical settings is one of the major challenges with conducting high-level research for a complex intervention like Communication Partner Training in healthcare [60, 62, 68].

Mobile Technology as a Communication Support Tool

Efficacy Testing of Novel Mobile Technology Interventions Has Not Yet Begun

The use of mobile technology in healthcare has the potential to increase accessibility to communication aids and resources to support healthcare workers' ability to implement communication strategies. Healthcare workers are enthusiastic about tablets as a communication tool for people with aphasia given their small size, portability and their generic applications such as calendars and drawing tools that could support communication. Nurses have suggested that mobile technology, such as tablets, may be useful to support patient-provider communication for people with complex communication needs through personalising care and saving time by improving workflow [69].

To date, there has been no research investigating the effectiveness of mobile technology or other high-technology augmentative and alternative communication tools (those that generate speech and require specialised software to create communication devices out of computers or hand-held electronics) as a communicative support tool for hospital interactions (henceforth mHealthComm). However, there is growing interest in mHealthComm interventions. The Aid for Decision-Making in Occupation Choice (ADOC) for iPad has been shown to be valuable for collaborative goal-setting between patients with disabilities and the multidisciplinary team [70]. Other examples include the Visual Interactive Narrative Intervention for aphasia education (VINI) [71, 72], the Aphasia App [73] and Hospital Talk [74]. The efficacy of these applications has not been tested.

Novel Mobile Technology Interventions in Hospital May Face The Same Historic Problems of Implementation

Given the lack of evidence regarding the use of mHealthComm, an exploration of related literature is needed to understand if it is a feasible approach. The use of iPad-based therapy applications to improve language abilities of acute stroke patients with communication disabilities including aphasia has been found to be feasible, but there are reported barriers relating to the individual (e.g., needing additional time to understand the intervention), the intervention (e.g., the iPad case not being accessible to patients with motor impairments) and the system (e.g., IT security concerns) [75]. Individual factors such as sensori-motor and cognitive impairments and previous experience using an iPad may also affect the ability of people with acute aphasia to use iPad applications independently [76]. However, accessibility issues relating to individual characteristics of people with aphasia could be minimised or even avoided completely if the mHealthComm intervention specifically targets the behaviours of the healthcare worker. For example, akin to training healthcare workers to use pen and paper or pictographic support, the mHealthComm intervention would train healthcare workers to use tablet-based resources to support the patient's comprehension or provide choices. Given that the prospective overarching aim of mHealthComm and Communication Partner Training interventions is the same—to improve functional communication between healthcare workers and people with aphasia through modifying the behaviour of healthcare workers—it is probable that they will share similar barriers to implementation. Hardware and software design considerations may address accessibility issues relating to people with aphasia, but implementation barriers relating to healthcare workers (e.g., attitudes to communication) and systems (e.g., lack of time, training and support) remain potential barriers.

Similarly, the shared goals between mHealthComm and Communication Partner Training mean that researchers investigating these interventions are likely to face the same methodological challenges. A systematic review suggests that improvements to study design and reporting, and identification of suitable outcome measures are important considerations for future research into augmentative and alternative communication systems (including mobile technology) as a compensatory tool for people with aphasia [34]. Measuring change in functional communication will be essential for investigating the efficacy and effectiveness

of mHealthComm interventions and a reliable and feasible means to do so has not yet been established.

Key Directions for Future Research

As detailed in this paper, there are theoretical models and research evidence across various literature bases that could guide future interventions aimed at optimising communication between people with aphasia and healthcare workers in hospital. We believe this is the first paper to integrate approaches and findings across three relevant literature bases: (i) the theoretical models that support environmental approaches to improve participation in healthcare communication and their application with aphasia specifically, ii) Communication Partner Training and its implementation, and (iii) mobile technology interventions. Models that describe environmental approaches to improving communication suggest it is not efficient or sustainable only to modify interactions between individual healthcare workers and patients; the modifications need to be embedded and enshrined at a systems level.

In theory, key foci for improving healthcare communication for people with aphasia are (i) improving the knowledge and skills of healthcare workers through training, (ii) creating a supportive physical environment through, for example, having access to mHealthComm aids and modified/accessible information and (iii) embedding communication access at a systems level, which includes creating a culture that prioritises patient-provider communication. The foci are aligned with the WHO-ICF model for promoting participation in healthcare and should not exist in isolation but rather are co-dependent. Most studies to date have focused on training healthcare workers in isolation to changes to the physical environment and other organisational systems. In this paper, we have combined the key foci with a review of Communication Partner Training and mHealthComm as potential solutions to improving communication between people with aphasia and healthcare workers which gives rise to four key directions for future research. These are:

1. Novel interventions should address the needs of healthcare workers and people with aphasia at an individual level.

Personal characteristics of healthcare workers and people with aphasia may influence the success of the implementation of interventions. Therefore, interventions targeting healthcare workers should consider their attitudes towards communication, their learning needs and confidence in applying learned skills. The design of novel interventions targeting people with aphasia should consider any co-morbid sensori-motor and cognitive impairments. Interventions must be tailored and adapted to meet individual need.

2. The influence of the system should be considered when implementing novel interventions.

Interventions to upskill healthcare workers so they are more skilled communicators with people with aphasia and to modify the physical environment need to occur within the context of a supportive organisational system; otherwise, these interventions will fail to create lasting change. Examples of systems-level modifications include managerial support, promoting an organisational culture that prioritises communication and embedding this within practice policies, auditing the communication environment and advocating for communication access at a governmental level. Interventions should target systems-level changes as both a ground-up and top-down approach to improving patient-provider communication.

3. Reliable and feasible outcome measures for measuring change in functional communication in everyday clinical interactions must be developed.

Understanding the effectiveness of interventions aimed at improving healthcare communication for people with aphasia is complex and challenging because no universal outcome measures have been identified [32, 34]. Identification of suitable outcome measures is, therefore, an important consideration for future research.

4. Researchers should design studies and follow reporting guidelines to ensure that research is replicable and comparable.

Heterogeneity of study design and inadequate reporting preclude firm conclusions around the efficacy and effectiveness of complex interventions to improve healthcare communication with people with aphasia. The literature recommends that study design and reporting are important considerations for future research [32, 34, 77].

Implementation strategies must also be considered to maximise successful realisation of interventions. The key directions described here can also be used to guide implementation strategy and provide a reference for understanding the factors that contribute to the success of interventions.

Conclusion

Effective communication is essential for quality healthcare and safety, yet we do not know the best way to enable it for healthcare providers and people with aphasia in hospital.

A multi-faceted approach to intervention is needed that targets individual and systems-level environmental factors. Researchers also need to establish suitable outcome measures and follow reporting guidelines to evaluate the effectiveness of novel interventions. We believe that the synthesis and direction outlined in this article will guide novel interventions and improve research to promote participation of people with aphasia in hospital and ultimately benefit care outcomes through the delivery of optimum care.

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- • Of importance
- •• Of major importance

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a supportive physical environment and/or improving skills and attitudes of healthcare workers).

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