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Increasing the intensity and comprehensiveness of aphasia services: Identification of key factors influencing implementation across six countries.

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Increasing the intensity and comprehensiveness of aphasia services: Identification of key factors influencing implementation across six countries.

Abstract

Background: Aphasia services are currently faced by increasing evidence for therapy of greater intensity and comprehensiveness. Intensive Comprehensive Aphasia Programs (ICAPs) combine these elements in an evidence-based, time limited group program. The incorporation of new service delivery models in routine clinical practice is however likely to pose challenges for both the service provider and administering clinicians. This program of research aims to identify these challenges from the perspective of aphasia clinicians from six countries and will seek to trial potential solutions. Continual advancements in global communication technologies suggest that solutions will be easily shared and accessed across multiple countries.

Aims: To identify the perceived and experienced barriers and facilitators to the implementation of 1) intensive aphasia services, 2) comprehensive aphasia services, and 3) ICAPs, from aphasia clinicians across six countries.

Methods and procedures: A qualitative enquiry approach included data from six focus groups (n=34 participants) in Australia, New Zealand, Canada, United States of America (USA), United Kingdom (UK), and Ireland. A thematic analysis of focus group data was informed by the Theoretical Domains Framework (TDF).

Outcomes and results: Five prominent theoretical domains from the TDF influenced the implementation of all three aphasia service types across participating countries: *environmental context and resources, beliefs about consequences, social/professional role and identity, skills,* and *knowledge.* Four overarching themes assisted the identification and explanation of the key barriers and facilitators: 1. *Collaboration,* joint initiatives and partnerships, 2. A*dvocacy,* the promotion of aphasia services and evidence-based practice, 3. *Innovation,* the ability to problem solve challenges, and 4. *Culture,* the influence of underlying values.

Conclusions: The results of this study will inform the development of a theoretically informed intervention to improve health services' adherence to aphasia best practice recommendations.

Introduction

International clinical guidelines recommend intensive and comprehensive aphasia services that are client centred, target a range of communication functions and use a variety of therapy approaches (American Speech-Language-Hearing Association, 2010; Irish Heart Foundation, 2010; Power et al., 2015; Royal College of Speech & Language Therapists, 2005; Salter, Teasell, Foley, & Allen, 2013; Simmons-Mackie, 2018; Simmons-Mackie et al., 2017; Stroke Foundation, 2017; Stroke Foundation of New Zealand and New Zealand Guidelines Group, 2010). Comprehensive aphasia services reflect a bio-psychosocial framework which targets both the underlying impairment and functional communication (Rose, Ferguson, Power, Togher, & Worrall, 2014). In addition to providing a comprehensive aphasia service, the level of intensity should also be considered. A recent Cochrane Review found a growing strength of evidence for intensive aphasia services post stroke with high levels of intensity defined between four and 15 hours per week (Brady, Kelly, Godwin, Enderby, & Campbell, 2016). Optimal intensity is however yet to be determined due to inconsistencies in research methodologies (Dignam, Rodriguez, & Copland, 2016) addressing dose form, frequency and intervention duration (Baker, 2012).

Intensive Comprehensive Aphasia Programs (ICAPs) are a relatively new model of therapy which combines best practice recommendations for intensive and comprehensive aphasia services. An ICAP can be defined as a program including the following elements (Rose, Cherney, & Worrall, 2013): a minimum of three hours of

therapy per day for two weeks, completed as part of a cohort with a definable start and end date, involves patient/family education, uses a variety of therapy approaches, and targets both the impairment and participation/activity levels of functioning (World Health Organization, 2001). Research suggests that an ICAP is an effective model of service delivery regardless of age or point of recovery (Babbitt, Worrall, & Cherney, 2015; Persad, Wozniak, & Kostopoulos, 2013; Rodriguez et al., 2013). A 2012 international survey of practice by Rose et al. (2013) identified 12 ICAPs across the USA, Canada, Australia, and the UK. The programs were predominantly funded by participants and represented a relatively new model of service delivery with seven established within the past three years. Following the 2012 survey, literature continues to explore the preliminary use and outcomes of ICAPs with Babbitt, Worrall, and Cherney (2016) summarising the outcomes of seven studies. Planning has also commenced for a second survey of the uptake of ICAPs to determine if the new service delivery model is being implemented.

Implementation challenges have however been identified when attempting to increase the intensity and comprehensiveness of an aphasia service. Factors contributing to an evidence-practice gap include geographical location, funding of health services, and stage of recovery (Dickman, Himmelstein, & Woolhandler, 2017; Graley, May, & McCoy, 2011; Palmer, Witts, & Chater, 2018). Funding is predominantly allocated to the acute and sub-acute phases of aphasia management which restricts the capacity of health services to provide continuing support for this chronic condition (Worrall et al., 2013). A need to consider a process for rationing health resources has also been identified following acknowledgement of an aging population where the needs of all service users cannot be met (Code & Petheram, 2011). In addition to the above contextual factors, successful implementation of best practice can be impacted by

factors relating to the clinician, the environment, and the individual with aphasia. Clinician factors include professional skill, confidence, and the ability to both research and prepare new therapy techniques (Babbitt, Worrall, & Cherney, 2013; Rose et al., 2014; Shrubsole, Worrall, Power, & O'Connor, 2018). Challenges associated with the environment include the location (access to private space and travel time), caseload demands, and staffing (Rose et al., 2014; Shrubsole et al., 2018). The effects of patients' fatigue, expectations, and readiness will also impact on the successful implementation of intensive aphasia services (Gunning et al., 2017; Rose et al., 2014; Shrubsole et al., 2018).

Difficulties incorporating current aphasia evidence within everyday clinical practice has been experienced on an international scale. Within Australia, dysphagia management is frequently prioritised over communication intervention (Foster, O'Halloran, Rose, & Worrall, 2014; Rose et al., 2014; Shrubsole et al., 2018) as the speech pathology culture continues to reflect a medical model of service provision (Rose et al., 2014). In the UK individuals with aphasia perceive services to be provided at the convenience of the provider, therefore impacting the availability and timing of aphasia support (Law, Huby, Irving, & Pringle, 2010). UK clinicians however reported challenges associated with time pressures and structural boundaries when attempting to introduce new services (Law et al., 2010). In North America current gaps in aphasia services include insufficient availability and intensity of communication intervention, failure to provide a holistic approach to community reintegration and address life participation (Simmons-Mackie, 2018).

While there is emerging evidence regarding barriers to the implementation of aphasia best practice, there has been limited research into the implementation of ICAPs. Potential barriers and facilitators to ICAP implementation were highlighted by Babbitt

et al. (2013) with the identification of both challenges and rewards when investigating clinicians' perceptions of ICAPs. The study included seven clinicians from two facilities in the USA and one from Australia. Benefits of the program included the development of relationships, the support received from professional mentors, and the opportunity to learn an evidence-based intervention with greater outcomes for participants. Challenges were associated with the time required to prepare for therapy, managing expectations of recovery for individuals with severe aphasia, and the ability to return to a typical clinical setting with fewer benefits.

Implementation challenges reflected in current international literature suggest common factors influencing the evidence-practice gap (Babbitt et al., 2013; Law et al., 2010; Rose et al., 2014; Simmons-Mackie, 2018). Although these factors have been researched, a single study facilitating a comparison across multiple countries has yet to be conducted. This study will therefore attempt to address this knowledge gap through an exploration of international and local barriers and facilitators to implementation. These findings will enable the development of an implementation intervention tailored to specific contextual and individual challenges (Baker et al., 2015). Opportunities for global access and distribution of aphasia best practice guidelines have been provided by web based resources (Aphasia United, 2018; Australian Aphasia Rehabilitation Pathway, 2014). The ability to share this information across large scale professional networks demonstrates the potential for implementation support to be provided on an international scale. Hence, this research aims to identify the barriers and facilitators to the implementation of 1) intensive aphasia services, 2) comprehensive aphasia services, and 3) ICAPs from the perspective of aphasia clinicians within an international health context.

Method

Research design

A qualitative enquiry approach (DiCicco-Bloom & Crabtree, 2006) was adopted involving a thematic analysis of international focus groups informed by the Theoretical Domains Framework (TDF) (Michie et al., 2005). The 14 domains of the TDF contain multiple theoretical constructs which aid the identification of factors influencing implementation and intervention development (Cane, O'Connor, & Michie, 2012). The TDF is commonly applied within rehabilitation literature when identifying key barriers and facilitators to implementation (McCluskey, Vratsistas-Curto, & Schurr, 2013; Sakzewski, Ziviani, & Boyd, 2014; Shrubsole et al., 2018).

Sampling

The research occurred in six countries: Australia, New Zealand, Canada, USA, UK, and Ireland. An international sample was chosen in recognition of the presence of ICAPs within multiple countries and the potential for an implementation intervention to be shared online. The commonalties and differences between countries therefore become relevant. A Mutual Recognition Agreement (Speech Pathology Australia, 2016) is shared by the professional bodies of participating countries and are therefore likely to have equivalent competency standards for therapists. While both Canada and New Zealand are bilingual, most aphasia therapists are English speaking, therefore also enabling the uptake of English language resources.

Participant sampling was pragmatic and opportunistic with focus group facilitators recruiting speech-language pathologists (SLPs) through professional contacts, special interest groups and social media. The six facilitators were leading aphasia researchers with extensive professional networks. SLPs who indicated interest

in the study were provided with participant information and consent forms and a document outlining key terms and definitions relevant to the focus group discussion.

Purposive sampling enabled data collection from a wide range of participants (Tong, Sainsbury, & Craig, 2007). Sampling variables included workplace environment (hospital/non-hospital), position of employment (clinician/management), organisation (public service/private service), and years of experience (<10 years/≥ 10 years). Refer to table 1 for the sampling matrix. Inclusion criteria required SLPs to be experienced within the field of aphasia (minimum of 12 months) and be eligible for practising membership with Speech Pathology Australia (SPA) or one of the five professional bodies with a Mutual Recognition Agreement (MRA) - NZSTA (New Zealand), SAC (Canada), ASHA (USA), RCSLT/HCPC (UK), or IASLT (Ireland) (Speech Pathology Australia, 2016). All SLPs from Canada practiced in the Province of Quebec and were certified members of OOAQ, the compulsory provincial professional body.

A total of 34 SLPs participated in the study. Participants were predominantly female with two male participants in the UK focus group and one male participant in each of the Australian and USA focus groups. The mean age of participants was 41 with standard deviation 11.5 (n=33, one participant did not provide age). The aphasia caseload of participants was between 25% and 75% with 22 participants reporting that they consistently provided comprehensive services and nine reported consistently providing intensive services. The majority of participants were familiar with the concept of an ICAP with three participants having previous clinical experience with this model of service. Table 2 provides an overview of the available stroke services within each of the participating countries.

Procedure

Ethical clearance was obtained from the University of Queensland Behavioural &

Social Sciences Ethical Review Committee (BSSERC). International speech pathology partners sought approval from relevant ethics committees when required; Auckland University of Technology Ethics Committee (AUTEC), the Health Research Ethics Committee (Universite de Montreal), the Language and Communication Science Proportionate Review Research Ethics Committee (City, University of London), and the Research Ethics Committee, School of Linguistic, Speech and Communication Sciences (Trinity College Dublin).

Focus groups were approximately two hours in duration and included between three and eight participants. Focus group facilitators were provided with focus group manuals and topic guides in order to promote a consistent focus group structure across all sites. The topic guide structure addressed the potential barriers and facilitators to implementing the three aphasia service types (see supplementary material: Appendix A). The development of further probing questions was then guided by the 14 domains of the TDF (Cane, O'Connor, et al., 2012). All focus group recordings, with the exception of Canada, were professionally transcribed in Australia. The Canadian focus group was conducted in Canadian French and transcribed during the English translation process.

Data analysis

A thematic analysis (Braun & Clarke, 2006) was informed by the TDF (Michie et al., 2005). As per a 'theoretical' thematic analysis the pre-determined codes consisted of the 14 domains of the TDF (Braun & Clarke, 2006). Braun and Clarke's (2006) six phases of thematic analysis were applied as outlined below. Progression through each of the phases was often a non-linear process incorporating forward and backward movement between each phase.

Phase 1: Data familiarisation

Both audio and written transcripts were reviewed with initial notes taken in reference to interesting points and prominent codes.

Phase 2: Generating initial codes

Coding was performed using QSR International's NVivo 10 software (*NVivo 10 qualitative data analysis software*, 2012). Pre-determined codes included the 14 domains of the TDF (Cane, O'Connor, et al., 2012): knowledge; skills; social/professional role and identity; beliefs about capabilities; optimism; beliefs about consequences; reinforcement; intentions; goals; memory, attention and decision processes; environmental context and resources; social influences; emotion; and behavioural regulation. Two additional outlying codes were also generated including patient related factors and organisational structure. To aid analysis, each of the codes were classified as a barrier and/or facilitator and attributed to a specific service type (intensive services, comprehensive services and ICAPs).

Phase 3: Searching for themes

Themes were identified when reviewing notes from the initial coding process and prominent codes from NVivo (*NVivo 10 qualitative data analysis software*, 2012). Prominent codes were established when considering both the number and content of the references within each code. Themes were generated for individual sites prior to comparing and refining themes across sites. Thematic maps provided a visual representation to assist the initial arrangement of codes under the overarching themes.

Phase 4: Reviewing themes

Themes were refined through a review of the coded data both within each theme and

across the data set. When comparing the prominent codes and associated themes across sites, revisions included the merging of themes and re-coding of data. On review, the codes classified as outliers were re-coded under the relevant domains of the TDF.

Phase 5: Defining and naming themes

The names and definitions of each theme were further refined in order to accurately reflect participant discussion. Further analysis of the prominent codes within each theme ensured the overall essence and fundamental insights of the analysis had been conveyed.

Phase 6: Producing the report

The final analysis was conducted when writing the research paper. The results were presented as responses to the initial research question. Documentation of the analysis process provided evidence supporting the validity and significance of findings.

Rigour

Verification techniques to ensure the validity and reliability of this study included the collection of data from an appropriate participant sample, methodological coherence, and concurrent collection and analysis of data (Morse, 2008). Purposive sampling ensured the data was from an appropriate sample. Methodological coherence was achieved by maintaining a consistent relationship between the research question and method throughout data collection and analysis. Maintaining consistency across focus groups was attempted through the recruitment of facilitators with strong qualitative research backgrounds and on occasion facilitators attending more than one focus group. Finally, the thematic analysis was a continual process occurring simultaneously with data collection.

Analysis agreement was sought from participants and co-researchers to enhance the credibility of research findings (Graneheim, Lundman, Umeå, Institutionen för, & Medicinska, 2004). A member check was completed with participating SLPs to confirm overarching themes and key factors influencing implementation. The research team were also consulted throughout the process of coding and theme generation to ensure accurate representation of data. Contextual and cultural considerations within the study facilitated the transferability of the research at an international level (Graneheim et al., 2004).

Results

The initial focus group structure had attempted to separate and therefore identify the specific barriers and facilitators to implementing three aphasia service types (intensive services, comprehensive services, and ICAPs). Although the focus group questions referenced each of the services individually, the discussion often digressed to encompass multiple service types. Repetition of specific barriers and facilitators across each of the services was also observed. As a result the following five domains of the TDF (Cane, O'Connor, et al., 2012) were identified as key factors influencing the implementation of all three aphasia services across each of the participating sites: 1. *Environmental context and resources* (factors relating to a situation/circumstance or physical environment)*, 2. Beliefs about consequences* (acceptance of the perceived behavioural outcomes of a situation)*, 3. Social/professional role and identity* (personal and professional qualities or behaviours)*, 4. Skills* (level of competence or acquisition of the ability to perform an action), and 5. *Knowledge* (awareness of a condition, procedure or environment) (Cane, O'Connor, et al., 2012). Each of the domains were classified as both a barrier and a facilitator as participants acknowledged the variability of influence depending on their presence or absence. Each of the domains were

embedded within four overarching themes: *collaboration, advocacy, culture,* and *innovation* (refer to table 3). The results have been presented under each of these four themes to provide a collective sense of the data. Within each theme the relevant theoretical domains have been described.

Collaboration

Joint initiatives

SLPs highlighted the importance of working collaboratively with other health professionals, individuals with aphasia, and their significant others in order to achieve change within current aphasia services. The *environmental context and resources* were a significant factor influencing the development of collaborative relationships. For example, a community SLP highlighted a movement towards acute and community services working together to influence change: "…the sustainability and transformation patterns … how we're supporting our acute colleagues, how we're getting patients home quicker, how we're ensuring they're getting the right service at the right time." (UK). SLPs also emphasised the potential for collaborative working to facilitate the implementation of evidence-based aphasia services: "I think it's about different parts of the system coming together to do that because I think we'd have a much better success rate…" (Ireland). A perception of power in numbers was therefore evident when identifying factors influencing successful behaviour change.

Networking

A collaborative network of SLPs with varying levels of experience facilitated opportunities for professional support and sharing of clinical resources. Access to supervision by experienced aphasia clinicians had the potential to support the

development of specialist *skills* and *knowledge*. SLPs acknowledged the importance of "…having really good structured supervision and professional development for those that haven't worked in rehab environments..." (Canada). The availability of experienced staff to support the translation of evidence to everyday clinical practice also enhanced the likelihood of successful implementation. One SLP noted that students were aware of the latest evidence, however successful translation required the support of practicing clinicians, "We have the senior students who have the knowledge and the skills who will need of course some direction to actually get it going..." (New Zealand).

Professional boundaries

The development of professional partnerships between in-patient and community based aphasia services promoted advanced clinical *knowledge* and expanded the *social/professional role and identity* of SLPs. SLPs challenged professional boundaries across the stroke continuum of care in order to achieve a unified approach to the implementation of evidence-based aphasia services, "…a lot of those really successful projects were working across usual boundaries, thinking creatively, partnering up between acute and community trusts, communities partnering up, disciplines partnering up." (UK). These collaborative partnerships included all members of the support network for individuals with aphasia, "We're engaging the families from day dot [sic]. We're making sure that nursing staff have communication strategies. We're making sure that we're keeping the environment as aphasia friendly as possible..." (Australia). Aphasia networks facilitated opportunities for shared learning, however the ability of SLPs to successfully connect was often variable. One SLP emphasised difficulties sharing clients within a community based setting "…we don't get a lot of opportunities… and there's so much learning that comes with speech therapists who work with somebody else." (UK). Difficulties engaging in collaborative work

environments therefore impacted the ability of SLPs to learn and implement new evidence-based practices.

Positive outcomes

The positive outcomes or *beliefs about consequences* for joint initiatives and collaborative practices facilitated the implementation of new aphasia service models. SLPs highlighted positive experiences and outcomes from aphasia group therapy and volunteer/support visitor programs, "I think the support group mechanisms are really important for people with aphasia… I've found that that's a very effective way for the clients with aphasia to talk to another person who's been through it and they also support the family as well." (Australia). This experience highlights the motivation provided by positive outcomes when implementing new aphasia service models. The establishment of group support networks is a collaborative process involving SLPs, individuals with aphasia and their families. International collaboration of SLPs was also identified as a means of achieving global influence with positive outcomes for implementation, "I also believe a lot in the common, community-based and collaborative work... It may be something that's not only under the responsibility of a grant application, but a global idea..." (Canada). The potential for large scale international collaborations was raised by the SLP as a result of her belief in local community-based collaborations.

Advocacy

Service promotion

Possessing the required *skills* and *knowledge* to promote new service initiatives empowered SLPs and increased the likelihood of successful service proposals, "I think a

great deal of it is – I'll use the word selling. A great deal of it is showing the value of the services that we provide, showing the value, particularly as we move toward new reimbursement models" (USA). The importance of presenting a strong evidence base when advocating for new models of service delivery was highlighted, "…the more evidence that we can get, the more information that we'll have to try and change some of these more traditionally-based services." (Australia). Although SLPs may have the knowledge of current evidence-based practice, difficulties were experienced when attempting to persuasively present this information, "I think sometimes we have ideas and we just don't sell it well enough." (New Zealand).

Strategies to facilitate consultation with management were also addressed when considering the *skills* required for successful service promotion. There was a need for new service models to appear both beneficial and feasible in order to facilitate successful implementation, "Get some people championing it, get them talking about it, get them to present it. Making it small, making it manageable." (UK). The ability to successfully advocate for changes to aphasia services required strategic planning and presentation. The implementation process needed to be perceived as a practical and realistic option to improving services, "… if you present something that looks really challenging and big and hard then they'll just switch off and it won't happen." (New Zealand).

Education

The ability to provide education relating to aphasia and evidence-based services was an essential part of the *social/professional role and identity* of a SLP. It was considered a key responsibility of SLPs to educate and therefore advocate for evidence-based aphasia services, for example "Awareness raising, flying the flag, trying to encourage or promote this idea, educating commissioners, educating other virtual teams." (UK). The

role of family and significant others in aphasia promotion was also acknowledged, however difficulties were experienced when identifying appropriate opportunities to provide aphasia education, "… it is the information provided and the opportunity that we may get - when the person is available, the family is available - and when they are not too panicked." (Canada). Aphasia education was not only required for individuals with aphasia and significant others, yet also with other health care professionals and the wider community. This was demonstrated by a SLP when reflecting upon their current aphasia practices, "I should be feeding back the evidence to my manager and to the stroke consultant saying, fighting perhaps, for different services or increased access." (Ireland).

Self-advocacy

Facilitating the ability of individuals with aphasia to self-advocate was considered an important aspect of the *social/professional role and identity* of SLPs. Raising awareness of aphasia best practice encouraged self-advocacy and had the potential to influence service change, "That is really powerful for people going and asking for a service that they can't access anywhere else. Maybe that is a part of it to think about. Promotion and marketing." (UK). When considering the *environmental context and resources* SLPs identified a need for promotional resources to include personal stories and experiences of individuals with aphasia. For example, a patient may be more likely to request an aphasia service if "…they could see that someone else had made an improvement." (Ireland). The inclusion of individuals with aphasia provides an emotive element which may hold a greater influence when advocating for new aphasia services.

Receptiveness

A health service's receptiveness to aphasia promotion and education was also viewed as a factor influencing successful service improvement. The *environmental context and resources* impacted the perceived ability of a SLP to implement evidence-based practice, "… it just seems like there would be so many loopholes to go through. I mean I would love to do it, but I'm just a senior level clinician." (USA). Further challenges to successful advocacy and promotion were related to *beliefs about consequences*. One SLP commented on the potential for staff changes to negatively impact continuing advocacy for aphasia services, "We put things in place, someone else arrives, and then it doesn't work anymore. So, we always have to start over again. And that I think is difficult for therapists…" (Canada).

Culture

Impairment based

SLPs emphasised the impact of an impairment based therapy culture when attempting to implement alternative service models within aphasia rehabilitation. A physical and impairment focus had been instilled when entering the profession and was reflected in their *social/professional role and identity*. For example, "I was pretty much used to doing a lot of impairment based stuff because that was kind of where we were trained and as a new grad that was what I was taught to do and was doing." (New Zealand). The physical focus of a rehabilitation service was also influenced by the *environmental context and resources*. One SLP from the USA commented on the impact of the current reimbursement model which requires patients to prioritise one allied health service over another "…they [patients] know they only have X amount of money… they'll say 'Now I really want to walk again, so I'm not going to see you anymore. I'm going to go get my PT" (USA).

SLPs raised concerns regarding a culture of rudimentary impairment therapy and the challenges of implementing new and evidence-based aphasia services. Both clinical *knowledge* and *skills* in providing holistic aphasia services were identified as factors influencing implementation. The successful implementation of alternative therapy techniques was dependent upon the practical knowledge and experience of SLPs, "I need to experience it myself to be able to say 'Look, I've had that experience. I really think this is going to work for us" (New Zealand). SLPs had observed a resistance to change due to an embedded impairment based therapy culture "…you could still have an experienced clinician, 20 years, who is totally averse to that, being functional. It's like 'What's the point?" (New Zealand). In order to assist receptiveness to cultural change and clinical practice, discussions highlighted a need for practical support and access to current evidence, for example "the more evidence that we can get, the more information that we'll have to try and change some of these more traditionally-based services" (Australia).

Time-limited

Speech pathology services were often identified as time-limited with inpatient discharge pressures impacting length of stay and duration of aphasia services. Hospital discharge guidelines contributed to the *environmental context and resources* impacting the implementation of evidence-based aphasia services. Discharges were encouraged when 'physically' able with one SLP stating "The target was like 7 days... I had a stroke [patient] who was sent home the same day." (Canada). A de-prioritisation of communication also reduced the level of influence held by SLPs when attempting to extend an inpatient rehabilitation admission, "… I feel like they don't understand it… The two are talking a different language." (Ireland). SLPs also raised concerns relating to the potential for aphasia to be viewed by the community as an acute condition and

therefore treated with time-limited services. This was particularly evident within the UK where a SLP questioned their *social/professional role and identity* in facilitating continuing aphasia services, "So is there a role for educating our own profession around the fact that this is a long term condition...?" (UK). These comments emphasise the potential influence held by SLPs when considering a change in the culture of aphasia services.

Research focus

Speech pathology services with a strong research and evidence-based culture facilitated continuous improvements in aphasia support and management. Clear workplace guidelines, research participation and regular supervision supported the development of clinical *skills*. Opportunities for continuing professional development were viewed positively by SLPs, "…hopefully [involvement in research projects] will help to change our clinical practice as well and keep people up to date with evidence-based practice." (Australia). Other services however emphasised the challenges associated with the strength of current research and associated *beliefs about consequences*, "My experience is that there remains a lot of dubiousness about the value of aphasia treatment and that's largely because of the paucity of really compelling research to support it." (Ireland).

Innovation

Creativity

SLPs acknowledged both their own experiences and future opportunities to deliver innovative aphasia services. When considering the *environmental context and resources* and the *social/professional role and identity* of SLPs, a need for creative resourcing was identified to facilitate the implementation of best practice. This was emphasised by a SLP working in a private hospital who stated that despite discharge pressures, "I do

recognise my limitations and what I can provide and then utilise the wonderful services that the public system offer." (Australia). SLPs acknowledged the potential for aphasia service restrictions and a need to identify alternative resources, "…looking outside of where you would normally go. So kind of pooling, sharing, but then kind of looking outside of the NHS as well." (UK).

In addition to traditional aphasia service models (individual and group therapy, computer therapy, student-led clinics, and therapy assistants) SLPs highlighted use of new and innovative service models to increase the intensity and comprehensiveness of aphasia services. SLPs frequently acknowledged the influence of the *environmental context and resources* when implementing these models, for example "We've got a relatively small population, so 200,000, but a massive area where we were just saying earlier we would use Facetime and Skype as much as possible." (UK). Therapy provided by individuals other than health professionals was also considered in an attempt to enhance the quality and quantity of aphasia services, "…there's a few other things like maximising family members and friends and volunteers who can work with people with aphasia, trying to maximise their independent practice outside of the more traditional models." (Australia).

Flexibility

Successful implementation of a comprehensive aphasia service required flexibility of the SLP's role in order to adapt and individualise interventions, for example "It means modern, it means facing family issues, having the skills to deal with all those things, technological right over to emotional." (UK). The *skills* and *social/professional role and identity* of a SLP therefore expanded to address the psycho-social aspects of aphasia. SLPs emphasised the importance of constant review and evaluation of aphasia services in order to maintain a client-centred focus of therapy, '…whether that's in a group or

whether that's going to a café. So I think really looking outside the square when you were saying 'What would you be doing?' (New Zealand). The identification of salient communication activities facilitated the development of innovative therapy tasks, however difficulties were also raised with facilitating comprehensive goal-setting, for example "I find sometimes it's a challenge for them (individual with aphasia) to create a functional goal" (Ireland). Although functional goal setting is generally considered part of a standard aphasia service, SLPs have reported difficulties with successful implementation in everyday clinical practice. As a result, SLPs are required to overcome these challenges by considering new or innovative ways to implement functional goal setting and engage both the individual with aphasia and significant others within this process. The role of the SLP incorporated a need to identify diverse and innovative communication opportunities, "…just the social interaction that you could foster… introduce patients to each other who I think might actually socially be a good fit…" (USA).

Problem solving

SLPs were required to problem solve challenges associated with the implementation of recommended aphasia services. When considering the implementation of ICAPs an outpatient setting, such as a research or university based context, was considered to be most appropriate. Within this service model *beliefs about consequences* were influenced by patient related factors, for example "It would probably be during outpatient services, when it's the patient's priority. So, when he's receptive and maybe at least physically able to do it." (Canada). Additional barriers to implementation included patient numbers, 'readiness' for therapy, motivation, and health status, therefore also highlighting challenges associated with the domain of *social influences*. Concerns were raised in relation to increasing the intensity of aphasia services with a "…constant

tension between access and quality" (Ireland) and the acquisition of relevant clinical *skills*, "…you're not going to improve the comprehensiveness or anything if you just give intensity in dosage and you don't look at quality and accuracy of what you're giving." (UK). *Beliefs about capabilities* was therefore also identified as a key barrier to the implementation of ICAPs (UK and New Zealand) and emphasised the challenge of separating the three strands of aphasia services (intensive services, comprehensive services and ICAPs) when considering implementation.

Evidence translation

Implementation initiatives within the field of aphasia were fostered by organisational support and a strong evidence base. Successful implementation required practical *knowledge* and *skills* supported by the ability to access and engage with relevant research, "– in a way I think a lot of speech therapists are moving away from aphasia because the research that comes out is not very translatable..." (UK). A perceived variability in the types of aphasia research conducted internationally was also evident. The practical clinical outcomes from aphasia research conducted in Australia were viewed to be more useful when compared to the UK. One SLP from the UK stated, "I think they're measuring clinical practice to some extent, measuring treatment [in Australia]." (UK). The perceived relevance of the evidence to clinical practice was seen to facilitate the likelihood of implementation of innovative aphasia services. SLPs also identified organisational support as a facilitator for quality improvement initiatives "…there's something good about highlighting professionals [work]. And when you feel valued, and that the initiative is encouraged… to think about giving a faster and more efficient approach to your services." (Canada).

Discussion

The aim of this study was to identify the perceived and experienced barriers and facilitators to the implementation of 1) intensive aphasia services, 2) comprehensive aphasia services, and 3) ICAPS, from aphasia clinicians across six countries. Although the focus group structure attempted to separate each of these services, discussion often reflected their commonalities with the identification of barriers and facilitators relevant to multiple service types. The TDF (Michie et al., 2005) facilitated the identification of five key factors influencing the implementation of all three aphasia services across participating sites. These included the *environmental context and resources, beliefs about consequences, social/professional role and identity, skills,* and k*nowledge*. These five domains informed a thematic analysis (Braun & Clarke, 2006) in which the themes of *collaboration, advocacy, culture,* and *innovation* were identified.

The results of the current study have provided a greater level of insight into the barriers and facilitators influencing the intensity and comprehensiveness of aphasia services across multiple countries. Although the structure of health services significantly varied across participating sites, prominent trends continued to emerge in relation to factors impacting successful behaviour change. The identification of barriers and facilitators to implementing evidence-based practice within stroke rehabilitation have previously been informed by the TDF (McCluskey et al., 2013; Phillips et al., 2015; Shrubsole et al., 2018). Alternately, thematic analysis has also been adopted as a means of identifying factors influencing behaviour change (Foster et al., 2014; Miao, Power, & O'Halloran, 2015; Mudge, Hart, Murugan, & Kersten, 2017). This current study has however incorporated both forms of analysis, contributing to a process of identifying relevant TDF domains (Cane, O'Connor, et al., 2012), and exploring their relationships to each other. Within the field of rehabilitation, Sakzewski et al. (2014)

identified barriers and enablers for occupational therapists when implementing evidence-based upper limb rehabilitation for children with cerebral palsy. The relevant domains of the TDF were reported under four main themes with a number of domains common to more than one theme (Sakzewski et al., 2014). Similarly, the results from the current study identified five domains of the TDF which were prevalent across four overarching themes.

All themes were present within each of the participating countries, however certain themes were more prominent. Ireland, USA and, New Zealand had a strong *cultural influence* associated with a medical model of care and impairment based therapy. *Collaboration* was a main theme in the Australian focus group as a result of service-wide initiatives and shared resources. A need for greater *advocacy* for individuals with aphasia and evidence-based practice was highlighted in the UK while Canada emphasised the influence of *innovative services* facilitated by flexibility of the SLP's role. Despite the varying levels of theme representation across participating sites, the consistent presence of these themes supports the development of an implementation intervention applicable to multiple countries.

The theme of *collaboration* promoted joint initiatives and the development of aphasia networks to support successful implementation of evidence-based aphasia services. Miao et al. (2015) identified the potential for future stroke guideline interventions to target the development of professional networks. These recommendations are consistent with the results of the current study in which SLP networks and connections were reported to facilitate collaborative practice and joint implementation initiatives. SLPs also highlighted the potential for international collaborations to influence service change. These findings are in line with a movement towards the globalisation of health services and the collaborative development and

implementation of best practice recommendations such as the World Stroke Organisation (WSO) stroke guidelines (Lindsay et al., 2011). In an attempt to establish joint targets and greater parity of aphasia services, the top 10 aphasia best practice recommendations have also been identified through an international consensus process (Simmons-Mackie et al., 2017). As a result of a global focus for developing best practice aphasia services, the applicability and accessibility of implementation interventions will need to be considered on an international scale. This global focus has therefore been reflected in the current study with the inclusion of multiple countries and international data collection.

Advancements in communication technologies have facilitated the development of international aphasia networks and collaborative practice. SLPs highlighted variability in the focus of aphasia research between countries, therefore emphasising a need for shared knowledge and experience on an international scale. Global collaboration of key aphasia stakeholders is currently supported by the establishment of international organisations and social media networks including Aphasia United (Aphasia United, 2018), Aphasia Recovery Connection (Aphasia Recovery Connection, 2016), and the Collaboration of Aphasia Trialists (Collaboration of Aphasia Trialists, 2018). Recent literature has explored the role of technology in physical therapy and rehabilitation practices and highlighted the importance of internet, social media, and telerehabilitation in creating supportive long-distance connections (Winstein & Requejo, 2015). Within the field of speech pathology, these connections not only facilitate international collaborations yet also the implementation of innovative service models to increase the intensity of rehabilitation (Theodoros, 2012).

Aphasia promotion and education were identified as potential facilitators to implementing intensive and comprehensive aphasia services. The concepts of 'selling'

or 'raising the flag' for aphasia services were highlighted within the theme of *advocacy*. Raising community awareness of aphasia and best practice recommendations had the potential to influence self-advocacy and place greater pressure on policy-makers and funding bodies. The role of advocacy in facilitating service change is however yet to be thoroughly explored within current aphasia literature. Dr Judith Page, 2015 president of the American Speech-Language-Hearing Association (ASHA), advocated for members to be leaders and take action on behalf of their profession and the individuals they support (Page, 2015). Recent research relating to the development and implementation of best practice stroke guidelines considers the potential to improve services through promoting evidence-based interventions and utilising social and professional platforms for distribution (e.g. online media outlets, conferences and academic institutions) (Lindsay et al., 2011; Simmons-Mackie et al., 2017). Although the theme of *advocacy* is therefore present within aphasia literature, its full potential for influencing behaviour change is yet to be determined.

An impairment focus of health services, identified within the theme of *culture,* was repeatedly emphasised as a factor influencing the de-prioritisation of communication and associated discharge pressures. Literature continues to stress the negative influence of a medical model of care with the prioritisation of dysphagia over communication within the acute hospital setting (Foster et al., 2014; McCluskey et al., 2013; Shrubsole et al., 2018). SLPs in the current study also raised concerns relating to time-limited aphasia services and highlighted a need for further research to strengthen evidence for long-term aphasia management. Similarly to existing literature, this study emphasised the importance of easily accessible and practical recommendations in order to achieve cultural change and successful implementation of evidence-based practice. A study investigating the implementation of Australian and New Zealand stroke

guidelines identified common themes influencing implementation including guideline characteristics and making implementation explicit (Miao et al., 2015; Mudge et al., 2017). As a result, if the challenges of implementation are not addressed, current literature suggests that an evidence-practice gap will remain.

The theme of *innovation* considered the impact of service models and resourcing when attempting to overcome implementation challenges. Prominent challenges related to both the individual with aphasia and the SLP. For example, a clinician's capacity to provide an aphasia service or the patient's level of motivation to engage with the service. Similar findings are also present in aphasia literature with time constraints and competing caseloads repeatedly reported as barriers to meeting aphasia guidelines (Miao et al., 2015; Shrubsole et al., 2018). Within the current study SLPs acknowledged the importance of problem solving to overcome these challenges. SLPs perceived that it was their responsibility to explore alternative funding and resource opportunities such as local charities, research grants, and aphasia support groups. The benefits of alternative service models for individuals with aphasia were also highlighted, therefore increasing clinician motivation and the likelihood of successful implementation. When investigating clinicians' perceptions of implementing new intensive aphasia treatments Gunning et al. (2017) identified similar social support and time benefits from computer and group therapy programs. The Australian-based study included 13 SLPs and was conducted across three health facilities. Although greater implementation challenges such as clinician fatigue and client stamina were experienced when compared to traditional service models, SLPs remained motivated due to the perceived benefits for both the patient and the clinician (Gunning et al., 2017). These findings are therefore consistent with the current study in which the perceived benefits of new aphasia service models are potential facilitators for successful implementation.

The barriers and facilitators identified within this study consistently influenced the implementation of all three aphasia services across all participating sites. As a result, an implementation intervention targeting the overall intensity and comprehensiveness of an aphasia service can be developed. Within the next phase of research, the barriers and facilitators will be mapped to the Behaviour Change Wheel (Michie, Stralen, & West, 2011). The framework guides the selection of intervention functions, policies to deliver the interventions, and specific behaviour change techniques that are most likely to be effective (Michie et al., 2011). Following development, a feasibility study will be conducted to establish the effectiveness of the developed intervention.

Limitations to the current study included a restricted number of pre-selected participating countries and variations in the number of SLPs within each focus group. There was also a lack of explicit sampling of managers from aphasia services. Six predominantly English-speaking countries were included within the study due to their affiliation with Speech Pathology Australia (SPA). Although this broadened the applicability of the research on an international scale, many unexplored perspectives of SLPs still remain from non-participating countries. On completion of analysis, documents outlining the prominent themes and domains were sent to both participants and facilitators using the details provided for correspondence. The member check requested comments in the form of general thoughts, agreement/disagreement with categories and associated reasoning. One facilitator and one participant provided feedback on the documents. These results are consistent with current literature commonly reporting low response rates and therefore questioning the impact of member checks on improving the credibility of a study (Thomas, 2017). An accurate representation of participant views was however confirmed through the contributions made by focus group facilitators as co-authors. Further research may encompass a larger

sample of participants across a greater number of countries in order to consider the variables impacting implementation on a larger scale.

Clinical implications

The findings from this study will facilitate the development of an intervention targeting the intensity and comprehensiveness of aphasia services across multiple countries. Modifiable barriers and facilitators underpin the themes of *collaboration, advocacy, culture,* and *innovation* which were consistent across all three aphasia service types. These findings therefore encourage SLPs to collaborate, problem solve, and promote service change. When attempting to reduce the evidence-practice gap, it is essential for the focus to remain on an attainable level of achievement for each clinical service. Although an ICAP may not be a feasible model of practice for all clinical services, a future implementation intervention may facilitate the selection of realistic targets for increasing the overall intensity and comprehensiveness of an aphasia service. As a result of a movement towards collaborative development and implementation of best practice recommendations, the accessibility and applicability of an intervention will also need to be considered across multiple countries.

Conclusion

The study identified key factors influencing the implementation of intensive and comprehensive aphasia services including a relatively new model of service delivery (ICAPs). When attempting to influence a change in aphasia practices, the identified barriers and facilitators have highlighted a need for the themes of *collaboration, advocacy*, *culture,* and *innovation* to be considered. The overarching themes were consistent across multiple countries and will therefore facilitate the development of an implementation intervention suited to a diverse range of health services.

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Table 1

Participant Variables

Country (number of participants)	Workplace			Position				Organisation				Professional Experience	
	Hospital	Non-hospital	Both	Clinician	Management	Both	Incomplete	Public	Private	Both	Incomplete	<10 years	≥ 10 years
AUS (6)	4	2		5	1			5	1			3	3
IRE (6)	3	3		5	1			6				2	4
USA (7)	4	3		6			1	3	2	1	1	4	3
NZ (3)	1	1	1	2		1		2	1			1	2
CAN (8)	7	1		8				8				1	7
UK (4)	1	3		3		1		4				1	3
Totals (34) **%**	**20** **59%**	**13** **38%**	**1** **3%**	**29** **85%**	**2** **6%**	**2** **6%**	**1** **3%**	**28** **82%**	**4** **12%**	**1** **3%**	**1** **3%**	**12** **35%**	**22** **65%**

Table 2
Stroke Pathways

Country	Stroke Service					
Australia (Stroke Foundation, 2017)	Emergency Department (hyper-acute care)	Stroke Unit (hospital care)	Inpatient Rehabilitation (hospital care)	Early Supported Discharge (ESD) Program (community rehabilitation)	Community Rehabilitation (centre-based or home-based)	Long-Term Rehabilitation
New Zealand (Stroke Foundation of New Zealand and New Zealand Guidelines Group, 2010)	Emergency Department (hyper-acute care)	Stroke Unit (hospital care)	Inpatient Rehabilitation (hospital care)	Early Supported Discharge (ESD) Program (community rehabilitation)	Community Rehabilitation (centre-based or home-based)	Long-Term Rehabilitation
Canada (Simmons-Mackie, 2018)	Emergency Services	Acute Hospital	Inpatient Rehabilitation	Outpatient Rehabilitation	Community Services	
USA (Simmons-Mackie, 2018)	Emergency Services	Acute Hospital	Inpatient Rehabilitation	Outpatient Rehabilitation	Community Services	
UK (National Institute for Health and Care Excellence, 2018)	Accident and Emergency	Stroke Inpatient Unit	Inpatient Stroke Rehabilitation Service	Early Supported Discharge (ESD)	Community Rehabilitation	
Ireland (Irish Heart Foundation, 2010)	Emergency	Stroke Unit (acute hospital)	Stroke Rehabilitation Ward (acute hospital)	Rehabilitation Hospitals and Day Hospitals (non-acute hospital services)	Early Supported Discharge Team (Community)	Community Stroke Services

Table 3

Factors Influencing Implementation

**Factors Influencing Implementation of Aphasia Services
(Intensive Services, Comprehensive Services and ICAPs)**

Theme	Sub-themes	Theoretical Domains (Cane, Connor, & Michie, 2012)
Collaboration Joint initiatives and partnerships	**Joint Initiatives** Movement towards working in partnerships across the continuum of care (inpatient and community).	**Environmental Context and Resources**
	Networking Sharing of clinical resources and greater access to experienced aphasia clinicians for guidance and support.	**Knowledge** **Skills**
	Professional Boundaries Challenging professional boundaries to achieve a unified approach to the implementation of evidence-based practices.	**Knowledge** **Social/Professional Role and Identity**
	Positive Outcomes Attempting the implementation of new service models as a result of previous positive experiences with joint initiatives.	**Beliefs about Consequences**
Advocacy Promotion of aphasia services and evidence-based practice	**Service promotion** Empowering clinicians with the required skills and knowledge to promote new service initiatives.	**Knowledge** **Skills**
	Education Acknowledging the responsibility of clinicians to provide education relating to evidence-based services.	**Social/Professional Role and Identity**
	Self-Advocacy Promoting self-advocacy by individuals with aphasia.	**Environmental Context and Resources** **Social/Professional Role and Identity**
	Receptiveness Impact of an organisation's receptiveness to service change on continuing advocacy.	**Beliefs about Consequences** **Environmental Context and Resources**
Culture Influence of underlying values	**Impairment Based** De-valuing communication within a medical or impairment focussed service.	**Environmental Context and Resources** **Knowledge** **Skills** **Social/Professional Role and Identity**
	Time-Limited Provision of time-limited services as a result of discharge pressures and the treatment of aphasia as a short term condition.	**Environmental Context and Resources** **Social/Professional Role and Identity**
	Research focus Opportunities for professional development and service improvement within services fostering research and evidence-based practice.	**Beliefs about Consequences** **Skills**
Innovation Ability to problem solve challenges	**Creativity** Creative resourcing and use of alternative service models to overcome challenges relating to funding, location and health service structure.	**Environmental Context and Resources** **Social/Professional Role and Identity**

Flexibility
Flexibility of a clinician's role to adapt and modify interventions in order to provide an individualised service.

Social/Professional Role and Identity

Problem Solving
Problem solving patient, clinician and environmental challenges to implementation.

Beliefs about Consequences
Skills
(Social Influences and Beliefs about Capabilities)

Evidence translation
Practical knowledge and skills relating to the translation of evidence into everyday clinical practice.

Knowledge
Skills

Supplementary Material

Appendix A

Focus Group Topic Guide

Introduction (example):

Welcome and thank you for participating in the focus group today. As you are all aware the aim of the group will be to identify the barriers and facilitators to implementing 1) intensive aphasia services 2) comprehensive aphasia services and 3) Intensive Comprehensive Aphasia Programs (ICAPs). Current literature indicates an evidence-practice gap relating to both intensive and comprehensive services. It is for this reason that the influential factors therefore need to be considered to ensure best practice recommendations are implemented within everyday clinical practice.

Contextual factors:
I would like to start today by learning about your experiences in providing aphasia services.

Questions	**Probing Questions if required:**
Firstly, introductions: I would like everyone to introduce themselves, their position of employment and the service that you provide. Following this point everyone can then contribute to the discussion as they like.	Prompt for each of the points if not addressed within the participant's response.

Intensive Aphasia Services:
We will now move on to discussing more specific aspects of aphasia services. A definition for intensive aphasia services has been provided within the focus group outline *(read through definition list within outline)*.

Questions	**Probing Questions if required:**
How can we increase the intensity of aphasia services? What makes it difficult to provide intensive services? *(only need to ask if not already addressed during discussion of previous question)*	*Refer to elements of the TDF to prompt for potential factors influencing implementation if not spontaneously addressed (Michie et al, 2005).* *For example:* How does your level of skill or knowledge impact your ability to provide intensive services? In what way could emotional factors affect implementation? What is your perceived role in providing intensive services? What is the potential outcome if intensity is increased? What would you need to do to provide an intensive service? What is the incentive for providing these services? How would this differ from the service you currently provide? How confident are you in providing intensive services? What resources are necessary?

What level of attention or effort will it require to provide intensive services?

To what extent do social influences impact the intensity of aphasia services?

Comprehensive Aphasia Services:
Following on from our discussion relating to intensive aphasia services I would like to further explore the comprehensiveness of aphasia services. A definition for comprehensive services has also been provided within the interview outline *(read through definition list provided within outline).*

Questions	Probing Questions if required:
How can we increase the comprehensiveness of aphasia services?	*Refer to elements of the TDF to prompt for potential factors influencing implementation if not spontaneously addressed (Michie et al, 2005).*
What makes it difficult to provide comprehensive services? *(only need to ask if not already addressed during discussion of previous question)*	*For example:*
	How does your level of skill or knowledge impact your ability to provide comprehensive services?
	In what way could emotional factors affect implementation?
	What is your perceived role in providing comprehensive services?
	What is the potential outcome of comprehensive aphasia services?
	What would you need to do to provide a comprehensive service?
	What is the incentive for providing these services?
	How would this differ from the service you currently provide?
	How confident are you in providing comprehensive services?
	What resources are necessary?
	What level of attention or effort will it require to provide a comprehensive service?
	To what extent do social influences impact the comprehensiveness of aphasia services?

Intensive Comprehensive Aphasia Program (ICAP):
I would now like to ask a few questions in relation to the Intensive Comprehensive Aphasia Program (ICAP) - a relatively new model of service delivery. The main features of an ICAP have also been provided and include the following… *(read through definition list within outline).*

Questions	Probing Questions if required:
Do you think an ICAP could be run within your service?	Why/why not?
What would make it easier to run an ICAP?	*Refer to elements of the TDF to prompt for potential factors influencing implementation if not spontaneously addressed (Michie et al, 2005).*
What would make it more difficult? *(only need to ask if not already addressed during discussion of previous question)*	*For example:*

How would your level of skill or knowledge impact your ability to run an ICAP?

In what way could emotional factors affect implementation?

How would you envision your role in relation to an ICAP?

What are the potential outcomes of an ICAP?

What would you need to do to establish an ICAP?

What is the incentive for providing this program?

How would this differ from the service you currently provide?

How confident would you be in running an ICAP?

What resources are necessary?

What level of attention or effort would be required to establish an ICAP?

To what extent would social influences impact the implementation of an ICAP?

References

Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., Walker, A., & Psychological Theory, G. (2005). Making psychological theory useful for implementing evidence based practice: a consensus approach. Quality & safety in health care, 14(1), 26-33. doi:10.1136/qshc.2004.011155