Better pathways to living successfully with aphasia: Translating a national aphasia rehabilitation research program into clinical practice.

Introduction

There is consensus that improved translation of health research knowledge into policy and clinical practice is required to provide effective, efficient and equitable health treatments to consumers. The Centre for Clinical Research Excellence (CCRE) in Aphasia Rehabilitation is an Australian national aphasia rehabilitation research program which aims to construct an Australian Aphasia Rehabilitation Pathway (AARP) (see Table 1 for CCRE details). The AARP will contain both existing evidence and research developed in the CCRE program. The evidence will be formulated into a consumer-focused clinical pathway for implementation by speech-language pathologists across the care continuum (acute, rehabilitation and community service provision). It aims to improve service provision, and outcomes for people with aphasia and their families. The creation and promotion of clinical guidelines and pathways alone does not lead to their implementation (Davis et al., 2003) due to a range of cultural, research and person-specific factors (Mitton et al., 2007; Vallino-Napoli & Reilly, 2004), leading to poorer health outcomes (McGlynn et al., 2003).

Knowledge Transfer and Exchange (KTE) is a burgeoning area of practice which involves a dynamic, interchange of knowledge between both research producers and users so research evidence will be utilized in health service policy and practice (Canadian Institutes of Health Research, 2010). This process assumes that knowledge translation is a social activity that requires engagement with a wide variety of stakeholders throughout the research project. KTE approaches have shown promise in one aphasia rehabilitation study to transfer research evidence into sustainable, system-wide practices to improve communication access for people with aphasia (Simmons-Mackie et al., 2007). The task of implementing a large, national, research program is potentially more complex. The challenge for the CCRE Aphasia Rehabilitation research group is to develop a national strategy for successful implementation of the AARP, ensure that individual research projects at different stages of completion are consistent with the overall plan, and build capacity of the CCRE researchers to develop their own KTE plans for individual projects and future grant applications.

KTE capacity building is important because universities and granting bodies increasingly require researchers to demonstrate research impact beyond peer-review publications (Wilson, Petticrew, Calnan, & Nazareth, 2010). While a general positivity to translation exists, researchers need "greater and clearer guidance on how best to plan, resource and facilitate their dissemination" and funding agencies require KTE plans that reference conceptual and theoretical models of KTE (Wilson et al, 2010). However, more than 63 models of KTE exist and each model places varying emphasis on different components in the KTE process (Ward, House, & Hamer, 2009). Models of most interest to researchers are those that incorporate *both* knowledge creation and clinical implementation processes. One framework that contains both components and is based on planned-action theories is the Knowledge-to-Action-Process Framework (Graham et al., 2006) (Figure 1). This comprehensive framework contains both 'knowledge creation' and implementation components ('action cycle') with various phases within these components. The framework is conceptualized as both complex and dynamic without definite boundaries or direction between the components and among the phases. As the knowledge creation component consists of a variety of types of knowledge that range from simple inquiry to more synthesized

knowledge, the framework is ideal for a whole research program where the aim is to create a synthesized tool such as the AARP. Additionally, stakeholders may have input and receive information at any stage of the research process as researchers can tailor knowledge for end users during all stages of knowledge creation.

Aim

This paper describes a multilayered KTE strategy developed by mapping a large aphasia research program onto The Knowledge-to-Action-Process Framework (Graham et al., 2006) in order to maximize effective translation of research evidence into clinical practice.

Method

The development of a CCRE research program KTE plan involved a number of steps to cover the knowledge creation, knowledge tailoring (dissemination) and action cycle components of the Knowledge-to-Action-Process Framework (Graham et. al., 2006) (Table 2). In step one, each component of our research program were mapped into the relevant sections in the knowledge creation funnel. Next, each phase of the action cycle was reviewed to determine key questions that researchers and clinicians would need to address to implement AARP into clinical practice. Once this was complete, the *Knowledge translation planning tools for stroke researchers* (Landry et al., 2006) were used to develop specific strategies for tailoring our research for stakeholder groups throughout the program. The tool consists of a detailed checklist organized into three sections; knowledge generation, knowledge transfer and knowledge uptake and enables researchers to develop objective actions for a KTE strategy. The checklist is based on a synthesis of literature on knowledge translation in stroke research and the three sections are generally consistent with those identified by Graham et al., (2006) as knowledge creation, tailoring knowledge and action cycle. The checklist was completed by two research group members and developed into a KTE plan. Following this comprehensive analysis, a less detailed checklist for specific individual research projects was identified based on five principles for evidenced-based KTE planning (Kagan, Simmons-Mackie, Gibson, Conklin, & Elman, 2010; Lavis, Robertson, Woodside, McLeod, & Abelson, 2003). This enabled individual researchers to develop small, manageable KTE plans for their projects consistent with the larger aims of the research program and AARP.

Results

The CCRE Aphasia Rehabilitation Knowledge-Action Framework for the AARP was developed (Figure 2). This incorporated CCRE knowledge creation activities including individual research studies, through to more synthesized knowledge of systematic reviews and finally a tool, the AARP, that represented the most synthesized and useable knowledge product for clinical implementation. Additionally, for each action cycle component, questions were identified to assist with consideration of factors important in the AARP implementation process. These questions also form key areas of enquiry in our CCRE translational research program as each question represents potential research studies that could build further knowledge on what is effective KTE in aphasia rehabilitation. Finally, a KTE plan was developed that included a variety of strategies to maximize implementation of the AARP (examples in Table 3). These include encouraging co-produced research with stakeholder engagement through Aphasia Communities of Practice and Consumer Reference groups that are connected by a research website (Kagan et al., 2010). The plan also contains KTE capacity building initiatives by identifying key evidenced-based research principles to enable individual researchers to develop

their own KTE plans and utilize this information for grant applications. In terms of evaluation of the AARP, a national pre and post AARP implementation survey of aphasia practice has been designed. Other projects based on the action cycle will allow the investigation of contributing factors to clinical adoption of the AARP.

Discussion

Reducing the knowledge-to-practice gap to improve health outcomes for consumers is currently high on policy agendas of health services and granting bodies worldwide (WHO, 2004). Through a multilayered mapping and planning process, a KTE foundation for the years of CCRE research ahead has been established to ensure increased opportunities clinical implementation of our research program. The processes and challenges described in this paper will have relevance for a wide range of researchers and clinicians who are interested maximizing communication-related health outcomes for people with aphasia and their families.

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Table 1. Characteristics of the CCRE Aphasia Rehabilitation Research program

Characteristics	Details
Funding source	National Health and Medical Research Council (NH&MRC)
Funding duration	Initially 5 years
Investigators	12
Postdoctoral fellows	7
RHD affiliates	16
Research affiliates	25
Consumer groups	2 consumer associations
Client scope	People with aphasia following Stroke, Traumatic Brain Injury (TBI)
Continuum of care	Acute hospital, Inpatient and Outpatient Rehabilitation, Community - to cover the full scope of communication recovery post stroke
Service settings	Public and private health services
Approaches	Combining impairment and social rehabilitation approaches under the WHO International Classification of Functioning (ICF) (WHO, 2001)
Current number of projects	24+
Australian universities represented	6

Key: RHD = Research Higher Degree students

Table 2. Stepped process in developing a KTE plan for a national aphasia rehabilitation research program.

Step	Component	Mapping/ planning	Resources utilized
1	**Knowledge creation**	Individual research projects, systematic reviews performed by CCRE and AARP.	The Knowledge-to-Action-Process Framework (Graham et. al., 2006).
2.	**Action cycle**	Considerations and questions in relation to the AARP for each component of the action cycle.	The Knowledge-to-Action-Process Framework (Graham et. al., 2006) and relevant KTE literature.
3.	**Tailoring knowledge**	Specific consideration of *detailed KTE strategies for implementation of the AARP.* To form the basis for the AARP KTE plan.	**CCRE AARP:** Knowledge Translation Planning Tools for Stroke Researchers (Landry, et. al., 2006) **Knowledge generation (Knowledge creation)** • E.g. In developing your research project you use ideas and information from stroke survivors, heart and aphasia / TBI organizations and community groups? **Knowledge transfer (Tailoring knowledge)** • E.g. Develop a strategic plan to build and maintain direct relationships with intended users throughout the project (e.g., through conferences, meetings, informal contacts, electronic mail, regular mail, and phone). **Knowledge uptake (Action cycle)** • E.g. Suggest specifically how proposed changes in practice will result in better outcomes for the improvement of stroke care and prevention.
		A more streamlined question list to assist CCRE researchers develop *key KTE strategies for individual projects.*	**CCRE INDIVIDUAL PROJECTS:** Five key principles for evidence-based KTE planning (Kagan et. al., 2010; Lavis et al., 2003): • What is the key message? (What type of knowledge use is sort?) • Who needs to know about the research and when? • Who will disseminate the knowledge? • What will be the best way to transfer and exchange knowledge? • With What Effect? (How will we know the knowledge has been used and with what effect for consumers?)

Table 3. Some examples of CCRE Aphasia Rehabilitation KTE initiatives developed from the planning and mapping process.

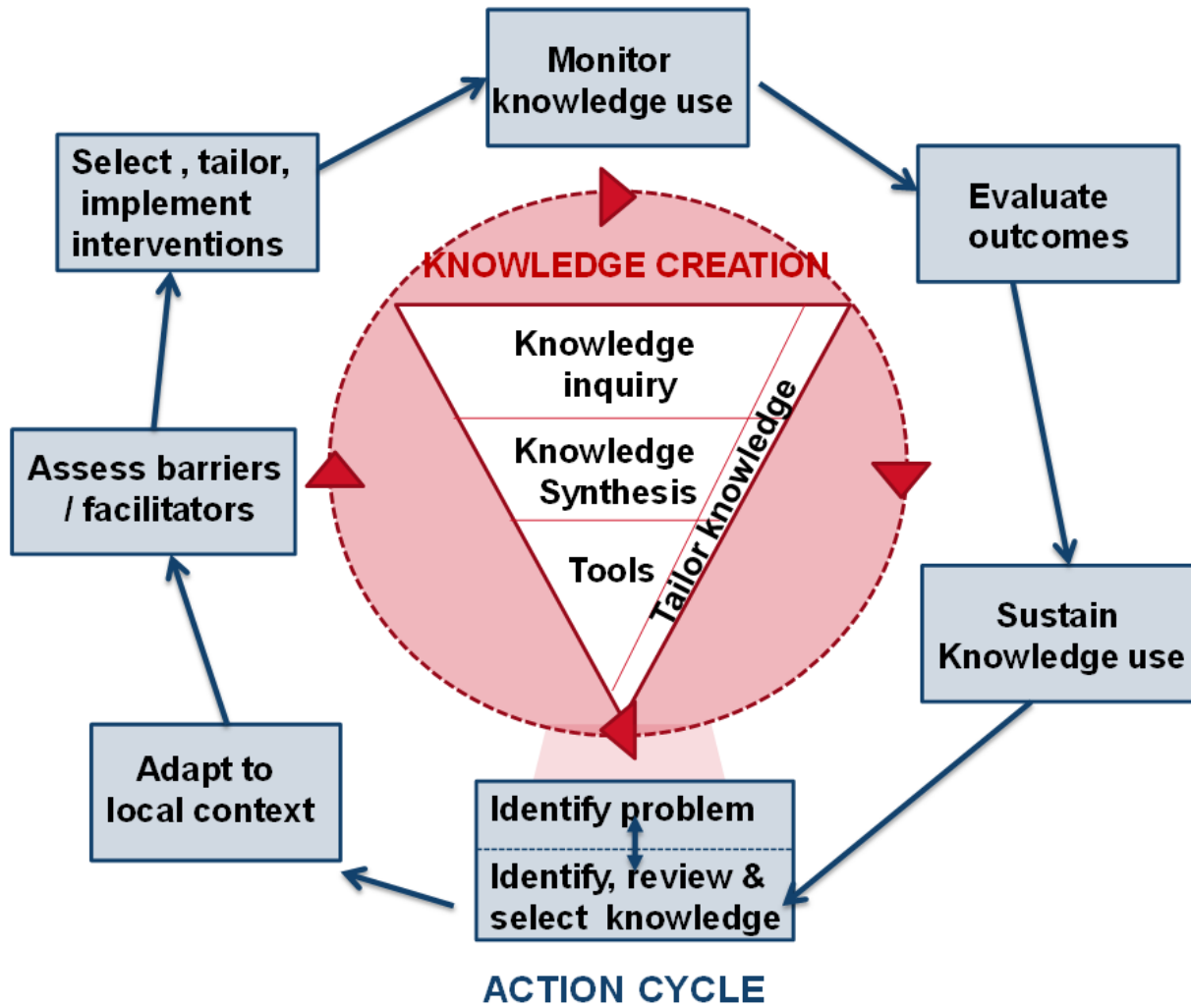| Initiative	Description
Overall	
1. KTE plan for AARP	Overall KTE plan for the CCRE Aphasia Rehabilitation in relation to its main aim of developing the Australian Aphasia Rehabilitation Pathway (AARP).
2. KTE plan appropriate to individual projects	Smaller KTE plans for individual research projects that may reference the overall plan and be utilized for future grant applications.
3. Knowledge-action-framework	Specific CCRE Aphasia Rehabilitation Knowledge-Action Framework which provides information for the KTE plan as well as research questions to build further knowledge on what is effective KTE in aphasia rehabilitation.
Research / Evaluation	
4. Pre-Post national survey of aphasia practice in Australia	Survey of national practice patterns completed prior and after implementation of the AARP
5. A national survey of clinician's use and opinions on the current Stroke Rehabilitation Clinical Guidelines	Research on current similar guideline documents to provide evidence on what clinician's perceive would assist them in putting the AARP into practice.
Tools / Engagement	
6. Community of Practice	Develop a community of researchers, health professionals and policy-makers with consumers to aid in the exchange of research knowledge creation, dissemination and implementation.
7. Consumer reference groups	Direct reference groups that operate during the research process that may contribute to research questions, design and analysis.
8. Consumer and professional workshops / conferences	Dissemination opportunities through workshops and conference presentations.
9. CCRE Aphasia Rehabilitation Website	Dissemination and research tool to engage with Community of Practice

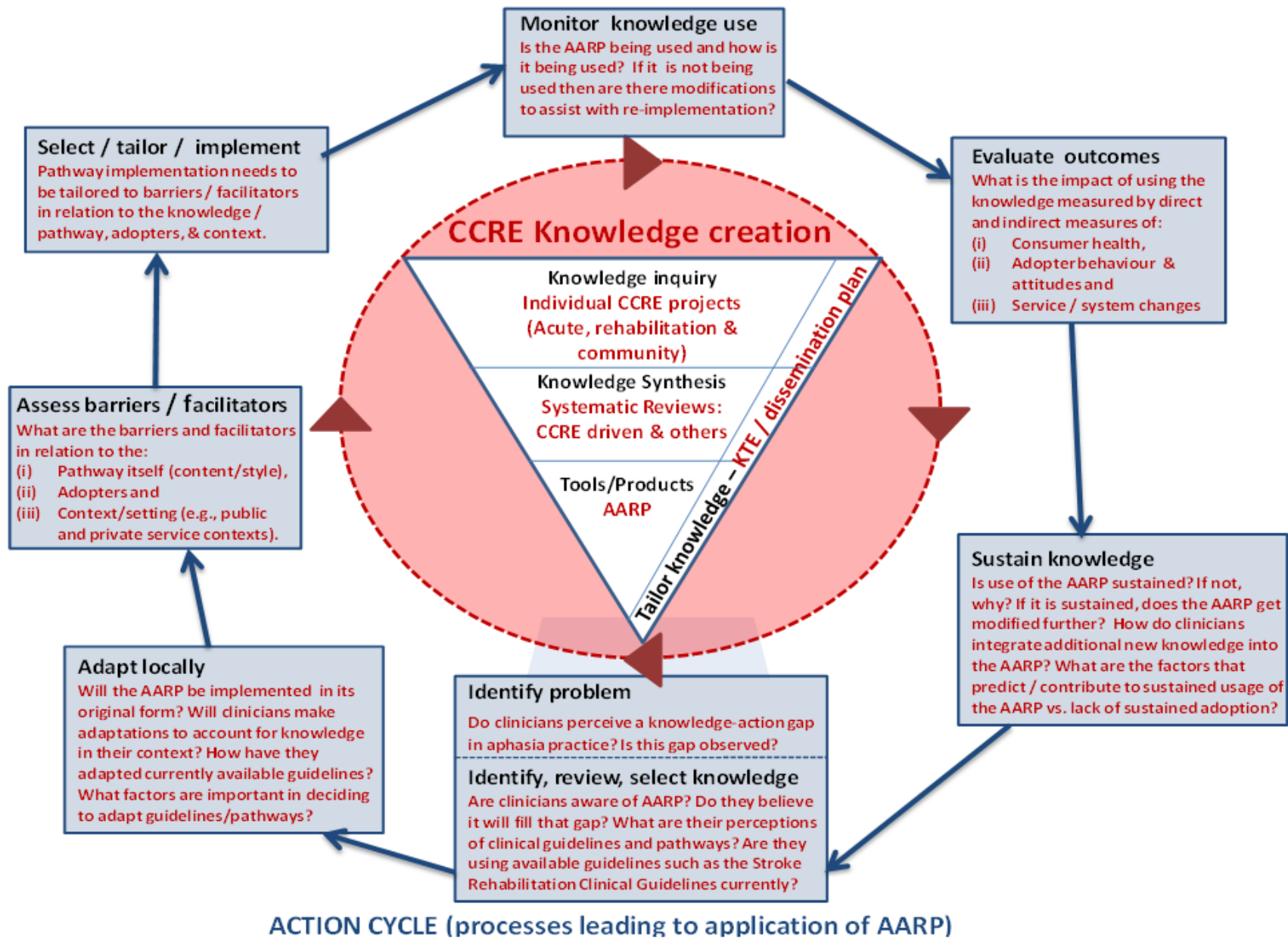Figure 1. The Knowledge-to-Action-Process Framework adapted from Graham et al. (2006)

Figure 2. Map of the CCRE Aphasia Rehabilitation research program to the Knowledge Creation and Action Cycle of the Knowledge-to-Action-Process Framework (adapted from Graham et al., 2006). AARP=Australian Aphasia Rehabilitation Pathway