



## **SMART STROKES 2021 Virtual Conference**

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**Abstract Book**

## Oral Abstracts

### **Providing additional intensive rehabilitation promotes functional improvement in post-stroke patients with low and moderate motor-function**

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#### **Background:**

Upper-limb impairment post-stroke spans a spectrum of low to high motor-function with different levels presumably requiring different rehabilitation programming to improve function and independence. Ongoing rehabilitation and intensive practice are recommended to all stroke survivors; however, less is known on the patterns of improvement for patients with low and moderate motor-function in these programs.

#### **Aims:**

This study investigates the effects of delivering two programs of intensive upper-limb rehabilitation to post-stroke patients with low and moderate motor-function.

#### **Methods:**

11 post-stroke patients completed an intensive 2-week program of modified Constraint-Induced Movement Therapy (mCIMT) followed by a dose-matched, intensive 2-week program of Wii-based Movement Therapy (WMT) approximately six months afterwards. Participants were stratified as having low (n=5) or moderate motor-function (n=6) using the stratification method described by Varley and colleagues. Primary outcome measures included the upper-limb Fugl-Meyer Assessment (F-M) for functional ability and the Motor Activity Log Quality of Movement Scale (MALQOM) for independence. These assessments were conducted at pre-intervention, post-intervention and 6-month follow-up for both programs.

#### **Results:**

Participants with low motor-function had a greater average increase in F-M score of 6.6 points and 2.4 points after the first and second programs, respectively, in comparison to 3.5 points and 3 points for those with moderate motor-function. Both groups had similar patterns of improvement in MALQOM score

#### **Discussion/Conclusion:**

Participants with low and moderate motor-function had similar patterns of improvement in upper-limb functional ability and independence after both intensive programs, however, they started at different baselines. Thus, warranting multiple intensive programs for both groups.

1. Varley BJ, Shiner CT, Johnson L, McNulty PA, Thompson-Butel AG. Revisiting Poststroke Upper Limb Stratification: Resilience in a Larger Cohort. *Neurorehabil Neural Repair*. 2021;35(3):280-9.

## **“They haven’t really focussed on it” - The experience of post-stroke fatigue during outpatient rehabilitation.**

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### **Background:**

Fatigue is a frequently occurring, debilitating post-stroke symptom negatively impacting rehabilitation. There are limited evidence-based interventions to manage post-stroke fatigue. Qualitative studies may help generate knowledge to guide interventions and provision of care. The experience of post-stroke fatigue has not previously been investigated during outpatient rehabilitation, in a culturally diverse population, or considering the perspective of carers.

### **Aim:**

To describe the experience of post-stroke fatigue during outpatient rehabilitation and explore the impact carers have on the experience.

### **Methods:**

Semi-structured interviews were conducted with stroke survivors and their carers where identified, guided by descriptive phenomenology within a constructivist paradigm. Data were analysed according to Colaizzi’s analytic method.

### **Results:**

Fourteen stroke survivors (50% culturally and linguistically diverse), and nine carers participated. Six themes were identified: 1. The unpredictable and unprepared uncovering of fatigue; 2. Experience and adjustment are personal 3. Being responsible for self-managing fatigue; 4. Rehabilitation as a vehicle for improving fatigue; 5. Learning about fatigue is a self-directed problem-solving experience; 6. Family and carers can support or constrain managing fatigue.

### **Discussion:**

Despite engaging proactively in rehabilitation, stroke survivors largely learn to manage fatigue independent of their health-care team. Carers may be a powerful influence on the fatigue experience for stroke survivors, both positively and negatively. Clinicians should consistently screen and provide advice about fatigue and pay particular attention to educating carers to recognise indicators, and support management. Rehabilitation services should provide motivational, goal-directed care with flexible session scheduling to suit the individualised needs of the stroke survivor with fatigue.

This work was supported by a Western Health Research Grant.

## **Uncharted territory: The feasibility of serial computerized cognitive assessment the first week post stroke.**

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**Background:**

Cognitive impairment is problematic post-stroke, yet vital information to understand early cognitive recovery is lacking. Computerized assessments allow sensitive repeat measures to record the trajectory of acute post-stroke cognitive recovery. Valid tools enabling repeat assessment are essential for evaluating efficacy of intervention.

**Aims:**

To determine the feasibility of using serial computerized cognitive assessment to capture early cognitive recovery by measuring completion rates the first week post-stroke and comparing to current cognitive screening practice.

**Methods:**

An observational cohort study recruited consecutive stroke patients admitted to an acute stroke unit within 48 hours of onset. Daily assessment with the Cambridge Neuropsychological Test Automated Battery (CANTAB) was performed for seven days, and single Montreal Cognitive Assessment (MoCA).

**Results:**

Seventy-one participants were recruited of whom 67, mean age 74, completed daily testing. Participants had predominantly mild (85%; NIHSS <6), ischaemic (90%) stroke, 32% were delirious. The first day of testing, 76% of participants completed CANTAB batteries. Eighty-seven percent of participants completed MoCA a mean of 3.4 days post-stroke. The proportion of CANTAB subtests completed improved significantly from day 2 to day 3 post-stroke with completion rates stabilizing > 92% by day 4. Participants with incomplete CANTAB were older, with persisting delirium, and longer stay in acute care.

**Conclusion:**

Serial computerized cognitive assessments are feasible the first week post-stroke and provide a novel approach in measuring cognitive change for both clinical and research purposes. Maximum completion rates by day four have clinical implications for optimal timing of cognitive testing.

**A Multi-Disciplinary Service Model for Hypertonicity Management Post Brain Injury: Experience and Perceptions of Service-Users in Queensland.**

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**Background:**

Up to 30% of people experience hypertonicity (disabling muscle over-activity) post stroke. Consequences include joint contractures, pressure areas, pain, muscle weakness and tightness leading to disability, reduced quality of life and increased health care costs. The Princess Alexandra Hospital Hypertonicity Service (PAHTS) currently provides the only specialist multi-disciplinary service in Queensland and the team is the recognised state leader in its' field. Limited evidence exists about

service-user experience and perceptions of hypertonicity management. Engaging service-users in service evaluation is essential to improving quality of healthcare.

**Aims:**

To explore and characterise service-user experience, perceptions and satisfaction with PAHTS and to identify areas for improvement in the service model.

**Method:**

This qualitative health service evaluation project utilised focus group methodology to explore 12 service-users' perceptions and experience of PAHTS. Participants (patients/carers) had received care in the previous 18 months. The audio recorded discussions were transcribed and analysed thematically.

**Results:**

Four major themes were identified and will be presented: Accessing the service; Evolving Expectations; Generating Value and Attaining Patient Outcomes. Implications for how service evaluation will translate into improvement initiatives for PAHTS and future state-wide model of care will be discussed.

**Conclusion:**

Service-users made a valuable contribution in evaluation and development of the model of care for hypertonicity management in Queensland. Further research is required to understand the lived experience of hypertonicity following stroke to deliver patient-centred care for future service users.

**Oral care practices after stroke: A SURVEY from UK & Australia**

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**Background**

Poor oral care has negative health consequences Internationally. little is known about current oral care practices for patients with stroke in hospitals.

**Aim**

To survey hospital oral care practices undertaken by clinicians for inpatients with stroke in the UK and Australia.

**Method**

Surveys were mailed to stroke specialist nurse or representative in hospitals known to provide inpatient care for patients with stroke. Non-respondents were followed up five times Descriptive analyses are presented.

**Results**

Response rates were 86% (150/174) in the UK and 74% (120/163) in Australia. Sixty-nine percent of hospitals in the UK and 36% in Australia had an oral care protocol. Fifty-four percent of UK and 14% of Australia reported using oral care assessment tools. Of those using tools, these were generally

hospital-specific, with seven standardised tools used across the UK compared to five in Australia. Oral care assessments were undertaken on admission in 73% of UK and 57% of Australian hospitals. Oral care was mostly provided twice a day, unless patients were nil by mouth when it was provided three times a day. Date, time and care provider were more likely to be recorded whereas the type of oral care provided was less common. Over half of UK staff (55%) received oral care training in the last year compared to 30% in Australia

### **Conclusion**

Unacceptable variability exists in oral care practices for stroke in both regions with Australia having poorer practices than the UK. Oral care is a neglected area of stroke clinical practice.

### **Preliminary evaluation of the implementation of a Comprehensive, High-dose Aphasia Treatment in the Surgical, Treatment and Rehabilitation Service**

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### **Background**

There is strong evidence that aphasia therapy improves communication outcomes and individuals' benefit more when therapy is delivered at a higher dose, at a higher intensity and over a longer period. However, this research has not been translated into clinical practice. Furthermore, there are several barriers to the delivery of intensive therapy. We have developed the Comprehensive, High-dose Aphasia Treatment (CHAT) program, which involves 50 hours of aphasia therapy delivered over 8 weeks. CHAT is based on a program with demonstrated clinical efficacy, however, to date, CHAT has not been evaluated within a clinical rehabilitation service.

### **Aims**

This study aims to evaluate the implementation and effectiveness of CHAT when delivered in the Surgical, Treatment and Rehabilitation Service (STARS). Contextual factors influencing treatment fidelity and participation in CHAT, as well as barriers and facilitators to the delivery of CHAT, will be identified.

### **Methods**

A prospective, mixed-methods, pre-post study design will be employed. CHAT will be delivered by Queensland Health speech pathologists at STARS. Adults with post-stroke aphasia who are greater than 1-month post-stroke and without comorbidities that would prevent participation in rehabilitation will be eligible to participate. Patient and service-level data will be collected.

### **Results**

Recruitment to CHAT commenced in March 2021. Twelve participants with aphasia have been consented and preliminary data from this cohort will be presented.

### **Conclusions / Discussion**

Preliminary findings will allow an early understanding of how intensive aphasia treatment is translated into a real-world clinical setting and may inform models of care for aphasia rehabilitation.

## **Developing My Aphasia Handbook to accompany My Stroke Journey: A collaboration between the Australian Aphasia Association and the Stroke Foundation.**

**Deborah Hersh<sup>1</sup>**

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### **Background**

Aphasia occurs in approximately 30% of all strokes. Currently in Australia, all people post stroke are offered the My Stroke Journey booklet while in hospital, a comprehensive source of information to assist patients and families to understand stroke recovery. People with aphasia have requested more in-depth, tailored, accessible information to help them participate and navigate their journey in the context of language disability.

### **Aims**

This presentation introduces the My Aphasia Handbook, developed through a partnership between the Australian Aphasia Association (AAA) and the Stroke Foundation (SF).

### **Methods**

My Aphasia Handbook includes three sections: aphasia-friendly information; a personal portfolio with records of therapy and goal setting; and supported communication pages with links to further online resources through a QR code portal. This resource was refined through an extensive consultation process with people with lived experience and people with professional experience through a questionnaire, 1:1 interviews and online focus groups.

### **Results**

This consultation is in process and feedback from consumers and stakeholders will be incorporated into the final product. We anticipate that the design will be similar in style to My Stroke Journey with the My Aphasia Handbook being launched in November 2021.

### **Discussion**

The collaboration between the AAA and the SF has made it possible to produce a resource which will provide much needed aphasia-friendly, detailed information for dissemination to all people with aphasia after stroke in Australia, as well as supported communication resources to help them self-advocate and participate more effectively in rehabilitation decision-making, goal setting and discharge planning.

## **Exploring health professionals' experiences of co-designing implementation strategies with stroke survivors and their families**

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#### **Background:**

The importance of involving consumers in research is increasingly being recognised. We sought to explore health professionals' perspectives of collaborating with consumers in an implementation research project.

#### **Methods:**

Single site study in one inpatient rehabilitation facility. Stroke survivors, carers and health professionals worked collaboratively to identify implementation priorities and develop implementation strategies. Monthly review meetings were held over 6 months to evaluate and tailor strategies.

Health professionals who had attended two or more monthly meetings were invited to participate in interviews. Interviews were audio-recorded and transcribed; data were inductively coded.

#### **Results:**

One focus group (7 participants) and three individual interviews were conducted. One participant responded to questions from the interview guide over email. Seven health disciplines were represented.

Clinicians reported that collaborating with consumers led to the identification of areas for service improvement that were not always apparent, and was a powerful source of motivation: *"Hearing from a client how things could be done better, you're more likely to put something in action."*

Co-designing with consumers facilitated clinicians to focus on holistic rehabilitation, resulting in unanticipated personal benefits: *"It's almost been a bit of self-care"*.

Respondents felt consumers need to be well prepared for their role to be able to fully participate in the project.

#### **Conclusion:**

The project shows that engaging end-users of research in implementation is feasible and positively received by health professionals. This approach has the potential to enhance research translation in a person-centred and practical way.

### **Can the world's first 'living' stroke guidelines survive? The feasibility, acceptability and use of the Australian Stroke Guidelines.**

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#### **Background**

Clinical guidelines are one tool to assist the translation of research into clinical practice. The three-year Stroke 'living' guidelines project, in partnership with Cochrane Australia, tested a world first model to ensure new evidence is rapidly incorporated into recommendations. Evaluation of the stroke 'living' guidelines was undertaken to understand the feasibility, acceptability, and usefulness of this model.

#### **Aims**

To describe the feasibility, acceptability, and use of the guidelines. Methods

A mixed methods evaluation was undertaken focused on internal stakeholders (clinical experts, consumers and the project team involved in the development) and external stakeholders (end users). In addition, access of the guidelines was monitored via website analytics.

### **Results**

50 internal stakeholders responded to a survey along with 178 external stakeholders to a separate survey. Regarding feasibility, the majority of internal stakeholders agreed that the technology supporting production works well (71%) and the processes underpinning living guideline production works well (90%). Views of the effect on workload was mixed. The strong involvement of consumers alongside clinical experts was noted as a strength. Regarding acceptability and use, 69% of end users reported increased trust in living guidelines, over half (57%) reported they have increased access of the guidelines and 65% reported increased likelihood to follow the guidelines. Website analytics confirm a significant rise in unique page views from 23,535 in 2016 to 92,327 in 2020.

### **Conclusion**

Living guidelines are feasible and lead to greater trust and access. Further evaluation of the impact is now needed.

## **Impact of post thrombolysis monitoring in the stroke unit on hospital length of stay**

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### **Background.**

Post thrombolysis care traditionally occurs in the setting of an intensive care unit (ICU). A new nursing model in our Acute Stroke Unit (ASU) was implemented enabling direct post thrombolysis admission to the ASU.

### **Aim.**

To determine if the direct admission of post thrombolysis patients to the ASU is safe and can reduce length of stay.

### **Method.**

Our hospital stroke database and the Australian Stroke Clinical Registry (AUSCR) database from January 2017 to December 2019 were reviewed. Patients who were treated with thrombolysis and had endovascular clot retrieval were excluded in the analysis.

### **Results.**

There were 142 patients from the ICU group and 125 from the ASU group. Symptomatic intracranial haemorrhages occurred in 10 patients in the ICU group and none in the ASU group. There were 3 patients from the ASU group who had re-occlusion and required thrombectomy and transferred to ICU. There was a significant reduction of the hospital Length of Stay (LOS) in the ASU group (4 days) compared to the ICU group (6 days) ( $P < 0.0001$ ). The 0-2 mRS at 3 months was 68% and 78% for the ICU and ASU groups ( $P = 0.365$ ), respectively. The average cost per patient for the first 24 hours was \$4,907.00 for the ICU group and only \$2,069.00 for the ASU group.

### **Conclusion.**

Direct admission of post thrombolysis patients to the ASU is safe and shows a trend in reduced hospital LOS. ICU admission of post thrombolysis patients solely for monitoring appears to be costly and not demonstrate clinical outcome.

### **Stroke survivors' perspectives of factors influencing adherence to an intensive upper limb exercise program.**

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#### **Background:**

Up to 80% of stroke survivors will experience upper limb impairments immediately post stroke and less than half will be able to use their arm at 6 months. Guidelines recommend the use of intensive upper limb exercise programs to optimise recovery, however there has been limited research exploring experiences of stroke survivors participating in intensive programs.

#### **Aim:**

To identify factors influencing adherence to an intensive upper limb exercise program in people with stroke.

#### **Methods:**

Qualitative design. Semi structured interviews were conducted with 20 stroke survivors (mean time since stroke = 8.3 years) who had participated in intensive upper limb rehabilitation as part of a randomised controlled trial (the InTENSE trial). We explored perspectives of participation, including perceived barriers and enablers to adherence.

Interviews were audio-recorded, transcribed and imported into Nvivo for analysis. Using deductive coding, two authors mapped themes to the Capabilities, Opportunities, Motivation-Behaviour (COM-B) behaviour change model to identify barriers and enablers to exercise adherence and engagement. Results: Enablers influencing adherence included routine practice times (Motivation - automatic), accountability to staff (Motivation - reflective), social support (Opportunity - social) and face to face contact with staff (Opportunity - physical). Barriers to adherence included exercises being too difficult, reliance on others to help, fatigue (Capability - physical) and difficulty 'fitting it in' (Motivation - reflective).

#### **Conclusion:**

Findings will inform recommendations for the delivery of intensive upper limb exercise programs to improve adherence, and ultimately assist services to provide rehabilitation in a manner enabling self-directed practice by stroke survivors.

### **The influence of clinician practices, beliefs, and relationships on post-stroke rehabilitation referrals**

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6. Griffith University, Brisbane, QLD, Australia Background

A critical role of clinicians working in the acute stroke unit (ASU) is to engage in decision-making about rehabilitation referral. Guidelines and a decision-making tool exist to help guide best practice in this area, however, multiple factors other than the patient's needs may influence current decision-making processes, and these may differ between ASUs.

### **Aims**

This study aimed to explore the processes and experiences of the multidisciplinary team involved in post-stroke rehabilitation referral decision-making, including both acute and rehabilitation clinicians' viewpoints.

### **Methods**

An ethnography was conducted across five ASUs in Queensland, Australia. Observations were undertaken on the ASUs, including multidisciplinary case conference meetings, interviews were conducted with 32 clinicians, and extensive field notes made. Data analysis was a continuous process of coding and exploration of emerging themes.

### **Results**

This presentation will focus on three of the themes emerging from this study: *"Sometimes you have to convince them"* describes the exclusion of patients from rehabilitation referral decision-making and the consequences of this; *"This is a precious resource"* describes the rehabilitation service context – including availability of rehabilitation – and its impact on referral initiation and acceptance. The final theme, *"Keeping the conversation open"* highlights the positive and negative influences of acute- rehabilitation relationships on referral decision-making.

### **Conclusion**

Rehabilitation service gaps, challenges of access, and acute-rehabilitation relationships are worthy of further exploration and improvement. There is a lack of shared decision-making in this area, and interventions to increase its use are needed.

## **Evidence-practice gaps in lower urinary tract symptom assessment, diagnosis and management on wards admitting patients post-stroke.**

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**Background:**

Lower urinary tracts symptoms (LUTS) include incontinence, retention and nocturia. Continence assessment and management plans are recommended in stroke clinical guidelines. To minimize hospital-acquired infections, urinary catheterisation guidelines recommend only clinically-indicated use of indwelling urinary catheters (IDCs). We are unsure how well these guidelines are followed in hospitals.

**Aim:**

To describe current practice for inpatient LUTS assessment, diagnosis, and the use of management plans and IDCs.

**Methods:**

Fifteen wards that admit patients after stroke at 12 hospitals (NSW=11, Queensland=1; metropolitan=4, regional/ rural=8) participated. Medical records of consecutive inpatients discharged August- October 2018 were screened, and the records of inpatients with LUTS/ IDC were audited. The proportions of inpatients with LUTS assessment, diagnosis and management plans relative to those eligible, and those with an IDC, were calculated.

**Results:**

We screened 903 inpatient records [females= 476 (53%), mean(SD) age=75(15) years]; 326 inpatients (36%) had LUTS and 26 (3%) did not have their LUTS status documented. Audits of these 352 inpatient records indicated 32% had a urinary continence assessment within 72 hours of admission to a participating ward, 22% had an IDC and 7% had a management plan. Of the 326 inpatients with LUTS, 30% had a diagnosis of their LUTS type. Of the 551 inpatients deemed to have no LUTS/ IDC, only 8% had a urinary continence assessment completed.

**Discussion:**

From this large, multi-site study we identified substantial evidence-practice gaps for assessing inpatients for LUTS, diagnosing and managing LUTS, and the use of IDCs. Strategies are required to reduce these gaps

**Large Scale European Translation of an Australian Nursing Stroke Trial: The QASC Europe Project**

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### **Background and Aim**

The Quality in Acute Stroke (QASC) trial demonstrated a significant reduction in death and disability when clinicians were assisted to introduce evidence-based nurse-initiated protocols to manage fever, hyperglycaemia (sugar) and swallowing (FeSS) following stroke. A unique international collaboration between the Nursing Research Institute, Australian Catholic University; the European Stroke Organisation; and the Angels Initiative is underway to implement the FeSS Protocols into 20 European countries following translation into 13 languages. We present baseline (pre-FeSS implementation) results for management of these important aspects of stroke care.

### **Methods**

A new module for collecting seven FeSS indicators of care was introduced into the Global Registry of Stroke Care Quality (RES-Q). Consecutive patients with a discharge diagnose of stroke or intracerebral haemorrhage who were older than 18 and were not for palliation only, were entered by clinicians at the hospitals between 2017-2020.

### **Results**

Forty-two hospitals from 15 countries completed baseline data entry (n=2378 patients, 49% male, mean age 71 years). Paracetamol was administered within one hour following temperature  $\geq 37.5^{\circ}\text{C}$  for 59% of patients (n=228/386). When glucose was  $>10\text{mmols/L}$ , 58% of patients (n=255/437) received insulin within one hour. Over half of the patients (1443/2378; 61%) received a swallow screen or assessment before being given oral food, fluids or medications

### **Conclusions**

Improvements in best practice stroke care are needed within these countries for the FeSS processes of care. In future research we will report the effects of a nurse-led multi-country supported implementation on improving clinician adherence to the FeSS

## **Development of a checklist to evaluate treatment fidelity in the delivery of SENSE therapy**

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### **Background:**

Within stroke rehabilitation, interventions provided by allied health professionals are considered inherently complex, with treatment fidelity viewed as a critical element to successful implementation. Treatment fidelity refers to the strategies used to monitor and enhance the reliability and validity of complex rehabilitation interventions. Video and audiotaping are considered the 'gold standard' for assessing the fidelity of treatment delivery, however can be considered resource-intensive and intrusive for some intervention providers and patients. The National Institutes of Health Behaviour Change Consortium also recommends the use of alternative methods such as audit checklists.

### **Aim:**

To develop a documentation audit tool for assessing treatment fidelity during the delivery of SENSE therapy, a complex rehabilitation intervention targeting upper limb somatosensory loss post-stroke.

### **Methods:**

Checklist development comprised of several stages—(i) content determination and design, (ii) checklist testing via audit of 38 documented therapy programs obtained retrospectively from an existing data set, (iii) evaluation of rater-agreement between two assessors, using a subset of 10 therapy programs.

#### **Results:**

The developed audit tool comprised 26 components core to the delivery of SENSE therapy. The checklist identified 6 SENSE therapy programs that were delivered with high fidelity (>80% adherence to core components), and 32 with moderate fidelity (51-79%). Rater agreement was 80% across the subset of 10 programs.

#### **Conclusion:**

Findings highlight the importance of using a theoretically-guided approach to checklist development, with the use of rater-agreement to identify areas for refinement. A documentation audit tool was developed that can be used to evaluate treatment fidelity of complex rehabilitation interventions.

### **Organisational in-hospital factors that influence patient outcomes after acute stroke**

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#### **Background**

Stroke is a leading cause of death and disability. It is unclear which organisational features are of importance in relation to patient outcomes.

#### **Aims**

To assess the association between organisational features of hospitals that treat patients with stroke and patient outcomes (in-hospital mortality and length of stay [LOS])

#### **Methods**

Organisational and clinical data from the Stroke Foundation National Audit Program- Acute Services 2017, 2019. Stepwise logistic regression, adjusted for patient factors (e.g. age, stroke type, stroke severity) were used to assess the association between the organisational features in the Acute Stroke Service Framework (e.g. stroke unit access, routine use of guidelines, care plans and protocols) and outcomes.

#### **Results**

Overall, 122 hospitals contributed 8,368 cases (males 56%, 83% ischaemic stroke, median age 75) for both audits. Approximately, 10% of patients died in hospital and median LOS was 5 days (Q1:3; Q3:9). Factors associated with a) reduced in-hospital mortality included access to ongoing telemetry monitoring (OR 0.60, 95% CI 0.44, 0.83), advanced imaging capabilities (OR 0.54, 95% CI 0.47, 0.79), being treated in a hospital with a stroke coordinator (OR 0.79, 95% CI 0.63, 0.99) and having organised pre-hospital services (OR 0.65, 95% CI 0.47, 0.89); b) reduced LOS included having regional responsibility (coeff -0.51, 95% CI -0.82, -0.20), coordinated regional stroke systems (coeff -0.36, 95% CI -0.70, -0.03), and access to a stroke coordinator (coeff -0.56, 95% CI -0.86, -0.26).

#### **Conclusion**

Several organisational features of hospitals impact outcomes after acute stroke. Increasing access to these resources, including stroke coordinators, is important.

## **Results of the COMPARE RCT of Constraint Induced Aphasia Therapy-Plus, Multimodality Aphasia Therapy and Usual Care for chronic post-stroke aphasia**

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### **Background**

Meta-analyses confirm the effectiveness of speech therapy for post-stroke aphasia, but treatment prescription is limited by a lack of comparative evidence for different aphasia interventions. Constraint Induced Aphasia Therapy Plus (CIAT-Plus) and Multi-modality Aphasia Therapy (M-MAT) are intensive treatments hypothesised to rely on different underlying neural mechanisms for recovery.

### **Aims**

We aimed to investigate whether compared to Usual Care, CIAT-Plus and/or M-MAT resulted in superior language outcomes, functional communication, multimodal communication, and quality of life in people with aphasia, and whether outcomes were differentially superior for aphasia severity subgroups.

### **Methods**

COMPARE was a Phase III multicenter, blinded endpoint, randomized controlled trial. 216 participants were stratified by aphasia severity and randomized in group of three participants to either CIAT-Plus, M-MAT or Usual Care. CIAT-Plus and M-MAT were delivered as 30 hours of intervention over two weeks. The primary outcome measure was the Western Aphasia Battery-Aphasia Quotient (WAB-R-AQ) immediately post-intervention. Secondary outcome measures were taken immediately post-intervention and at 12-week follow-up. The study was powered to detect a 5-point difference on the WAB-R-AQ at therapy completion.

### **Results**

On average, 30 hours of CIAT-Plus or M-MAT did not significantly reduce global aphasia severity. However, both interventions significantly improved word finding, functional communication, and quality of life, with CIAT-Plus superior for word finding and M-MAT for multimodal communication and communication-related quality of life.

### **Conclusions**

This trial provides relative effectiveness data for two intensive interventions for people with chronic post-stroke aphasia enabling more informed aphasia therapy prescription after stroke.

## **Communication is everyone's business: collaborative working to develop effective MDT education in communication access for aphasia**

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### **Background:**

The majority of multidisciplinary rehabilitation teams are not trained in how to communicate effectively with people with aphasia. Implementation barriers include a lack of staff knowledge, skills, and confidence in using supported communication strategies. We aimed to design and test the feasibility, acceptability and potential effectiveness of a tailored implementation strategy to improve communication access for aphasia using consumer input.

### **Method:**

*Design:* A single site mixed methods pilot study. *Participants:* Multidisciplinary health professionals working in an inpatient rehabilitation unit. *Intervention:* A theory-informed implementation strategy was developed and delivered to participants via a 4-hour interactive workshop and training session. Five volunteers with aphasia assisted in training participants. *Outcome measures:* The primary outcome was the change in participants' interaction (pre-post interaction audits with people with aphasia). Secondary outcomes included focus groups and pre-post behaviour-change surveys. *Analysis:* Descriptive statistics and qualitative content analysis.

### **Results:**

To date, two groups of staff (n=13) have completed the training. Three months post-implementation, there was improved staff interactions with people with aphasia, and improved staff *skills, knowledge, confidence, and attitudes* in providing communication support. Focus groups highlighted implementation challenges, including staff awareness of available resources and their perceived role in communication. Staff highlighted the benefit of practicing communication skills with volunteers with aphasia - "*It was the best learning experience I have had.*"

**Discussion and Conclusion:** The training will be modified to address ongoing barriers in future iterations and re-evaluated. Findings from this study can be used to develop behaviour-change interventions in communication access more broadly.

## **Priorities for implementing the Living Stroke Guidelines: Clinician and consumer perspectives**

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**Background:** There are persistent evidence-practice gaps in stroke care that need to be addressed through active implementation efforts. These implementation efforts should be targeted at areas that have strong supporting evidence and known evidence-practice gaps. Importantly, consumer perspectives also need to be considered to enhance stakeholder buy-in and target areas of greatest need. Therefore we sought to identify implementation priorities in Australian stroke care from the perspectives of stroke clinicians and consumers.

**Methods:** An initial meeting held in February 2019 determined principles to guide translation efforts. Shortlisted recommendations were identified based on 'strong' evidence and stroke audit data indicating evidence-practice gaps. Recommendations were bundled according to topic, leading to 23 recommendations. A survey was then conducted, requiring both stroke clinicians and consumers (stroke survivors, carers or family) to rank the *relative importance* of each of the 23 recommendations on a scale from 1-10 and identify their *top five implementation priorities*.

**Results:** 75 clinicians and 16 consumers participated. The top 10 priorities according to perceived *importance* were: 1. Ambulance to stroke hospital pathway; 2. Timely scanning and thrombolysis/clot retrieval; 3. Treatment in a dedicated stroke unit ; 4. Discharge care planning; 5. Early supported discharge; 6. Carer support; 7. Information provision; 8. Collaborative goal-setting; 9. Aphasia therapy; and 10. Oral anticoagulation.

**Discussion and conclusion:** The Stroke Foundation is committed to supporting implementation of prioritised guideline recommendations. Clinicians' and consumers' perceptions will contribute to future plans to target implementation, with ongoing work planned to identify implementation strategies for the priority recommendations.

### **Exploring Best Practice Aphasia Rehabilitation from the Consumer Perspective: A Modified Nominal Group Technique Study**

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### **Background**

Clinical practice guidelines summarise research evidence with the aim of optimising patient outcomes through recommended processes of care. The Aphasia United Best Practice Recommendations (AUBPRs) were developed to provide multi-national best-practice guidance for post-stroke aphasia services. To date, the relevance, comprehensibility, and comprehensiveness of the recommendations has not been assessed by people living with aphasia.

### **Aim**

To explore the relevance, comprehensibility, and comprehensiveness of the AUBPRs from the perspective of people with aphasia and their significant others.

### **Method**

Five sites were established in areas of varying geographic remoteness. At each site people with

aphasia and their significant others participated in separate groups via videoconferencing, providing feedback on the relevance and comprehensibility of the existing recommendations. Using the nominal group technique, participants generated and prioritised new recommendations for aphasia services. Qualitative content analysis was used to compare participant priorities across groups and sites.

## **Results**

To date, 21 participants have taken part in 6 focus groups in metropolitan and regional areas of Australia. Preliminary results indicate that while the existing recommendations are highly relevant, changes are needed to make them understandable to people with lived experience of aphasia. Participants generated 86 new recommendations for aphasia services. The highest priorities were: “Increased education and awareness about aphasia” (people with aphasia) and “psychosocial support for themselves and people with aphasia” (significant others).

## **Conclusions**

People with aphasia and their significant others identified new consumer-important recommendations for aphasia services. Data currently being collected at regional and remote sites will also be included in this presentation.

## Poster Abstract

### Co-design of the Queensland Aphasia Rehabilitation Centre

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#### **Background:**

Aphasia, an impairment of language, occurs in 30-40% of all stroke survivors. This often chronic condition, results in poor outcomes for both the individual with aphasia and their family. Long term aphasia management is limited, with few people receiving suitable services by 6-12 months post onset. To date, no research has specifically explored unmet service needs or preferences for future service development within this population. The Queensland Aphasia Rehabilitation Centre (QARC), a dedicated aphasia centre, is currently being developed and represents an opportunity to address this gap.

#### **Aims:**

To co-design a comprehensive aphasia service together with those with lived-experience: people with aphasia, their significant others and clinicians.

#### **Methods:**

This research will use Experience Based Co-design (EBCD) in two phases. Phase 1: information gathering and collaborative understanding of priorities for aphasia service development in Queensland. Phase 2: co-design of aphasia services based on consensus prioritisation.

#### **Results:**

Anticipated outcomes of phase 1 will be a consensus-based list of service priorities and evaluation of unmet needs. Phase 2 outcomes will include co-designed services, a toolkit of resources for EBCD projects with people with aphasia, and a cost analysis of processes involved.

#### **Conclusions/Discussion:**

EBCD has shown promise for improving patient experiences, and developing co-produced services aligned with participant preferences. It can also lead to a better understanding of patient experiences by other stakeholder groups. To date few studies have employed EBCD with this population, and this study provides a unique opportunity to explore the use of EBCD to develop a new health service.

**A scoping review for the management of communication disability in the first 90 days after stroke.**

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**Background:**

People with communication disability after stroke need interventions in the first 90 days of recovery, a critical period to optimise healthcare communication and rehabilitation outcomes. Current evidence syntheses do not adequately inform this management.

**Aim:**

To explore the scope of evidence for the management of communication disability in the first 90 days after stroke.

**Methods:**

A systematic scoping review of six databases was conducted. Eligibility criteria were applied for study selection. A descriptive synthesis was generated to summarise the evidence within the framework of the International Classification of Functioning, Disability and Health.

**Results:**

Post-stroke aphasia was the most frequently addressed communication disability. Most studies investigating impairment and activity-based aphasia therapies reported improved speech, language and communication outcomes. Barriers to communication access and support are evident, with communication training for health professionals and carers a potentially effective solution. Findings highlighted the need to identify and support problems with the quality of life, emotional well-being and autonomy associated with communication disability.

**Conclusion:**

There is some evidence to guide the management of communication disability in the acute and subacute phases, particularly interventions focused on communication-related impairment of aphasia. Future research should focus on the development of interventions to address a range of communication disabilities that can co-occur after stroke (e.g., aphasia, dysarthria, apraxia of speech, sensory loss and cognitive-communication problems). A coordinated, integrated approach towards managing communication disability may help to overcome gaps in addressing the communication environment, and access to and participation in healthcare and quality of life.

**Clinician-perceived enablers and barriers to providing evidence-based inpatient urinary continence assessment, diagnosis and management: cross-sectional study.**

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## **Background**

Australian national acute stroke audit data indicates that 35% of patients have urinary incontinence (UI). Only 18% of those had a UI management plan.

## **Aim**

To identify clinician-perceived enablers and barriers to inpatient UI assessment, diagnosis and development of individualised management plans.

## **Methods**

Clinicians from 15 wards that admit patients after stroke at 12 hospitals (NSW=11, QLD=1) completed an online questionnaire. The 58 questions (5-point Likert scale) were aligned to 13/14 domains of the Theoretical Domains Framework. Results were dichotomised into “strongly agree/agree” and “unsure/disagree/strongly disagree” and percentages calculated.

## **Results**

The 295 respondents were predominantly female (83%), nurses (89%), and on “some days of their working week” were involved in UI assessment (73%), diagnosis (57%) and management (80%).

Enablers aligned to the Goals, and Beliefs About Consequences Domains. Clinicians perceived that accurate UI assessment, diagnosis and management plans were beneficial to themselves (88%), their patients (98%) and their wards (97%). Barriers aligned to Environmental Context and Resources, Skills, Knowledge, Behavioural Regulation and Beliefs About Capabilities domains. Overall 41-54% perceived they had insufficient time, personnel or equipment to perform assessments or create management plans. About half of the clinicians reported having the knowledge or skills to diagnose UI or develop management plans. Less than half of respondents perceived UI assessment (47%) and developing management plans (43%) were something they did well.

## **Discussion**

Strategies to improve UI care need to harness the beliefs about the consequences of not providing best practice UI care and target identified barriers that are potentially modifiable.

## **Upper limb practice by stroke survivors pre and post implementation of robot assisted upper limb therapy**

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### **Background**

Highly repetitive and intensive practice is crucial for upper limb (UL) motor recovery but therapists have found this challenging to provide to stroke survivors. Robot-assisted upper limb training (RT-UL) has been identified as an intervention with the potential to help address this challenge.

### **Aims**

The aim of this study was to quantify UL practice (repetitions, duration, intensity) performed by subacute stroke survivors, including those with severe UL impairment, pre and post the implementation of RT-UL into an inpatient rehabilitation facility.

### **Methods**

Two observational study periods (pre-RT-UL and post RT-UL) were completed of therapy sessions performed by subacute stroke survivors in the rehabilitation gym. Upper limb tasks observed and recorded in therapy were categorised as either impairment-related therapy or activity-related.

### **Results**

In the pre-RT-UL observational phase, 7 subacute stroke survivors were observed across 11 days. Twelve subacute stroke survivors were observed across 12 days in the post-RT-UL study. There were no significant differences in characteristics of patients observed in each phase. Upper limb repetitions and intensity of practice increased for all patients, including those with severe UL impairment, with the duration of therapy unchanged.

### **Discussion**

This is the first study to have observed an increase in UL practice when RT-UL is implemented into routine clinical practice. It is proposed that this was the outcome of RT-UL providing a uniquely supportive and efficient form of UL practice with minimal therapist input. RT-UL was able to be implemented within the existing workplace structures with only basic training of therapy staff.

## **Depression and a lack of socialisation contribute to boredom during stroke rehabilitation: an exploratory study using a new conceptual framework**

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**Background:** Many stroke survivors report to be bored during inpatient rehabilitation, which may detrimentally impact mood, engagement, learning and subsequent stroke recovery.

**Aims:** To (i) develop a framework to conceptualise boredom in stroke survivors during inpatient rehabilitation, and (ii) determine factors predicting boredom.

**Methods:** A framework informed by evidence, clinical experience and existing boredom models was developed and explored in this sub-study within a before-after trial testing a stroke survivor-driven model of activity promotion during inpatient rehabilitation. Self-reported boredom levels at 13 ( $\pm 5$ )

days after admission were collected using a Likert scale. Demographic, health and activity outcomes of 160 stroke survivors were explored using a hierarchical multivariable logistic regression approach to identify boredom predictors.

**Results:** Boredom was conceptualised to arise from the interaction of personal and environmental factors when i) the situation lacks meaning, ii) attentional demands are not optimally matched with cognitive resources, or iii) stroke survivors are constrained from actively responding when bored. Thirty nine percent of participants reported to be highly bored ( $\geq$  half the time) during inpatient rehabilitation. The presence of depression (OR 6.17, 95% CI 2.57 to 14.79) and less socialisation (OR 0.96, 95% CI 0.92 to 0.99) predicted high boredom levels.

**Discussion:** This comprehensive framework provides a foundation for understanding the contributing factors to boredom and ways to support meaningful engagement in rehabilitation. Management of depression and improving opportunities for socialisation of stroke survivors during inpatient rehabilitation are potential targets to reduce boredom and enhance engagement in rehabilitation so as to optimise stroke recovery.

### **A patient-centred approach applying the Reflective Interprofessional Education-Network (RIPE-N) model to stroke education**

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#### **Background:**

In acute stroke units, care provided by a multidisciplinary team contributes to better patient outcomes, including reduced mortality and disability. Delivery of this care requires interprofessional collaboration (IPC) from multiple disciplines. IPC is the collaborative sharing of decisions, responsibility, and objectives to solve patient care issues. Simulation is an effective interprofessional education (IPE) tool for developing IPC. The Reflective Interprofessional Education-Network (RIPE-N) simulation model was developed to promote collaboration among health students during an unfolding stroke case scenario in a simulated hospital setting.

#### **Aims:**

To describe the processes involved in developing an innovative interprofessional simulation experience for students to enhance IPE and IPC centred around stroke care.

**Methods:** The RIPE-N model centred on the development and delivery by academics from five disciplines (pharmacy, nursing, physiotherapy, orthoptics, and speech pathology) of a stroke case

scenario simulation. Students from each discipline participated in the pilot simulation and their experiences were evaluated via focus group discussion, transcribed verbatim and thematically analysed.

**Results:**

Development and evaluation processes provided insights into logistics, such as timetabling, but also student's recognition of value in collaborative care, the importance of a patient-centred approach, and an understanding of other disciplines' role in managing stroke care.

Discussion: This study established future directions for simulation using IPC and IPE in stroke management. The model enhances education on patient-centred collaboration and developing rapport and respect for healthcare team members. Such models of learning are critical to prepare an industry-ready workforce that are future-proofed to care for the increasing burden of stroke.

1. Lucas, C., et al. (2019). "Development of the RIPE model (Reflective Interprofessional Education Model) to enhance interprofessional collaboration." *Research in Social and Administrative Pharmacy* 15(4): 459-464.

**Re)Finding quality in life: Recovery narratives following stroke.**

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**Background:**

The profound effect of upper limb impairment following stroke is one of the main attributing factors in decreased survivor well-being. Given the beneficial effects of some upper limb interventions, it is important to explore how stroke survivors experience therapeutic programs of high dose and intensity, and what participation means to those undertaking them.

**Aims:**

Nested within a randomised controlled trial on post-stroke recovery (Task-AT Home), this qualitative study aims to explore the experiences of stroke survivors following participation in a high intensity home-based upper limb training program, and how an emerging concept of quality in life can inform future therapy.

**Method:**

Five stroke survivors participated in two individual, in-depth semi structured interviews each, conducted during their first year of stroke recovery. A narrative inquiry guides the methodological approach, incorporating two complementary methods of data analysis (paradigmatic analysis of narratives and narrative analysis).

**Results:**

Preliminary reflections indicate stroke survivors make use of their upper limb rehabilitation within a broader recovery narrative. Drawing on the past, guided by a desire to (re)find quality in life, survivors commit to a future focussed narrative. Within the context of upper limb rehabilitation, stroke survivors talk about complexities and challenges as they attempt to reconnect and rediscover themselves in their stroke recovery journey.

**Conclusion:**

For stroke survivors, (re)finding quality in life in the present provides hope in anticipated futures. By backgrounding experiences of loss and uncertainty, this narrative supports enduring motivation and facilitates continued participation in therapeutic programs of high dose and intensity

### **A retrospective review of dysphagia following endovascular clot retrieval and thrombolysis in an Australian quaternary hospital**

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**Background:** Dysphagia (difficulty swallowing) is a common sequelae of stroke and is known to impact quality of life, length of hospital stay, and mortality. Currently, little research exists exploring the impact of reperfusion therapies (endovascular clot retrieval and/or thrombolysis) on the patterns of dysphagia following acute ischaemic stroke.

**Aims:** To investigate the effects of reperfusion therapies on dysphagia in the acute inpatient setting and develop a profile of dysphagia patterns including an incidence rate for each reperfusion treatment and success rate.

**Methods:** A retrospective chart review from 2015 to 2017 was conducted within a quaternary stroke unit in Australia and included patients 18+ years of age post reperfusion therapies with no history of dysphagia. Data extracted included the presence of dysphagia, communication deficits, and type and success of reperfusion therapy administered and was analysed via Fisher's exact test.

**Results:** 193 patients were identified as suitable for inclusion. On initial assessment by speech pathologists, over half of patients presented with dysphagia. Presence of haemorrhagic transformation ( $p = >0.001$ ), success of reperfusion ( $p = >0.021$ ), and presence of aphasia ( $p = >0.001$ ) on initial medical assessment were significantly correlated with dysphagia. The presence of dysphagia was not significantly correlated to the type of reperfusion therapy received ( $p = 0.270$ ).

**Discussion or conclusion:** Whilst stroke treatments continue to evolve, this study identified ongoing high rates of dysphagia amongst patients post stroke regardless of therapy type. Further research is required to guide dysphagia management and develop an evidence-base for speech pathologists and the wider medical team.

### **"You're really putting all you can into it": PwA perspectives on aphasia self-management and technology**

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**Background:** Current health system structures do not provide the holistic long-term care required to address the needs of people with aphasia (PwA). Chronic condition self-management is an approach that could offer sustainable long-term support. Technology has been used to enhance the provision of self-management and is often used by PwA for language therapy and other communication-related aspects of their life.

**Aims:**

(1) To investigate and document PwA perspectives regarding self-management; (2) To explore the role of technology in aphasia self-management.

**Methods:** Semi-structured interviews were conducted with 26 PwA. Qualitative content analysis was used to identify key themes related to the aims.

**Results:**

Key themes pertained to: the importance placed on conversation and social interaction for ongoing aphasia self-management; having support systems comprised of peers, communication partners (CPs), speech-language pathologists (SLPs) and technology; and recognition of health-related issues and societal factors as potential barriers to aphasia self-management.

**Discussion:**

PwA are open to the concept of self-management. Enhancing and enabling communication and life participation should be a key focus of aphasia self-management. Support from peers, CPs, SLPs and technology is important for aphasia self-management and should be further explored. PwA described the SLP role in self-management as providing education and therapy and supporting psychosocial well-being. All stakeholders should be provided with self-management training and resources. Identified barriers should be addressed in the development of aphasia self-management approaches.