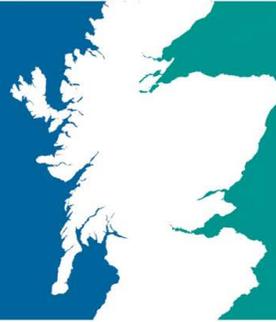


**Scottish Stroke  
AHP Forum**



Chest  
Heart &  
Stroke  
Scotland



*Promoting the highest quality of rehabilitation for people with stroke*

## **Scottish Stroke AHP Forum**

**5<sup>th</sup> Annual Conference**

**'A Brave New World – Health and Social Care  
Integration and Stroke'**

**Dewars Centre, Perth**

**Thursday 8<sup>th</sup> June 2017**

**Free paper and Poster  
Abstracts**

## Oral Presentations

Free Paper Session 1: 10.15-10.55

### **Abstract 1: Interpreting and implementing stroke self-management support: the importance of context**

**Dr Lisa Kidd**<sup>1</sup>, Dr Jo Booth<sup>2</sup>, Dr Maggie Lawrence<sup>2</sup>, Dr Anne Rowat<sup>3</sup>

<sup>1</sup> Robert Gordon University, Aberdeen, <sup>2</sup> Glasgow Caledonian University, Glasgow, <sup>3</sup> Edinburgh Napier University, Edinburgh, UK.

**Background:** Emerging evidence shows that stroke self-management support (SMS) is effective and is valued by stroke survivors and stroke practitioners. Translating this research evidence into practical ways to enable, implement and embed stroke SMS policies and services in routine, integrated practice, however, is challenging.

**Aim & Methods:** This presentation will focus on the findings from a secondary analysis of data on stroke self-management drawn from the TALISSMAN project [1] to illustrate the importance of 'context' and the ways in which different facets of context shape and influence how stroke self-management support is interpreted and implemented within practice. Qualitative data from the original study was re-analysed thematically for references to the role, or influence of issues, related to context on the implementation of SMS in its broadest sense as well as the implementation of the specific stroke SMS intervention being evaluated. Lau et al's [7] framework of contextual barriers and facilitators (external context, organisation, professionals, and intervention) was used to frame the emerging themes.

**Results:** The themes identified broadly aligned with Lau et al's [2] framework. The presentation will focus on illustrating how different facets of context such as the external environment, including the organisation, professionals themselves, and the fit between these and the 'intervention' were found to shape and influence practitioners' interpretations and subsequent (or future) implementation of stroke SMS in their practice.

**Conclusion:** Successful implementation of stroke SMS is dependent upon many different facets of context. It is important that these facets and the ways in which they shape and influence how SMS is interpreted and implemented are considered prior to implementation in order to understand potential barriers and facilitators and to identify specific requirements that need to be addressed prior to the implementation of SMS in practice.

**References:** [1] Kidd L, Lawrence M, Booth J, Rowat A and Russell S (2015) Development and evaluation of a nurse-led, tailored stroke self-management intervention. *BMC Health Services Research* 15:359 [2] Lau R, Stevenson F, Nio Ong et al (2016) Achieving change in primary care – causes of the evidence to practice gap: systematic review of reviews. *Implementation Science*. 11:40

**Abstract 2: Comparing interlimb coupling between bilateral in-phase and anti-phase modes of a functional task and a non-functional movement in acute stroke**

**Dr Pei Ling Choo**<sup>1,2</sup>, Dr Helen L. Gallagher<sup>1</sup>, Dr Jacqui Morris<sup>1</sup>, Professor Madeleine Greal<sup>2</sup>, Professor Frederike van Wijck<sup>1</sup>

<sup>1</sup>Glasgow Caledonian University, Glasgow, United Kingdom, <sup>2</sup>University of Strathclyde, Glasgow, United Kingdom

**Background:** Bilateral upper limb training (BT) is a potential stroke rehabilitation intervention. Understanding the interlimb coupling patterns in a functional task and non-functional movement in acute stroke would provide insight into the optimal delivery of BT.

**Aim**To compare interlimb coupling between bilateral in-phase and anti-phase modes of a functional discrete task and a non-functional cyclical movement in acute stroke individuals.

**Method**13 acute stroke individuals underwent 3D motion capture of the bilateral in-phase and anti-phase modes of both a standardised, discrete grasp task and standardised, continuous wrist flexion-extension movement. Interlimb coupling of the grasp task was assessed through graphing time series of instantaneous velocity. Interlimb coupling of continuous wrist flexion-extension was assessed through continuous relative phase, coordination stability and phase error.

**Result/Findings** During the bilateral in-phase grasp task, both arms were coupled through similar velocity profiles, but during the anti-phase mode, the non-paretic arm was significantly slower than the paretic arm. During bilateral in-phase and anti-phase continuous wrist flexion-extension, strong interlimb coupling was maintained (mean (SD) continuous relative phase of 1.9°(6.8°) and 178.9°(16.4°) respectively). Coordination stability was similar during bilateral in-phase and anti-phase continuous wrist flexion-extension ( $Z=-1.490$ ,  $p=0.136$ ). Phase error was significantly smaller during bilateral in-phase than anti-phase self-paced continuous wrist flexion-extension ( $Z=-2.353$ ,  $p=0.019$ ).

**Discussion and Conclusion** The bilateral in-phase and anti-phase functional, discrete grasp task in stroke individuals displayed distinctly different coupling patterns. However, the non-functional continuous wrist flexion-extension was undertaken close to perfect synchrony (in-phase) and asynchrony (anti-phase). Thus, interlimb coupling is task-dependent; coordination in a non-functional cyclical movement should not be generalised to a functional discrete task during rehabilitation.

**Abstract 3. “The Mexican wave always stops with me:” which upper limb outcomes matter most after stroke, and to whom?**

Julie Duncan Millar<sup>1</sup>, Dr Alex Pollock<sup>1</sup>, **Prof. Frederike van Wijck**<sup>2</sup>, Dr Myzoon Ali<sup>1</sup>.

<sup>1</sup>NMAHP Research Unit, Glasgow Caledonian University, <sup>2</sup>FvW: School of Health and Life Sciences, GCU.

**Background:** Upper limb (UL) impairment affects up to 77% of stroke survivors; numerous randomised controlled trials (RCTs) have investigated UL rehabilitation, measuring many different outcomes. It is not clear which outcomes are most important to those involved in UL rehabilitation. This study aims to identify what is most important to SS, their carers, and health professionals in relation to arm function after stroke.

**Method:** We purposefully sampled participants and sites to represent a broad range of backgrounds and demographics. We conducted focus groups (n=8) and semi-structured interviews (n=8), including stroke survivors with UL involvement following stroke, and carers. We conducted eight further focus groups with HPs who treat UL impairment. We used Nominal Group Technique (NGT) to identify and rank important outcomes. We asked participants to express opinions about “What matters most about the arm and how it affects life after stroke?” from their own perspectives. Data were analysed using content analysis.

**Results:** Main themes identified by the 53 SS and carers included ‘Physical implications’; ‘Emotional implications’; ‘Those around me’; ‘Independence, choice and control’; and ‘My life has changed’. The 58 health professionals identified three themes: ‘The arm’; ‘Overall function and quality of life’; and ‘Supporting and educating’.

**Discussion:** SS and carers identified the broad personal impact of UL impairment on life after stroke whereas HPs identified activities to target. Pain and its management were recognised as a top five priority by both groups.

**Conclusion:** The outcomes identified in this study will inform standardisation of the measures adopted in future stroke UL rehabilitation RCTs.

**Abstract 4: Enabling an integrated seamless pathway for stroke patients requiring ongoing Occupational Therapy services in the community in Perth & Kinross**

**Rosa Mendes**<sup>1</sup>, Crispin Oakley<sup>1</sup>, Carol Cowan<sup>2</sup>, Raymond Young<sup>2</sup>, Laura Donaldson<sup>1</sup>, Sheena Law<sup>1</sup>  
<sup>1</sup>NHS Tayside <sup>2</sup>Perth & Kinross Council

**Background:** Key policy drivers – The Public Bodies (Joint working) Scotland Act 2014 and National Health and Wellbeing Outcomes. These policies required the implementation of Integration of Occupational Therapy Services which were being delivered separately by Perth and Kinross Council and NHS Tayside.

**Methods:** Meeting of team members from health and social care services (i.e. stroke unit OT, NHS community rehab OT, outpatient OT, local authority OT); mapped out current pathways for stroke patients requiring ongoing OT input post discharge from the stroke unit, particularly if requiring major adaptations to return home. Areas identified from current pathway that could reduce duplication, use OT specialism's effectively and minimise transitions and handovers within the pathway. New pathways drafted to trial patients added to caseloads in a more timeous and efficient use of current resources. Plan Do Study Act (PDSA) trials completed on 2 pathways. PDSA's reviewed and amended (January 2017).

**Results:** Pathway 1: implemented and adopted across whole OT service in P&K. Pathway 2: amended and currently further PDSA in progress.

**Discussion:** Low numbers identified requiring to follow Pathway 1; however it was felt to be beneficial and decrease overall length of stay as adaptations required for discharge were identified and actioned much earlier than previously. Pathway 2 also felt to be hugely beneficial in terms of reducing duplication, using resources more efficiently and minimising the stress of the transition from hospital to home. During this process it has also highlighted the need for specialism's and training needs for future development to hone the current pathways to become a truly integrated service. Feedback from patients and relatives has been positive.

**Conclusion:** Review and Integration of 2 services have resulted in positive outcomes to enable a seamless pathway of support for people with stroke requiring ongoing Occupational Therapy in Perth & Kinross.

**Abstract 5. Uptake of exercise and outcomes following introduction of an exercise professional to an acute stroke admission ward – the “In-Reach” project**

**Smith M**<sup>1</sup>, Hebson A<sup>2</sup>, Jagadamma K<sup>3</sup>, Baer GD<sup>3</sup>, Buchanan D<sup>3</sup>, Jacobsen M<sup>3</sup>, Palmer N<sup>3</sup>, Price G<sup>3</sup>, Sykes K<sup>3</sup>, Cameron W<sup>1</sup>, Redpath A<sup>1</sup>, Halliday P<sup>1</sup>, Egan, L<sup>1</sup>, Peters A<sup>5</sup>, Macrae H<sup>2</sup>, Chaudhary A<sup>2</sup>, Irons L<sup>2</sup>, Mead G<sup>1,4</sup>  
<sup>1</sup>Stroke Unit, Royal Infirmary Edinburgh, UK. <sup>2</sup>Edinburgh Leisure, Edinburgh, UK. <sup>3</sup>Dept of Physiotherapy, Queen Margaret University, Edinburgh UK. <sup>4</sup>Department of Geriatric Medicine, University of Edinburgh, UK. <sup>5</sup>AHP Research and Development, NHS Lothian, Edinburgh, UK.

**Introduction:** This study investigated the effects of an innovative 12 month pilot service development (the In-Reach project), which introduced ambulatory people with acute stroke to a stroke specialist fitness instructor in the acute stroke ward. The instructor offered advice on exercise and provided “taster” exercise sessions using gym equipment, with the aim of educating people with acute stroke on the benefits of exercise. Participants were referred to the Edinburgh Leisure exercise after stroke (EAS) service on hospital discharge.

**Methods:** Uptake of exercise opportunities in hospital and at 3 months after discharge were recorded. In addition, outcome measures were taken either on the ward or during the first community exercise contact and at 3 months after first contact in the community. Measures included the 10m walk test (10mwt), the Timed Up and Go (TUG), Stroke Impact Scale (SIS) and the Warwick Edinburgh Mental Well-Being Scale (WEMWEBS).

**Results:** 60% (n=36) of eligible participants took up exercise in the community and 94% of those continued to exercise at 3 months. Mann Whitney U tests showed statistically significant improvements at 3 months in 10mwt (p<0.001), TUG (p<0.001), WEMWEBS (p=0.001) and all the SIS domains (p<0.05) except communication (p=0.08) and hand function (p=0.08).

**Conclusions:** This service successfully supported transition from exercising on the acute ward to community based exercise facilities. There were improvements in physical, functional and well-being outcomes of people with stroke included in the study. In order to determine whether these improvements might exceed those expected by normal recovery alone a Randomised Controlled Trial of In-Reach services is warranted.

## **Abstract 6: Producing a LearnPro module for Dysphagia Management**

**Claire Withnall** NHS Forth Valley

**Background:** A review of local training processes and staff attendance at swallow screening training identified the need for alternative methodologies and educational innovation.

**Methods:** Development meetings were held with representation from speech and language therapy, dietetics, clinical stroke nursing, and practice development, as “subject matter experts”. A review of current training procedures identified key themes, and these were then matched informally to the KSF dimensions. Collaboration then took place with an NHS Forth Valley LearnPro “Author” to assist in writing the programme. The local Training Review Group (TRG), who were set up to support the increasing importance of online learning, then reviewed and approved the module for local use. The TRG ensure that all online learning hosted on learnPro is quality assured, and they ensure consistency in training across the organisation.

**Results:** The NHS Forth Valley Management of Dysphagia module is now live within the Trust’s LearnPro portal as of February 2017. At present, an inclusive implementation is being planned to ensure pre- and post- course evaluation, appropriate reporting of staff numbers completing the module, ongoing evaluation and review of both eLearning and face-to-face training on an ongoing basis.

**Conclusions:** The introduction of a new eLearning module for clinical staff will improve patient care and reduce clinical risk, by increasing staff knowledge of screening and management of dysphagia, through diverse methodologies of training

# Posters

**Poster 1:** What is the duration of upper limb use and arm movement ratio of affected versus non-affected arm after stroke?

**Mr Deirion Sookram**<sup>1</sup>, Prof Frederike van Wijck<sup>1</sup>, Dr Philippa Dall<sup>1</sup>

<sup>1</sup>Glasgow Caledonian University, Glasgow, United Kingdom

## **Background**

To understand upper limb (UL) use in people with stroke, activity limitation measures should include quantification of UL movement in free-living conditions.

## **Aims**

The aims of this study are to: (1) describe the duration of UL use and arm movement ratio (AMR, i.e. use of the affected versus non-affected UL) in stroke patients, as measured by accelerometers, (2) describe the feasibility of wearing three activPAL3™ accelerometers for seven days.

## **Method**

Baseline data of eleven participants recruited as part of a multi-centre, single-blinded, exploratory RCT (EVERLAP) were analysed. Participants wore three activPAL3s™ for seven consecutive days; one on each forearm to measure UL duration, and one on the strongest thigh to calculate the functional day (i.e. time spent out of bed). Raw analog to digital (AD) units sampled at 20 Hertz were processed against an activity threshold of 0.5 AD units. Every 0.05 second above the threshold during the functional day was summed for each UL duration. Participants tracked time exiting and entering bed using an activity diary. Descriptive statistics were calculated.

## **Results**

The mean AMR across all participants was 52.0% ( $\pm$  56.1). The mean duration was 2.0 ( $\pm$  1.9) hours or 16.8% ( $\pm$  15.2) of waking time for the affected arm, and 3.8 ( $\pm$  2.0) hours or 32.9% ( $\pm$  14.7) of waking time for the non-affected arm. Accelerometers were not removed for 61 out of 72 (84.7%) possible days.

## **Conclusion**

Within primarily inpatient settings, stroke patients use their affected arm just over half as much as their non-affected arm. ActivPAL3™ accelerometers show good compliance.

## Poster 2 EVERLAP: Early VERSus Later Augmented Physiotherapy compared with usual upper limb physiotherapy, update of an exploratory RCT of arm function after stroke

### Authors

van Wijck F<sup>1</sup>, Alexander G<sup>2</sup>, Baillie L<sup>3</sup>, Bain B<sup>1</sup>, Barber M<sup>4</sup>, Collins M<sup>1</sup>, Dall P<sup>1</sup>, Donaldson C<sup>1</sup>, Fleming A<sup>5</sup>, Granat M<sup>6</sup>, Kerr A<sup>7</sup>, Langhorne P<sup>8</sup>, McConnachie A<sup>8</sup>, Micallef N<sup>3</sup>, Molloy K<sup>5</sup>, Pollock A<sup>1</sup>, Rowe P<sup>7</sup>, , Young HJ<sup>1</sup>.

### Affiliations

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<sup>7</sup> University of Strathclyde, Glasgow

<sup>8</sup> University of Glasgow, Glasgow

### Background

Most acute stroke patients experience arm impairment, which often persists, affecting independence and quality of life. Augmenting exercise therapy time can be beneficial, suggesting that a total of at least 20 extra hours may improve arm outcomes after stroke<sup>1</sup>. However, it is not clear whether it is better to start augmented arm therapy early compared with later. The aim of this study is to test the feasibility of a definitive RCT by comparing three groups:

1. Usual arm physiotherapy,
2. Usual arm physiotherapy plus augmented arm physiotherapy starting within 3 weeks post-stroke,
3. Usual arm physiotherapy plus augmented arm physiotherapy starting at 3 months post-stroke.

### Methods

- Design: multi-centre, single-blinded, exploratory RCT.
- Setting: hospitals, rehabilitation units, community settings.
- Participants: adults with reduced arm function after stroke (N=75).
- Augmented arm physiotherapy:
  - content: evidence-based interventions aimed at improving functional activity of the affected arm<sup>1</sup>. To encourage self-management, participants may choose a workbook, DVD and/or a novel mobile reminder service.
  - dose: 27 extra hours over 6 weeks.
- Feasibility assessment: recruitment, retention, adverse events, resource impacts, participant views.
- Outcome measures: Action Research Arm Test (primary) and a collection of standardised and self-reported impairment, activity and participation measures, assessed 4x (at baseline, before and after the intervention, 6 months follow-up).

### Results

At time of abstract submission, 43 participants have been recruited, 7 have withdrawn. Eleven SAEs have occurred (two in the same two participants); none were unexpected and related to the intervention.

### Discussion

The EVERLAP study (14/WS/1136) will end in March 2018.

### Reference

1. Pollock A, Farmer SE, Brady MC, Langhorne P, Mead GE, Mehrholz J, van Wijck F. Interventions for improving upper limb function after stroke. *Cochrane Database of Systematic Reviews* 2014, Issue 11. Art. No.: CD010820. DOI: 10.1002/14651858.CD010820.pub2.

## **Poster 3 An investigation into the rehabilitation needs and coping strategies of participants provided with augmented upper limb physiotherapy after stroke. Methodological considerations [WIP]**

Category: Research

Ms Stefanie Schnabel<sup>1</sup>, Dr. Lisa Kidd<sup>2</sup>, Prof. Frederike van Wijck<sup>1</sup>

<sup>1</sup>Glasgow Caledonian University, Glasgow, <sup>2</sup>Robert Gordon University, Aberdeen, United Kingdom

### **Background**

Over 70% of stroke survivors experience upper limb dysfunction during their early recovery stage. There is growing evidence that intensive, task-specific arm exercise improves function. However, because of reduced in-patient stay, self-practice at home becomes essential. It is not clear yet, how stroke survivors cope with intensive arm training realised through self-practice. This study is nested within the Early VERsus Later Augmented arm Physiotherapy after stroke study (EVERLAP), a 3-arm RCT comparing usual care with augmented arm physiotherapy delivered either early (starting within 3 weeks post stroke) or later (starting at 3 months post stroke).

### **Aim**

The overall aim of this study is to explore the acceptability, relevance and appropriateness of the EVERLAP augmented arm physiotherapy programme. The research questions explore: how do stroke survivors cope with the dose and duration of this upper limb physiotherapy programme? What are their self-management needs and how well are these met?

### **Methods and Discussion**

The research questions will be investigated from the perspectives of stroke survivors and their family members/carers in a qualitative oriented approach, using semi-structured interviews. The paradigm, conceptual framework, methodology, method underpinning the study and ethical considerations will be discussed. Of the 75 participants recruited for EVERLAP, we aim at interviewing 40 participants (20 from the early and 20 from the late group) and if available, their family member/carers. The topic guide includes questions on coping, self-practice, decision-making and acceptability.

### **Results and Discussion**

The results will be presented and discussed after the interviews have been conducted and analysed.

**Poster 4.** Evaluation of the implementation of dynamic lycra orthoses as an adjunct to upper limb rehabilitation after stroke: Phase 1 findings of the LOTUS Study.

Name(s) of the author(s): Alex John<sup>1</sup>, Jacqui Morris<sup>3</sup>, Lucy Wedderburn<sup>2</sup>

Institutional affiliation of the author(s): Glasgow Caledonian University<sup>1</sup>, NHS Tayside<sup>2</sup>, University of Dundee<sup>3</sup>

**Background:** Upper limb (UL) impairment after stroke frequently causes disability. Intensive task-orientated practice enhances recovery, but sufficiently intensive therapy is not always available. Dynamic lycra orthoses are lycra garments (DLO), that are designed to provide mechanical correction of UL position and movement and provide sensory feedback, potentially augmenting practice effects. Research evidence for effectiveness of these garments is limited. Before undertaking an effectiveness trial, feasibility of using DLO as part of the rehabilitation process needs to be established. This initial study explored staff perspectives of implementing DLO within rehabilitation in preparation for a larger feasibility trial.

**Method:** One nurse, two physiotherapists, six occupational therapists in stroke rehabilitation units across Tayside were interviewed. All were involved in implementing the DLO with stroke survivors within the larger study. Topic guides based on Normalisation Process Theory (NPT) explored implementation issues. Framework Approach provided analytical structure, NPT guided theme, sub-theme and construct identification.

**Results:** Themes relating to the constructs of the NPT were identified. Training in study purpose and processes enabled staff to make sense of the intervention, providing **Coherence** with routine work, thus supporting implementation. Staff demonstrated **Collective Action** by allocating study roles. These included identifying study participants, donning and washing the DLO, diary entry, observations and reporting adverse effects. **Cognitive Participation** was demonstrated by establishing practices that fitted with roles, to facilitate study conduct. These included identifying participants, ensuring daily wear, supporting others in donning DLO, monitoring effects of wear, positioning, fit and comfort, habituating diary completion and wash times, listening to participant experiences. Staff used **Reflexive Monitoring** to appraise DLO wear and resolve issues arising. Monitoring of fit and UL response to wear, limb alignment, tone, sensation and awareness of UL were particularly important during the first week when wear was graded. Reflections focused particularly on UL swelling during DLO wear, highlighting design concerns, and high frequency of post-stroke swelling.

**Discussion:** The study illustrates how teams adopt new work practices, engage in sense-making, appraise intervention value, develop skills and reflect on what works.

**Conclusion:** This work illustrates the complexity of implementing a relatively simple intervention. NPT was useful, providing critical information for a future effectiveness trial of DLO in stroke rehabilitation.

## **Poster 5 Acceptability of Web-based Physiotherapy for People Undergoing Stroke Rehabilitation and Their Carers (Work In Progress)**

**Category:** clinical practice innovation

**Authors:** A Alhusayni, L Paul, A Dybus & E Cowey

**Provenance:** The University of Glasgow

### **Introduction**

Stroke is one of the most common causes of disability in the UK. Barriers inhibiting stroke survivors from participating in rehabilitation programmes include social isolation, environmental factors, health problems, disability, stroke severity, cultural issues, fatigue, low self-efficacy, and lack of motivation. Web-based physiotherapy is a novel mode of rehabilitation delivery, which can address some of these barriers. Our research group have developed a website ([www.webbasedphysio.com](http://www.webbasedphysio.com)) to remotely deliver physiotherapy for people with long-term conditions. This study aims to explore views of people with stroke and their carers about the web-based physiotherapy website, using co-production methods. The plan is then to undertake a study of augmented inpatient rehabilitation by providing a seven-day service in NHS Lanarkshire.

### **Methods**

Co-production methods will be used to modify the web-based physiotherapy platform in order to meet the needs of this population. Co-production method will be achieved in this study by modifying the web-based physiotherapy based on views of stroke survivors, their carers and researchers in order to meet the needs of this population. In addition, this study will use the model for technology acceptance, which relies on two main parts, perceived usefulness and perceived ease of use (Davis, 1989).

Participants will be recruited from Chest Heart & Stroke support groups. Up to three focus groups of six community dwelling stroke survivors and up to six carers will be conducted. The first focus group is to introduce participants, to demonstrate the website and to explain how to access it. Thereafter, participants will be able to use the website for one week. The second focus group aims to get the views of participants regarding the website, in particular, their impression about each section of the website, ease of use, and what changes might be needed. The third focus group will only be conducted if modifications are required by the second focus group. The third focus group (if required) will explore whether modifications made to the website make it acceptable for stroke survivors or whether further modifications are needed. Following the third focus group final modifications will be made to the platform (if required). The transcripts from audio recording the focus groups and notes taken during the focus groups will be analysed using a thematic framework method.

### **Results**

Subject to ethical approval, recruitment and data collection will take place between June and October 2017.

## Poster 6: Efficiency of Recruitment to Stroke Rehabilitation Randomised Controlled Trials: Secondary Analysis of Recruitment Data

Kris McGill PhD fellowship

Prof. Jon Godwin, Prof. Catherine Sackley, Prof. Marian C Brady

### Introduction

Efficient recruitment to randomised controlled trials (RCTs) is vital in high-quality, cost effective, clinical research. Under-recruitment, recruitment extensions and supplementary funding requests are common. Under-recruitment leads to underpowered trials, inconclusive results and wasted research effort. Efficient recruitment to stroke rehabilitation RCTs is considered particularly problematic but has yet to be investigated.

### Aims and Objectives

We aimed to examine stroke rehabilitation RCTs' (i) recruitment efficiency (ii) trial features associated with recruitment efficiency and (iii) reporting of recruitment information.

### Methods

We included all trials identified by the Cochrane Stroke Group's trial register. This includes trials identified from 35 electronic databases (e.g. Medline, CINAHL, EMBASE); numerous clinical trial registers; and hand-searching other resources. We included publications between 2005- 2015, grey literature, and had no language restrictions. Records that reported RCTs of stroke rehabilitation non-pharmacological interventions with patient populations were included. We extracted recruitment efficiency data (i) Rate: numbers randomised as a percentage of those screened for eligibility (ii) Speed: average monthly recruitment numbers across sites (iii) overall Dropout rates. Data on recruitment sites, recruiters, setting, funding support, ethical review, intervention type, targeted impairment, control comparison, and country of recruitment were extracted by two independent reviewers. Discrepancies were resolved by a third reviewer.

### Results

Two independent reviewers screened 12,939 titles, 1,270 abstracts and 788 full texts for eligibility. 515 trials were included. Only 39% of stroke survivors screened were subsequently randomised. Subgroup analysis revealed that recruitment efficiency was significantly affected by the intervention type, control condition, targeted impairment, recruitment time point and setting.

### Conclusions

Stroke rehabilitation trials experience notable recruitment inefficiencies.

**\*\*Insert Table 1 from supplementary documents here\*\***

		Data Availability (RCTs=512)	Mean	Std. Deviation	Range (min-max)
Stroke survivors	Screened	321	320.88	536.87	8 - 4909
	Randomised	512	56.26	86.02	4 – 1209
	Dropped out	414	5.05	8.8	0 - 96
Trial Recruitment Efficiency	Duration (months)	305	21.87	17.8	1 - 152
	Rate	321	0.40	0.28	0.02 - 1
	Speed	242	3.03	4.93	0.08 – 40
	Dropout	414	0.09	0.11	0.0 - .83
	Sites	363	2.55	5.69	1 - 71

**Table 1- Participant movement and efficiency of recruitment (rate, speed, dropouts) across included trials of stroke rehabilitation interventions.**

**Poster 7 INTRODUCING AN EXERCISE PROFESSIONAL TO AN ACUTE STROKE UNIT (“In-REACH”) – A QUALITATIVE STUDY OF THE PATIENT EXPERIENCE**

Category:

Clinical Practice Innovation

Names:

Gillian Baer<sup>1</sup>; Kavi Jagadamma<sup>1</sup>, Andrew Hebson<sup>2</sup>, Gillian Mead<sup>3,4</sup>, Kimberley Foy<sup>1</sup>, Laurent Haquin<sup>1</sup>, Frida Leiulsfrud<sup>1</sup>, Camilla Meinich-Bache<sup>1</sup>, Mohamad Nursyafiqah<sup>1</sup>, Olga Shell<sup>1</sup>, Wendy Cameron<sup>4</sup>, Anna Redpath<sup>4</sup>, Pauline Halliday<sup>4</sup>, Laura Egan<sup>4</sup>, Andy Peters<sup>5</sup>, Hannah Macrae<sup>2</sup>, Aisha Chaudhary<sup>2</sup>, Lynne Irons<sup>2</sup>, Mark Smith<sup>4</sup>

Institutions:

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**Background:**

This qualitative study explored participants’ experiences of an innovative 12 month pilot Exercise after Stroke (EAS) “In-Reach” Service which introduced a Stroke specialist exercise instructor into an acute stroke ward. The instructor offered advice on exercise and provided “taster” exercise sessions using gym equipment on the ward, with the aim to educate people with acute stroke about the benefits of exercise. Participants were referred to Edinburgh Leisure (EL) EAS service on discharge from hospital and were met and supported by the same In-Reach exercise instructor there.

**Method:**

A convenience sample consisting of 12 people with stroke (6 male, 6 female, age range 35 – 86) who had experienced EAS “In-Reach” and continued to exercise in the community gave consent to participate. Two focus groups were conducted in an EL facility by two researchers independent of the stroke rehabilitation team. Data were audiotaped, transcribed verbatim and analysed thematically. Field notes were used to enhance analysis.

**Results:**

A wide range of benefits were reported by the participants with regard to EAS and being introduced to an exercise professional in hospital. The four emergent themes were: “knowledge and support”, “empowerment” “challenges” and “self-management”. In addition, participants identified the need for more informed, on-going support opportunities following hospital discharge.

**Conclusion:**

The findings identified important positive physical and psychological benefits gained from the EAS In-Reach service that supported the transition from the acute ward to community based exercise. Regular exercise and confidence to be active may be important features in long-term recovery for people with stroke.

Note – this abstract was presented as a poster at European Stroke Organisation Conference, Barcelona, 2016

## **Poster 8. 420 Minutes a Week on Upper Limb Treatment in Stroke Patients – How Can We Achieve This?**

Alison Bright & Mary Burke, NHS Glasgow and Clyde

**Background:** Graded Repetitive Arm Supplementary Programme (GRASP) supports 420 minutes per week improves upper limb (UL) function post stroke (Harris et al 2009). GRASP involves an UL exercise programme performed one hour daily. GRASP, NICE, SIGN and RCPN guidelines derived this intervention's concept.

**Methods:** A six-week pilot study was implemented to determine the effectiveness of a thirty minute per week circuit based UL programme for stroke in-patients. Thirteen patients were included using inclusion criteria: stroke diagnosis with UL deficit and ready on time. Exclusion criteria included: disruptive behaviour; unable to sit safely and scoring >2 on Modified Ashford Scale.

Patients were split into motor and sensory groups. Motor group patients had muscle strength >3/5 on the Oxford scale throughout the UL. Exercises included strengthening and functional tasks. Sensory exercises included sensitization, mirror therapy and facilitated functional tasks. Five minutes per exercise was provided with emphasis on quality in preference to frequency and intensity.

Lothian milestones were used pre-and post-intervention considering UL domains: reach and grasp; absence of hand oedema; absence of UL soft tissue shortening and pain-free shoulder. Patient enjoyment was documented through a subjective scale with comment box.

**Results:** 3-6 patients attended per session with 1:1 therapy. Physiotherapists, students and support staff facilitated the intervention. Thirty minutes of additional UL treatment was achieved weekly. Positive results included mean of 7/10 using the enjoyment scale and comments such as enjoying company. UL aspects of Lothian Milestones were unchanged.

**Discussion:** Limitations included ward closures, time constraints, 1:1 treatment due to patient's dependency. The Lothian Milestones do not record sensitive changes in muscle power or acknowledgement of upper limb. This may suggest why the findings showed no functional improvement.

**Conclusion:** Group sessions were enjoyed however not feasible within this setting. Exploring community and carer involvement would be beneficial to increase overall UL treatment.

## **Poster 9. Optimising physiotherapy input for stroke in-patients at University Hospital Ayr.**

Iain Larkin, Physiotherapy Department, University Hospital Ayr.

**Background:** The importance of having an adequate intensity of specialist therapy following stroke is well established. NICE and RCP guidelines advocate at least 45 minutes per day of each appropriate therapy for a minimum of 5 days per week. The baseline dose of physiotherapy delivered at University Hospital Ayr has never been directly compared to this guideline amount. However, it was predicted that the physiotherapy team would struggle to achieve this intensity. The caseload of the team is a mixture of stroke and non-stroke patients distributed over two hospital wards.

**Project Aim:** By December 2016 increase the total amount of time in-patients are engaged in physiotherapy following stroke by 20% (or 3 minutes) in University Hospital Ayr. The baseline average intensity was 17 minutes per patient per day.

**Method:** Two PDSA cycles were carried out and are referred to as Event 1 and Event 2.

**Event 1:** Comprised re-focussing stroke physiotherapy team on their “core business” by changing how the team organised their caseload. **Event 2:** involved producing updated referral criteria and delegating more administrative tasks to physiotherapy assistants. **Outcome measures:** Total stroke inpatient therapy time (minutes) and therapy time per stroke patient per day. **Balancing measure:** Non-stroke patient therapy time.

**Results:** There was an increase in stroke average in-patient therapy time from 17 to 25 minutes. During data collection there were large temporary fluctuations in staffing levels due to planned and unplanned absences and the need provide cross cover at another hospital site. The number of qualified physiotherapy staff present varied between 85% and 45% of core staffing amount of the team. When the data was normalised for fluctuations in staffing the dose of therapy for stroke in-patients rose from 21 to 47 minutes of therapy per patient per day (an increase of 117%). It is noteworthy that this improvement coincided with a marked decline in the amount of patients requiring stroke physiotherapy input from mean 89 stroke patient interventions at the beginning of the project to 41 at the end. The demand for stroke therapy and the amount of physiotherapy received by stroke patients per day were strongly negatively correlated,  $r=-0.7$  or  $R^2=0.55$ . The average amount of physiotherapy received by non-stroke patients was maintained.

**Discussion:** At the end of the project, if fully staffed the team were capable of seeing stroke patients for an average of 47minutes per day which would meet guideline amounts. Variation in staffing and demand were the major confounding factors. 55% of the increase in physiotherapy delivery can be explained by decreases in demand. It is important to stress that during the project and since the conclusion of the project the team have never been in a position of being fully staffed. At the end of the project, the average absolute therapy time actually available to stroke patients was 25 minutes. This still represents a significant improvement which surpasses the aim of the project. The fact that non-stroke therapy time was maintained confirms that the improvements for stroke in-patients have not negatively affected our other service users. The team felt that their communication, cohesion, and morale had improved along with continuity and equity for patients.

**Conclusion:** This project highlights the inherent challenges in showing objective evidence of improvement in service delivery a system where staffing and demand are variable. The project aim was achieved and the guideline intensity of therapy is achievable if the team is optimally staffed. This is highly sensitive to fluctuations in demand.

## **Poster 10: Whose outcome is it anyway? Shifting the balance of power: trialling a Personal Outcome Approach on a stroke unit**

*Category:* Clinical Practice Innovation. Work in progress

*Institution:* NHS Fife

*Facilitators/Authors:* Lorna Nicholson, Speech and Language Therapist and Pamela Duffy, Occupational Therapist, Letham Stroke Unit, Cameron Hospital, Windygates, Fife KY8 5RR

### **Background**

A personal outcomes approach is an expert patient model. The clinician sees the person not the disorder. The focus is on 'what matters, not what is the matter'. To enable discussion to identify the personal outcome, the clinician uses a 'good conversation' approach which includes the key concepts used in solution focused therapy. The key difference using this approach has been the move away from problem based assessments and conversations to strength and asset based conversations. Micro-skills based in solution focussed brief therapy principles are used to elicit outcomes important in individuals' lives. The Personal Outcome Approach has been developed by Emma Miller, the Joint Improvement Team (JIT) and the team supporting the implementation in Fife including Ross Grieve of the Thistle Foundation and the Personal Outcomes Project Lead in Fife, Alison Linyard.

### **The aim**

To improve quality of patient care and patient satisfaction. To improve the efficacy and efficiency of clinical intervention.

### **Methods**

**Training:** Members of the stroke team on the ward have undergone two days of formal training (face to face) by Thistle Foundation and the Personal Outcomes Manager for NHS Fife. These team members include four senior nurses, two occupational therapists, a physiotherapist and a speech and language therapist.

We have also started monthly mentoring sessions and an initial introductory chat with new nursing staff on the ward. Each team informally discusses cases using this approach.

### **Information/paperwork:**

The unit have developed an information booklet which describes how the unit aligns to this approach. There is paperwork developed which is currently being used by SLT and OT on the ward to enable recording the discussion with patient and/or family. This is then referred to in family meetings and revisited on discharge.

### **Evaluation**

This is a work in progress and we currently have informal feedback from patient and staff members and some single case study information. The MDT on Letham Stroke Unit will continue to work with the Personal Outcomes Manager and Thistle Foundation to evaluate this approach.

### **Discussion/Implication for practice**

There is an early indication that using this approach enables patients to feel more confident, more empowered, facilitates 'living well' following stroke, reduces therapy care episode length and supports the wellbeing of therapists. However, staff there is evidence that staff feel they need further support/training to develop the 'micro skills' involved. It is recognised that this approach is not yet fully embedded into practice.