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These are abstracts from the Joint BSRM and SRR Meeting in Warwick on the 14th & 15th October 2019.

DEVELOPING TRAUMA SPECIFIC VOCATIONAL REHABILITATION: MAPPING CURRENT SERVICE PROVISION ACROSS MAJOR TRAUMA CENTRES'

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Background:
Injuries are a global public health problem, especially in working age adults. Survivors may experience physical and psychological problems that affect their ability to work. NHS Major Trauma Centres (MTCs) save lives, but it's unclear whether adequate vocational and psychological support exists post-injury.

In a programme grant to develop and test an intervention to support return-to-work after trauma (RP-PG-0617-20001), we aim to understand where and how trauma survivors' rehabilitation needs are currently met in the trauma pathway, and to map NHS rehabilitation (usual care) at five MTCs and repatriating sites to inform development of the return-to-work intervention.

Method:
Using systems methodology, service users, providers, commissioners, employers, and other trauma rehabilitation stakeholders (n=36) were consulted to map 'usual care'. Semi-structured interviews/focus groups explored where, and what rehabilitation is provided post-trauma, and where service gaps exist in supporting return-to-work. Publicly available documents were consulted.

CATWOE (Customers, Actors, Transformation, Worldview, Owners, Environment) was used as an analytic framework to generate an operational definition of usual care in the MTCs.

Results/Findings:
Preliminary analysis highlights the complexity of trauma pathways. Common issues include: 1) transition from acute to community services: limited communication and follow-up; 2) geographical barriers: lack of specialist services/expertise in some areas and large repatriation distances; 3) unmet psychological needs; 4) rapidly changing service provision; 5) service provider knowledge and confidence gaps in addressing vocational/psychological needs; 6) inconsistent service provision for specific conditions. However, some well-established pathways exist.

Conclusion:
Findings will inform the development, implementation and testing of an intervention to address service gaps.

A MULTICENTRE STUDY OF HOW GOAL-SETTING IS PRACTISED DURING INPATIENT STROKE REHABILITATION

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Background:
Despite widespread guidance recommending goal-setting, evidence to support it is weak. The need for further research into how goal-setting is implemented has been highlighted. At present, little is known about how goal-setting is used in routine practice or how practice standards are achieved.

Method:
A mixed-methods approach was used: online survey of stroke rehabilitation teams regarding their goal-setting practice and views plus documentary analysis of clinical records related to goal-setting in five UK NHS inpatient stroke services.

Results/Findings:
All units used therapist-led goal-setting, with therapists setting 60% of goals. In total, 72% of goals were patient-focused but rarely involved patients/families. Goals focussed on mobility and activities of daily living (~50% and ~25% of goals, respectively). Only 41% of documented goals met the SMART criteria. Review of progress was limited: 48% of goals were never reviewed and 24% of the remainder were marked as ‘ongoing’ without a date or plan for completion. New goals and actions often had no connection to previous goals. Integration between goals and treatment/action plans was mixed. In two units, goals were unconnected to a treatment or action plan, for the remainder it was 90%–100%. However, that connection was generally vague and amounted to suggestions of the type of treatment modality that staff might employ.

Conclusion:
Goal-setting during inpatient stroke rehabilitation is therapist-led but discussed with the multidisciplinary team. Therapists mainly identified patient-focussed mobility and activities of daily living goals. Monitoring progress and revising goals were often uncompleted. Links between goals and treatment, action plans and progress were patchy.

THE PATIENT EXPERIENCE OF ANKLE FRACTURE: A QUALITATIVE STUDY

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Background:
Ankle fractures are common and debilitating injuries, yet there is little research into patient experience of ankle fracture recovery. The aim of this study is to explore the experiences of individuals recovering from an ankle fracture.

Method:
The sample included individuals recovering from ankle fracture, sampled from participants in a clinical trial of ankle fracture management. We purposively sampled for age, gender, fracture management and allocated intervention. We completed semi-structured interviews in the participant's homes. Interviews were recorded and transcribed verbatim. The interviews were analysed using thematic analysis managed in NVivo software. A sample of interviews was independently coded by a second reviewer to ensure consistency.

Results/Findings:
We interviewed ten individuals with an ankle fracture at 16-21 weeks post-fracture. Nine themes emerged from the data: mobility; loss of independence; usual activities; physical symptoms; psychological wellbeing; healthcare and interventions; social and family; sleep and fatigue; and financial implications. Older individuals interviewed spoke more intensely about the difficulty accepting the loss of independence, weight-bearing restrictions and walking aids than younger participants interviewed here. Adverse psychological outcomes related to the injury were present in some cases, including feelings of anxiety, depression, frustration and low mood, which were more frequently expressed by female participants.

Discussion:
This research provides insight into the experience of ankle fracture recovery and the wide range of factors important to them in the recovery process beyond the accepted symptoms of pain, swelling and stiffness.

Conclusion:
An understanding of these factors ensures health care providers can deliver patient-centred care for individuals with ankle fracture.

DEFINING ‘STANDARD THERAPY’ FOR THE UPPER LIMB AFTER STROKE: A UK SURVEY

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Background:
Identifying and evaluating interventions to improve upper-limb function after stroke is a recognised research priority. Most trials compare experimental upper-limb interventions to a control including standard treatment/therapy. However, this is often ill-defined and/or varies widely between studies. This study aimed to describe standard therapy for the upper-limb after stroke to guide the design of standard therapy interventions for the upper-limb in future studies.

Method:
An anonymous online survey tool comprising 44 items with a combination of open/closed, Likert and free text responses was circulated to UK based occupational and physiotherapists working in stroke rehabilitation in summer 2018.

Results/Findings:
Complete data was provided by 154 respondents. Therapists reported spending an average of 29 (SD: 18) minutes three times (range:1-7) a week on upper-limb therapy. Treatments varied according to the severity of the upper limb deficit but commonly included task specific practice. The majority of respondents indicated additional rehabilitation was provided by therapy assistants (3 times a week) and carers (daily).

Discussion:
This study presents a detailed description of the frequency, duration and content of therapy typically provided for the upper-limb after stroke. Findings are limited by the self-selected sample, bias and inaccuracies inherent to self-report but provide an understanding of standard therapy provided by therapists and others.

Conclusion:
These findings can be used to inform the design of the standard therapy interventions in upper-limb rehabilitation trials, ensuring that they provide a clinically valid and realistic comparator to experimental interventions.

AN EXPLORATION OF FAMILY IN THE CONTEXT OF HEAD INJURY: A NARRATIVE UNDERSTANDING OF CHANGE

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Background:
Traumatic Brain Injury is potentially devastating. Families commonly respond by supporting the injured individual and their recovery. However, family members are at risk of negative psychological outcomes and family functioning has emerged as a key variable post-injury. What is less understood are the subjective changes experienced by families and the impact these have post-injury.

Method:
A longitudinal narrative case study using in-depth narrative qualitative interviews. Data were collected a one, three and twelve months post-injury. Nine non-injured family members from three families were recruited from an acute neurosurgical ward.

Results/Findings:
Five interwoven narrative threads were identified: trauma, recovery, autobiographical, suffering and family. The narrative approach emphasized that the first-year post-head injury was a turbulent time for families, who were active agents in the process of change.

Discussion:
Families' stories of illness from a non-patient perspective need recognition and validation in their own right. Understanding this experience in terms of biographical narratives helps to recognise the vacillation between change and continuity. Adopting a narrative approach to rehabilitation may be more positive than adopting a model of loss.

Conclusion:
Change is not limited to the injured person and family members need help to understand that they too are changing as a result of their experiences. In addition, it is proposed that there be a shift in the discourse in research and practice literature away from loss and towards transition, with greater recognition of the role that uninjured family members play in making sense of change post-injury.

USER PERSPECTIVES ON A NOVEL SMARTPHONE BRAINWAVE ENTRAINMENT TECHNOLOGY (BET) FOR CHRONIC PAIN MANAGEMENT IN A HOME SETTING

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Background:

Chronic pain affects one-third of people worldwide. There is a pressing need for novel treatments that are clinically effective, affordable and safe for long-term use. Smartphone BET is a novel home-based treatment for chronic pain using rhythmic sound or light stimulation to achieve brainwave entrainment. The aim of this study was to gain qualitative feedback on the acceptability and usability of smartphone BET.

Method:

15 participants with chronic pain were recruited through Musculoskeletal and Rehabilitation clinics. Participants used the smartphone BET daily at home for 4 weeks before taking part in a semi-structured telephone interview. Data were thematically analysed using template analysis. An initial coding template was structured around the constructs of a theoretical acceptability framework for healthcare interventions. Structured data analysis generated a final modified coding structure, capturing themes generated across participants' accounts.

Results/Findings:

Participants were willing to engage with the technology and welcomed it as an alternative approach to medications. Factors influencing acceptability included time taken, interruption to activities and perceived effectiveness. Reported benefits included pain relief, relaxation and improvement in sleep. All participants felt confident in using the technology. Participants appreciated the simplicity of design and the ability to choose between visual or auditory stimulation.

Discussion:

Smartphone BET may provide an alternative approach to medications for chronic pain management. This is the first study to explore user perspectives on such technology.

Conclusion:

The smartphone application is an easy to use method of delivering BET in the home setting and is acceptable to patients with chronic pain.

ESTIMATED LIFE-TIME SAVINGS IN THE COST OF ON-GOING CARE FOLLOWING SPECIALIST REHABILITATION FOR SEVERE HYPOXIC BRAIN INJURY IN THE UK

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Background:

Rehabilitation following severe traumatic brain injury leads to substantial life-time savings despite their reduced life expectancy (Turner-Stokes,2019). The prognosis and life expectancy of hypoxic brain injury (HBI) is if anything worse, so does rehabilitation also provide long-term value for money in this group?

Objective: To evaluate cost-efficiency of rehabilitation following severe HBI and to estimate the life-time savings in costs of care in three groups of dependency.

Method:

Setting/Participants: HBI patients (n=1094) admitted to all 67 specialist rehabilitation services in England 2010-2018.

Design: A multicentre cohort analysis of prospectively-collated clinical data from the UK Rehabilitation Outcomes Collaborative database.

Main measures: Primary outcomes: a) cost-efficiency (time taken to offset rehabilitation costs by savings in costs of on-going care estimated by the Northwick Park Dependency Scale/Care Needs Assessment (NPDS/NPCNA), b) estimated life-time savings.

Results/Findings:

Mean age 51(±SD 15) years; mean length of stay 106(±73) days. Mean overall reduction in care costs £19,746 (95%CI £17,204, £22,270)/year; and mean remaining life expectancy 19.5 (95%CI 18.8, 20.2) years. Estimated net life savings in ongoing care costs (after deduction of the cost of rehabilitation) were £433,020 (95%CI £366,358, £502,271)/patient, totalling over £474 million for the analysed population (n=1094). Mean net life-time savings were greatest in the medium- and high dependency groups: £529,667 (£378,839, £670,946) and £468,886 (385,977, 558,643) respectively, compared with the £48,571 (-£91,897, £198,249) in the low dependency group.

Discussion:

Life-time savings from rehabilitation following HBI were slightly less favourable than previously-published results for traumatic brain injury,

Conclusion:

Nevertheless, despite their shorter life-span, specialist rehabilitation still proved highly cost-efficient for HBI patients.

Experiences of an adapted cardiac rehabilitation programme post-stroke

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Background:
The Cardiovascular Disease Outcomes Strategy (DoH, 2013) suggests the use of existing cardiac rehabilitation (CR) for Transient Ischaemic Attack (TIA) patients and people with mild severity stroke. However, limited research has been conducted exploring the attitudes and experiences of people with stroke towards CR.

Method:
Following ethical approval, a qualitative interpretive approach aimed to explore these attitudes and experiences. Semi-structured in-depth interviews were conducted with people who had a mild stroke in the sub-acute phase of recovery after taking part in an adapted CR programme (twice a week for six weeks). Discussions were audiotaped and transcribed verbatim. Collaborative analysis, with qualitative researchers, identified themes.

Results/Findings:
All interviewed participants (n=26) and their carers (n=12) enjoyed the programme. Themes identified were: fatigue, benefits, behaviour change, barriers and adaptations. Whilst all participants had stroke-related fatigue, over half felt that exercise reduced their fatigue and only one felt that exercise made it worse. Benefits included: physical (strength, energy, mobility); psychological (confidence, motivation, coping); social; early return to work and education about exercise and healthy lifestyles leading to Behaviour change (three quarters cited changes in their lifestyle, mainly regarding diet and exercise). Barriers included: physical disability and transport. Potential adaptations to a CR programme were also commented on: timing, frequency and duration of classes, inclusion of a specialist stroke physiotherapist, and more stroke focused education.

Conclusion:
People with a mild severity stroke in the sub-acute phase of recovery enjoy and benefit from adapted CR. CR has the potential to impact on behaviour change. Potential adaptations have been identified.

EXPLORING TREATMENT FIDELITY OF COMPUTER SPEECH AND LANGUAGE THERAPY FOR APHASIA IN THE BIG CACTUS TRIAL: A PROCESS EVALUATION

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Background:
The Big CACTUS trial investigated the effectiveness of computer speech and language therapy for aphasia in the long-term post stroke. The intervention comprises four components: StepByStep software, therapy set-up (personalising and tailoring), independent practice, and supporting and monitoring use. Treatment fidelity is known to impact intervention success and research validity.

Method:
A process evaluation of fidelity was embedded within the trial drawing upon quantitative and qualitative data. Data were collected about the four components of the intervention according to three elements of the Conceptual Framework for Implementation Fidelity: adherence, quality of delivery and participant responsiveness.

Results/Findings:
All 97 participants randomised to the intervention group received the computer therapy software. Over the six month intervention period the median practice duration was 26 hours. 50% of participants practised three times per week or more. Access delays were experienced due to the availability of participants and therapists and the length of the therapy set-up process. Therapists spent a median of six hours over four sessions setting up and supporting the therapy. Tailoring was comprehensively documented for 65% of participants. Volunteers and assistants provided a median of four hours support to participants. Participants perceived the therapy was moderately easy to use.

Discussion:
The ‘therapy set-up: personalising and tailoring’ component was delivered with the highest degree of fidelity. However, the lengthy set-up time which enabled the therapy to be tailored with high fidelity may have negatively impacted upon the delivery of other components.

Conclusion:
Overall the intervention was delivered with a moderate to high degree of fidelity.

TARGETING RESIDUAL NEURAL PATHWAYS TO IMPROVE VISION IN CORTICAL BLINDNESS AFTER STROKE

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Background:

Sight loss is common post-stroke, affecting up to 60% patients. Clinical management is limited to compensatory strategies, with limited efficacy and poor uptake. We need novel rehabilitation approaches that make use of scientific advances in this field.

Method:

We compared behaviour and fMRI activity in 7 patients with cortical blindness post-stroke, pre and post-training. 'Blindsight' training targeted the blind field for 3 months, approximately 30 mins/session, 5 days/week.

Results/Findings:

Patients showed improvement in contrast sensitivity in the blind visual field ($t = 3.6$, $p = 0.02$), coupled with a highly specific increase in visual-evoked activity in hMT+ ($z > 3.1$, $p < 0.001$), and a boost in its functional connectivity with the LGN.

Discussion:

Our principal clinical question is whether residual pathways that bypass damaged primary visual cortex (V1) to supply intact extrastriate cortex can be targeted to improve vision in cortical blindness post-stroke. There are strong reasons to support this. Firstly, recovery of vision is anecdotally described in patients with chronic cortical blindness, who underwent months of repetitive 'blindsight' testing. This is surprising, given that visual field loss is largely permanent 6 months after brain injury. Secondly, early recovery of vision after stroke can be associated with a return of extrastriate but not V1 fMRI activity. Thirdly, training paradigms predicted to ‘tap into’ motion blindsight pathways improve visual sensitivity in chronic cortical blindness, including a return of conscious vision.

Conclusion:

Our results suggest we can target preserved visual pathways to enhance visual function post-stroke. Next steps will be to target additional visual functions/pathways, to maximise improvements in patients.

FEASIBILITY OF A RANDOMISED CONTROLLED TRIAL OF LYCRA SLEEVE FOR MANAGEMENT OF GLENOHUMERAL SUBLUXATION (GHS) IN PEOPLE WITH STROKE

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Background:

Glenohumeral subluxation (GHS) is a common secondary complication reported in up to 81% of people with stroke. The aims of this study was to evaluate the feasibility of conducting a fully powered randomised controlled trial of the Lycra sleeve for the management of GHS.

Method:

Stroke survivors over 18 years with hemiplegia, muscle strength of ≤3 on Medical Research Council scale, able to provide informed written consent were recruited from acute settings. Evaluation points were at baseline and at three months. Patients were randomised to immediate (IG) or delayed (received sleeve at three months) groups (DG). Staff, patients and carers received training on application of sleeve. Recruitment, retention, adverse events and completeness of data collection were explored at 3 months using descriptive statistics. GHS (ultrasound method), Passive range of movement, muscle strength, spasticity, upper limb function and quality of life. Questionnaires explored acceptability.

Results/Findings:

Of 257 stroke survivors screened, 31 (12%) were recruited (N=19 IG). Retention was 87% (N=27) and all patients tolerated clinical outcome measures. Average days the sleeve was worn:50/90 days (mean 10 hours/day). Seven (41%) participants from IG and two (22%) from DG showed reduction in GHS. Swelling in the hand was reported by 2/27. A further 3 participants were unsure of adverse effect due to pre-existing medical condition(s). Patients reported the sleeve was comfortable to wear (100% N=27) and was acceptable in their daily life (96% N=27).

Conclusion:

Recruitment was low but retention was good. This study found that a subsequent clinical trial was feasible, with modifications to the recruitment strategy.

STANDING AND SIT-TO-STAND PRACTICE EARLY AFTER SEVERE STROKE: RESULTS FROM A FEASIBILITY RCT

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Background:
Standing-up and sit-to-stand repetitions can aid functional recovery post-stroke but has not been investigated together in people with severe stroke.

Aim: determine the feasibility of a RCT of a functional standing frame programme during inpatient sub-acute rehabilitation for people with severe stroke.

Method:
Assessor-blinded RCT with nested qualitative component and process evaluation.
Participants aged ≥18 years with new severe stroke (modified Rankin Scale (mRS) 4/5) were randomised into either:

1. Functional standing frame programme (30min. standing plus sit-to-stand repetitions) plus 15min. of usual physiotherapy (Intervention)
2. Usual physiotherapy (45min.) (Control)

Both minimum 5x week for 3-weeks.
Feasibility outcomes included recruitment and attrition rates, safety, intervention fidelity, adherence, participants' views on each intervention session. Interviews were conducted with a subset of participants, relatives and physiotherapists to explore experiences of the intervention and trial processes.

Results/Findings:
Forty-five participants (51-96 years; 42% male, mRS 4=80% 5=20%) were randomised (n=22 intervention). Twenty-seven participants completed the trial. The most common adverse and serious adverse events were falls and infections, none deemed related to the intervention. Intervention adherence was low (38-51% sessions completed). Average session duration 39.40min(±8.8). Standing duration 12.52 min.(±8.8).
Mean sit-to-stand repetitions 4.64 (±3.9SD) per session. 91% of sessions were enjoyed by participants.

Discussion:
Patient-, physiotherapist- and organisational-related factors affected recruitment and intervention adherence, for example organisational culture, beliefs and attitudes of physiotherapists and impact of stroke.

Conclusion:
The functional standing frame programme is feasible for people with severe stroke, although adherence was low. Adherence and training will be addressed prior to progressing to a clinical and cost-effectiveness trial.

A CONSENSUS PROCESS TO AGREE BEST PRACTICE FOR MANAGING PHYSICAL WELLBEING IN PEOPLE WITH A PROLONGED DISORDER OF CONSCIOUSNESS

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Background:
Current practice in maintaining physical wellbeing of people in a prolonged disorder of consciousness (PDOC) is variable and there is no agreed standard of care. This study addressed this deficit using a consensus process with clinicians recruited nationally in the UK.

Method:
A scoping review of the literature was conducted, followed by an initial meeting (Meeting-1) with purposively selected clinical-experts working in national centres for PDOC. Following agreement of the terms of reference and areas of clinical importance, a consensus meeting (Meeting-2) was conducted using nominal group technique (n=33). Experts were initially asked to consider and amend statements generated from the literature. Following a process of refinement, experts were asked to vote on each statement to indicate their agreement. A majority of experts needed to be in agreement to reach consensus.

Results/Findings:
Following the nominal group process, 25 initial recommendations were refined to 19 which expressed the principles of physical management for people with a PDOC. Statements are grouped into 'acute-management' (6-recommendations), 'rehabilitation-input' (10-recommendations) and 'long-term care' (3-recommendations). Across the participants, agreement with the final recommendation statements ranged from 100-61% (n=33-20), 15 of the statements were supported by 85% or more experts (n=29). In addition, a clinical pathway of care, incorporating the recommendation principles was produced (agreement from 28 experts, 83%).

Conclusion:
The recommendations provide a basis for standardising current practice. They provide a standard against which care and effectiveness can be evaluated. A clinically accessible guideline document is planned for publication to enable implementation into practice, supported by online resources.

CARE PATHWAYS IN TRAUMATIC BRAIN INJURY: A SCOPING REVIEW

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Background:
Traumatic Brain Injury is a growing international public health problem. 80% of TBIs are considered mild and self-limiting, but up to a third result in Post-Concussive Syndrome (PCS). The aim of this review was to explore care pathways for this patient group.

Method:
A scoping review methodology was chosen to explore care. Primary and secondary research papers as well as clinical care guidelines relating to patients with PCS following TBI were assessed for inclusion in the review.

Results/Findings:
Ninety-one papers were included. The majority of these papers did not include examination of care pathways as primary research objectives. Two main findings emerged. Firstly, there is no systematic follow-up care for patients discharged from acute care following an uncomplicated TBI. Secondly, care for patients with mild TBI follows a stepped approach: watchful wait, symptom-specific management, and multidisciplinary management. Multidisciplinary management may involve a wide variety of specialists and span multiple care settings.

Discussion:
The lack of systematised care protocol for the management of patients who experience lasting symptoms following TBI is a likely contributor to poor and chaotic access to care and support services pivotal for recovery. The stepped approach to care for this patient group fuels the existence of silos of care, which are only transcended through integrated multidisciplinary care as a last resort.

Conclusion:
This review highlighted gaps in both services and the literature about community-based medium to long-term care for patients with PCS following TBI.

INVESTIGATING THE EXPERIENCES OF INFORMAL CAREGIVERS OF CHILDREN WITH CEREBRAL PALSY IN ANTANANARIVO, MADAGASCAR

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Background:
The estimated prevalence of Cerebral Palsy (CP) in parts of Africa is four times higher than in high-income countries. This life-long condition often results in long-term dependence, consequently burdening informal caregivers. It is crucial to explore the experiences of caregivers, as they are a vital resource to providing care and rehabilitation for children with CP (CWCP). This is the first CP research in Madagascar.

Method:
Qualitative research, using 13 semi-structured interviews with informal caregivers of CWCP took place at two health centres in Antananarivo. Caregivers received an information sheet and consent form, then 24 hours to consider their participation. Interviews were recorded to allow verbatim transcriptions, and the data was analysed using thematic content analysis. The University of Leeds granted ethical approval.

Results/Findings:
Caregivers' demonstrated limited knowledge of cause, prognosis and care of CWCP. Community perceptions of CP causes, including accusations of wrongdoings towards the mother, resulted in stigmatisation of caregivers. Financial, physical, psychological and social burdens were reported by caregivers, with many experiencing financial barriers to accessing healthcare. All participants' children received physiotherapy, with limited occupational and speech and language therapy. Caregivers experienced limited communication with health professionals. Most participants visited a traditional healer.

Discussion:
Educational interventions aimed towards caregivers are imperative, as a good understanding of CP enables optimal care. Rehabilitation services within communities may be a way to reduce travel costs and the financial burden experienced by caregivers.

Conclusion:
It is evident caregivers of CWCP face many burdens, however, the political instability and poor economy in Madagascar remain challenges for progress.

CARDIAC REHABILITATION FOR PEOPLE WITH SUB-ACUTE, MILD TO MODERATE STROKE: RESULTS FROM A MIXED METHODS FEASIBILITY STUDY

N Clague-Baker, T Robinson, C Gillies, S Drewry, University of Leicester, A Hagenberg, S Singh University Hospitals of Leicester

Background:
The Cardiovascular Disease Outcomes Strategy (DoH, 2013) suggests the use of existing Cardiac rehabilitation (CR) for Transient Ischaemic Attack (TIA) patients and mild disability stroke patients. There is limited evidence for the use of CR programmes for people with stroke, most studies have taken place outside of the UK.

Method:
Aims were to determine: recruitment strategy, acceptability, adherence, outcome measures and sample size for a definitive study. People post-stroke attended an adapted CR programme twice weekly for six weeks. Outcome measures at baseline and six weeks measured: CV fitness (CVf), height, weight, body mass index, blood pressure, heart rate, QOL, Anxiety and Depression, Fatigue, Tone, Function, falls, activity levels and stroke knowledge and attitude.

Results/Findings:
32 (53% RR) patients were recruited. The programme was acceptable to most patients but more disabled patients would prefer a specialist programme. 80% of the classes were attended with six drop-outs due to medical reasons. Most measures showed a positive trend. Sample size for a definitive study was determined.

Discussion:
Adaptations needed included: specialist stroke physiotherapist, training of CR staff, specialist stroke education programme, specialist equipment in the classes and potential changes in the outcome measures.

Conclusion:
A definitive study to determine the effect of six weeks of CR on CVf in sub-acute, mild (NIHSS < 3) stroke patients is feasible. However, moderate (NIHSS >2) stroke patients need a more specialist programme. Adapted CR has the potential to increased cardiovascular fitness, quality of life, activity levels, stroke knowledge and attitude and reduce anxiety, depression, fatigue and sedentary behaviour.

DOES CARDIAC REHABILITATION CHANGE PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR FOR PEOPLE WITH MILD-TO-MODERATE STROKE IN THE SUB-ACUTE PHASE OF RECOVERY?

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Background:
It is unclear whether cardiac rehabilitation (CR) increases the physical activity (PA) of people post-stroke in the sub-acute stage of recovery (<6 months). This study examined the effectiveness of a six-week adapted CR programme on PA and sedentary behaviour for people post-stroke in the sub-acute recovery stage.

Method:
26 individuals who completed CR wore an accelerometer for 7 days before and after the programme. Step count; stationary time (ST); and light (LPA) and moderate-to-vigorous (MVPA) PA per day were compared pre- and post-CR.

Results/Findings:
24 participants (63.1±14.6yr, 58% male, NIHSS 2.6±1.9) provided valid PA data (≥1 day of ≥8 waking hours) at both time points. Following CR, patients took significantly more steps (3255±2864 vs. 3908±3399steps/day, p=0.004) and bouts of MVPA lasting ≥5min and ≥10min (0.7±1.4 vs. 1.2±1.8 bouts/day, p=0.008 and 0.3±0.8 vs. 0.6±1.1bouts/day, p=0.021, respectively) compared to baseline. LPA (+2.0%) and MVPA (+0.7%) increased at the expense of a significant reduction in ST (-2.7%, Figure 1).

Conclusion:
Physical activity of people in the sub-acute phase of stroke recovery is well below international recommendations. CR has the potential to increase steps and MVPA and reduce sedentary behaviour of these individuals.

DEVELOPMENT AND FEASIBILITY TESTING OF AN OCCUPATIONAL ADVICE INTERVENTION IN TOTAL HIP AND KNEE REPLACEMENT SURGERY: THE OPAL STUDY

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Background:
Although hip and knee replacements are regularly performed for patients who work, there is a lack of structured return to work (RTW) advice. The purpose of this study was to develop an occupational advice intervention for delivery in the NHS.

Method:
A cohort study, stakeholder interviews, survey of practice, evidence synthesis and Delphi process informed development of the intervention through Intervention Mapping. The intervention was feasibility-tested in orthopaedic departments. Outcome measurement included fidelity of delivery, and patient and stakeholder perspectives of the intervention.

Results/Findings:
A total of 13 patient and 20 staff performance objectives were identified as delivery requirements, supported by a range of tools, roles and training resources. Feasibility was assessed in 26 patients from three NHS trusts and through 24 stakeholder interviews. Around three-quarters of staff and patient performance objectives were met. The intervention was generally well received although there was some confusion amongst patients and those delivering the intervention regarding its overall purpose and the roles and responsibilities of key staff.

Discussion:
Intervention Mapping supported the development of a justified and comprehensive intervention in secondary care. However, sufficient time is required to change the attitudes and behaviours necessary to embed NHS staff roles and responsibilities for occupational advice and to prepare patients' expectations around the provision of RTW advice in routine healthcare.

Conclusion:
It was possible to develop and deliver the OPAL intervention within secondary care. Further preparatory implementation research is required prior to formal testing in a definitive multi-centre pragmatic randomised controlled trial.

THE EFFECTIVENESS OF NON-PHARMACOLOGICAL INTERVENTIONS TO TREAT ORTHOSTATIC HYPOTENSION (OH) IN PEOPLE WITH STROKE: A SYSTEMATIC REVIEW

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Background:
OH is highly prevalent and can complicate stroke rehabilitation. Potential risk of harm with OH warrants addressing due to risk of further brain damage in acute and sub-acute stroke which may increase disability and mortality. Impact and management of OH during rehabilitation is not included in stroke guidelines.

Aim: summarize best-available evidence regarding the effectiveness of non-pharmacological interventions to treat OH in people with stroke.

Method:
Database search: English published and unpublished quantitative studies. Critical appraisal conducted by two independent researchers, using standardized instruments from the Joanna Briggs Institute. Where appropriate, studies were included in a meta-analysis.

Results/Findings:
Forty-two studies (n=984 participants) met the inclusion criteria. Meta-analysis was conducted for n=6, concluding electrical stimulation, lower limb compression and resistance exercise training were favourable in treating OH. Although the meta-analysis produced mean effect sizes favouring the intervention, 95% confidence intervals provided inconclusive evidence of an effect, and confidence intervals in resistance exercise training were wide.

Narrative review of single studies suggest physical-manoeuvres improved OH; sleeping with head-up in combination with pharmacological treatment was more effective than sleeping with head-up alone; eating smaller frequent meals, drinking 480ml of water and abdominal compression increased blood pressure. Lack of efficacy was evidenced for resistance training, but some exercise interventions included in the review improved OH.

Discussion:
Mixed results were found. Some interventions are commonly used in stroke rehabilitation e.g. electrical stim and exercise. Main limitation=heterogeneity of methods.

Conclusion:
There are several promising non-pharmacological interventions that could be incorporated into/outside rehabilitation sessions however uncertainty exists about magnitude of effects.

A SYSTEMATIC REVIEW OF VOCATIONAL REHABILITATION FOR PEOPLE WITH MULTIPLE SCLEROSIS

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Background:
Multiple Sclerosis (MS) is the most common chronic neurological condition affecting young adults. MS affects both cognitive and physical skills, leading to problems in the personal and professional lives of people with MS. In fact, only after 10 years from diagnosis, less than 40% of people with MS remain employed. Therefore, we are interested in understanding what can be done to support people with MS to continue working for as long as they wish.
The aim of this systematic review is to identify vocational rehabilitation (VR) interventions that enable people with MS to remain in or return to work.

Method:
A systematic searched in six electronic databases: PubMed, MEDLINE, EMBASE, PsycINFO, CINAHL and Web of Science (last searched 14 May 2019). We also conducted web-searches and contacted charities and national government. We selected all studies describing VR interventions for adults with MS. We considered a variety of study designs for inclusion. The screening, data extraction and methodological quality assessment were conducted by two reviewers independently.

Results/Findings:
Twenty-one studies relating to thirteen VR interventions were identified. Five interventions aimed at return to work, six at job retention and two were general vocational rehabilitation services.

Conclusion:
There was substantial variability among the VR interventions in terms of services provided, professionals delivering the intervention and length of the intervention. Furthermore, the full description of the intervention was not available for eight interventions.

RISK FACTORS FOR POST-STROKE SHOULDER PAIN: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background:
The aim of the review was to identify the early risk factors that predict the onset of post-stroke shoulder pain (PSSP) within the first year after stroke.

Method:
Five databases (AMED, CINAHL, EMBASE, Medline, PubMed) were searched to find prospective cohort studies that measured a potential risk factor within the first month post-stroke and measured pain as a primary outcome within the first year post-stroke. Study selection and risk of bias assessment was undertaken independently by the two lead authors and disagreement resolved via third author. Data was extracted to describe the studies and to calculate odds ratios for analysis.

Results/Findings:
Nine articles were retrieved that met the inclusion criteria, of which six presented data eligible to use in meta-analysis. Of the 54 factors identified it was possible to perform a meta-analysis on four; sex (OR 0.929, CI 0.750-1.151), laterality (OR 0.784, CI 0.588-1.045), diabetes (OR 2.089, CI 1.156-3.776), and history of shoulder pain (OR 2.780, CI 1.294-5.972). Reduced motor function in the upper limb was also identified as a significant risk factor through qualitative synthesis.

Conclusion:
Reduced motor function in the upper limb, diabetes, and a history of shoulder pain were identified as significant risk factors for the development of PSSP within the first year after stroke. Results are not definitive due to the limitations and potential bias in the included studies. Recommendations to standardise future studies in this area have been made and it is suggested that defining subtypes of PSSP may aid future interventional studies.

TREATMENT OF SLEEP DISORDERS FOLLOWING STROKE AND TRAUMATIC BRAIN INJURY: A SYSTEMATIC REVIEW OF CONSERVATIVE AND COMPLEMENTARY MEDICINE INTERVENTIONS

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Background:
Sleep disorders are common following stroke and traumatic brain injury and may impact on patient outcomes. Here we systematically review the literature that has investigated conservative or complementary medicine interventions to improve the sleep in this population.

Method:
The PRISMA statement was used as a guide to report this systematic review. Embase, PubMed, and the Cochrane library were searched for all experimental and meta-analyses published prior to 7th February 2019 that assessed a conservative or complementary medicine intervention to improve the sleep (or sleep disorder) of humans with a history of stroke or traumatic brain injury. Two authors independently assessed publications of interest and study quality using the Cochrane Risk of Bias Tool or the Methodological Index for Non-Randomised Studies instrument.

Results/Findings:
Eighteen publications were included in this review. The majority were randomised controlled trials in an outpatient/community setting and most interventions assessed psychotherapy, exercise, or acupuncture. Individual studies assessed oropharyngeal muscle exercises, warm footbaths, or blue light therapy. Quality of included studies varied across interventions.

Discussion:
Psychotherapy and acupuncture might be useful for sleep disturbance whereas the evidence for exercise was less clear. It is not known which patient groups may benefit most from these interventions and how additional factors such as cognition and depression may impact on their use. Limitations included articles published only in English and the reporting of secondary outcome measures.

Conclusion:
Some conservative interventions and acupuncture might be useful in improving the sleep after stroke or traumatic brain injury, but further research in this area is required.

A SURVEY OF THE CURRENT PRACTICE OF INTRAMUSCULAR BOTULINUM TOXIN INJECTIONS FOR HEMIPLEGIC SHOULDER PAIN IN THE UK

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Background:

To describe the current UK practice for the use of intramuscular Botulinum Toxin type A (BoNT-A) injections to treat hemiplegic shoulder pain (HSP).

Method:

A UK-based cross-sectional study using an online survey. Participants (n=68) were medical and non-medical practitioners recruited via the membership of the British Society of Rehabilitation Medicine and the British Neurotoxin Network.

Results/Findings:

The majority of respondents would consider BoNT-A for HSP (86.8%), though most of these respondents inject for this goal infrequently (83.1%). Pectoralis major was most commonly selected to achieve this goal. Barriers to this intervention included difficulties determining the cause of pain (29.4%), difficulty isolating muscles (27.9%), and a lack of evidence (25%). The doses reported regularly deviated from guidelines and a substantial range in the volumes suggested was observed. Clinicians were mostly reliant on unstandardised measures to assess outcomes.

Conclusion:

There are large variations in current UK practice with regards to muscle selection, dose, and volume of injectate for the use of BoNT-A for HSP. Gaps between available evidence and guidelines was also noted, likely due to the complex, multifactorial nature of HSP. Further research is needed to identify which patients are most likely to benefit from this intervention and at what stage post-stroke its use is most optimal.

BRAIN-IN-HAND TO SUPPORT ADULTS WITH ACQUIRED BRAIN INJURY: A CONVERGENCE OF QUANTITATIVE AND QUALITATIVE FINDINGS

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Background:
Individuals with acquired brain injury (ABI) may find it difficult to self-manage and live independently. Many smart technologies exist to aid rehabilitation, but there is limited technology available to support self-management. Brain-in-Hand (BiH) is a smartphone app designed to support psychological problems and encourage behaviour change.

Aim: To determine the effect of BiH on anxiety, depression, fatigue, and goal management, and to evaluate experiences of using BiH.

Method:
An n-of-1 mixed method case study design was used. ABI participants (n=10) were provided with BiH for 12 months. Data were collected using questionnaires (at baseline, 6 and 12 months) and semi-structured interviews (n=9). Mixed methods data were synthesised using a convergence coding matrix and searched for agreement.

Results/Findings:
Data generally complemented each other. No change in anxiety or depression measures was found, however participant interviews suggested an improvement in anxiety whilst using BiH. A significant improvement in goal attainment was found at 6 months (p=0.004), supported by qualitatively findings. A small improvement in fatigue scores was found at 6 months. Lack of insight was highlighted as a key barrier to BiH effectiveness and it was evident that some participants initially overestimated their abilities on outcome measures.

Discussion:
Quantitative findings alone suggested that BiH was ineffective, but convergence of data added context. This facilitated understanding of why some outcomes worsened. BiH has the potential to support anxiety and goal attainment, but users need a level of insight prior to use.

Conclusion:
BiH has the potential to improve goal attainment in ABI and encourage self-management of anxiety/fatigue.

INPATIENT NEURO-ONCOLOGICAL REHABILITATION: ONE UNIT'S EXPERIENCE

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Background:
Advances in cancer treatment have improved survival, resulting in greater numbers of cancer patients living with functional impairments, including those with primary or secondary neurological cancers. There are many potential deterrents for considering inpatient rehabilitation for this patient group, including medical instability and tumour recurrence. We describe our experience in developing a pathway for inpatient neuro-oncological rehabilitation.

Method:
A retrospective review of inpatient neuro-oncological admissions from 2009–2017 was performed comparing length of stay, changes in United Kingdom Functional Independence Measure + Functional Assessment Measure (UK FIM+FAM) scores, outcome and survival.

Results/Findings:
120 patients were admitted (39% malignant diagnosis), of whom 90 completed their rehabilitation, 27 transferred to another facility, 2 died and 1 self-discharged. 88% of patients with benign diagnosis and 30% of patients with malignant diagnosis survived 1 year beyond discharge. Median survival for the malignant group was 3.6 months (95%CI 2.0–8.4), with survival up to 40.4 months. Length of stay (median: 45 vs 43 days, p=0.16) and admission UK FIM+FAM (median: 134 vs 138, p=0.34) were not significantly different between the two groups; but UK FIM+FAM efficiency is lower in patients with malignant diagnosis (median: 0.32 vs 0.07, p=0.02).

Discussion:
Considerations for inpatient neuro-oncological rehabilitation include (1) Realistic goal setting, (2) Planning for disease progression, (3) Open approach to expectation management, and (4) Clear pathways with Oncology and Palliative Care.

Conclusion:
In developing neuro-oncological rehabilitation services, the potential deterrents above did not appear significant, but there remain questions about what impact inpatient rehabilitation has on remaining quality of life.

PARTNERED, ADAPTED ARGENTINE TANGO DANCE FOR CANCER SURVIVORS: A PILOT STUDY OF EFFECT ON POSTURAL CONTROL

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Background:

Neurotoxic cancer treatments can cause chemotherapy-induced peripheral neuropathy and postural control deficits that cancer survivors report as a major concern. Sensorimotor activity training has emerged as a feasible treatment for symptoms including balance deficits, however, more study is needed to optimize elements of engagement and participation. We evaluated feasibility, satisfaction, and preliminary efficacy of a novel balance training program for cancer survivors: partnered, Adapted Argentine Tango dance (Tango).

Method:

Twenty-two individuals participated (n=22). Tango classes (1 hour) were offered twice/week for 16 weeks. Per class, we documented attendance, barriers to attendance, and satisfaction (7 point scale; 1 high). At baseline, midpoint, and endpoint we assessed postural control (i.e., center-of-pressure (CoP) during quiet standing with eyes closed). We analyzed whether 1) attendance and satisfaction were high per feasibility criteria; 2) co-enrolling with a companion increased attendance; 3) postural control improved among participants who were outside of normal range at baseline.

Results/Findings:

Feasibility criteria were met: more than half of participants attended more than half the classes offered with a mean satisfaction rate of 1.2 (SD 0.4). Those who enrolled with a companion (n=9) attended more sessions than those who did not (n=13) (Mann-Whitney U value = 20; p = 0.012). Participants with demonstrated deficits (n= 9) improved in 3 CoP measures at midpoint (i.e., medial-lateral sway, ellipse area, medial-lateral velocity), retaining improvement in 2 CoP measures at endpoint (i.e., medial-lateral sway, ellipse area).

Conclusion:

Partnered, Adapted Argentine Tango is feasible for cancer survivors and may improve postural control. Enrolling with a companion improved attendance.

THE EVOLUTION OF GOAL SETTING AND ATTAINMENT FOR PATIENTS WITH UPPER LIMB SPASTICITY IN A SERIES OF OBSERVATIONAL COHORT STUDIES: THE UPPER LIMB INTERNATIONAL SPASTICITY (ULIS) PROGRAMME

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Background:

The ULIS programme, a series of international studies conducted in real-life clinical practice, introduced Goal Attainment Scaling (GAS) to evaluate person-centred outcomes after treatment of upper limb spasticity (ULS) with botulinum toxin A (BoNT-A). This analysis examined the evolution of goal-setting and attainment between ULIS-II (NCT01020500) and ULIS-III (NCT02454803).

Method:

ULIS-II (n=456, 22 countries) examined outcomes after 1 BoNT-A cycle and ULIS-III (n=1004; 31 countries) examined outcomes after repeated cycles. 4 principal investigators independently rated the quality of goal-setting across centres for relevance to functional activities (A–C) and by 'SMART' quality description (–/+/++). In ULIS-III, the GAS–Evaluation of Outcome for ULS (GASeous) tool was introduced to improve quality of goal-setting.

Results/Findings:

In ULIS-II, 24% (20/84) of centres were A++ goal-setters, versus 79% (45/57) in the first cycle of ULIS-III after implementing GASeous. Between ULIS-II and -III, the frequency of 'A' grades increased from 51 to 90% and '++' grades increased from 32 to 79%.

Between ULIS-II and -III, overall mean (SD) GAS T-scores fell from 52.0 (10.1) to 49.9 (7.9), achievement rates for primary goals fell from 80 to 69%, fewer primary goals were set for range of movement (23 vs 14%) and active function (23 vs 15%), and more were set for pain reduction (13 vs 25%), respectively.

Discussion:

Using GASeous yielded tighter goal definitions and more accurate predictions of goal-achievement, thereby increasing quality of goal-setting and reducing overestimation of goal-attainment.

Conclusion:

Structured goal-setting charted changes in real-life clinical practice, reflecting an improvement in clinicians' understanding of which goals were achievable.

ACCEPTABILITY OF LYCRA SLEEVE FOR THE MANAGEMENT OF GLENOHUMERAL SUBLUXATION IN PEOPLE WITH STROKE: NURSES' AND THERAPISTS' PERCEPTIONS

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Background:
Glenohumeral subluxation (GHS) is a common secondary complication reported in people following stroke. The aim was to explore the acceptability of the Lycra sleeve for GHS from staff perspective. This was part of the feasibility study for a future randomised controlled trial.

Method:
A questionnaire survey was conducted with the stroke pathway rehabilitation team who were involved with treatment of 31 patients recruited for the feasibility study. Staff received training on the application of Lycra sleeve. Questionnaires were tailored towards nurses and therapists respectively. They consisted of questions on a 7-point Likert Scale and free text boxes. Descriptive statistics and thematic analysis of staff views of Lycra Sleeve.

Results/Findings:
Nurses (10), Nursing assistants (5), Physiotherapists (10), Therapy technicians (3) and Occupational Therapists (8) provided feedback, often for more than one patient.
The majority (80%) of responses from staff indicated that the training was appropriate and that it was easy to apply and take the sleeve off. The median time taken to apply the sleeve was ≤3 minutes. The majority (87%) of staff responses reported no adverse effects. Of 79 responses, marking of the skin (2), hand pain (4), hand swelling (1), itchiness (1) and feeling hot (1) were reported adverse effects. The key themes reported were: limited difference between sleeve on and sleeve off; the need for a greater range of sizes; Lycra sleeve is acceptable, with a clear need for empirical evidence.

Conclusion:
The Lycra sleeve is an acceptable treatment, however, evidence of effectiveness is required for its clinical application.

A LONGITUDINAL, CORRELATIONAL PILOT STUDY TO ASSESS THE PSYCHOMETRIC PROPERTIES OF THE CHELSEA CRITICAL CARE ASSESSMENT OUTCOME MEASURE IN AN ADULT TERTIARY NEUROREHABILITATION SETTING

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Background:

UK Functional Assessment Measure (UK FIM+FAM) is the principal outcome measure for complex rehabilitation however in practice many patients do not show change from baseline in the physical domains of the UK FIM+FAM. The Chelsea Critical Care Physical Assessment (CPAx) measure may be more appropriate/sensitive to change in this population. It has not been validated outside critical care.

Methods:

Sample: 29 adult patients on Complex or Hyper acute Rehabilitation units recruited May 2017 -March 2018 Inclusion criteria: Convenience sample of all adult patients admitted from hospital following neurological injury. Exclusion criteria: Patients admitted from community. Intervention: CPAx completed on admission (2 therapists) and discharge by (1 therapist). Comparison: UK FIM+FAM completed on admission and discharge. The physical functioning section is completed by a physiotherapist.

Results/Findings:

Results "High internal consistency between domains on CPAx and UK FIM+FAM (CPAx respiratory α=.738, function α=.935; UK FIM+FAM α=.928). Convergent validity demonstrates a statistically significant, moderate correlation (Total Score correlation τ=.572, p=<0.0005). Inter-rater reliability was moderate-almost perfect for all items on CPAx. Strongest elements were Lie-sit (κ=.960) and Bed-chair (κ=.959); weakest was cough (κ=.625).
Floor effects on UK FIM+FAM: 68.75% of patients on admission, 20.69% on discharge. No floor or ceiling scores on CPAx.
Larger effect size on CPAx (r=.59) than UK FIM+FAM (r=.54).

Discussion:

Further research recommended: - In a larger population across rehabilitation units nationwide. -Comparing against non-motor UK FIM+FAM items to assess ability to predict physical improvement on CPAx.

Conclusion:

CPAx appears to be a valid, reliable, and sensitive measure for patients in this setting.