

## **PRIORITY BRIEFING**

The purpose of this briefing paper is to aid Stakeholders in prioritising topics to be taken further by PenCLAHRC as the basis for a specific evaluation or implementation projects.

## **QUESTION DETAILS**

**Question ID:** 4

**Question type:** Intervention

**Question:** Is the ARNI (Action for Rehabilitation from Neurological Injury) rehabilitation training technique effective in increasing functionality, improving activity and improving autonomy in people who are between 1 and 5 years after their stroke.

**Population:** Adults who have had a stroke and have been left with a disability 12 months after the initial event. Participants need to have finished the rehabilitation provided by current services.

**Intervention:** ARNI rehabilitation technique delivered by trained individuals. Assessment will be made at 3, 6 and 12 months.

The programme promotes techniques and strategies to enable recovery of lost strength, balance and functional movement through stroke-specific task-related practice; coping strategies; and resistance training techniques. The programme also teaches trainers how to design and monitor recovery programmes aimed to facilitate self-reliance and autonomy in the community. Individual patients receive two hours of training per week over six months with interim exercise and an ongoing plan at the end. This is a new programme which has not yet been evaluated but sits in the context of little other evidence-based provision of support after standard rehabilitation courses.

**Control:** Usual care of patients living with the effects of stroke in the community without further support after the initial rehabilitation programme, as provided by current services.

**Outcome:** 1) Change in health status including improved quality of life, functionality and increased levels of activity and ability to participate in the community. 2) Autonomy and self care (and hence a decrease in health resource requirements. 3) Evidence on the value of approaches to providing a new programme of rehabilitation for commissioners, clinicians and service users.

## **Part 1: Research Background**

**Guidelines:** NICE (2008) clinical guidelines for stroke (3<sup>rd</sup> Ed) recommend that commissioners ensure that services are available to those living with long term disability from stroke, that support services can be accessed long after stroke has occurred and that those recovering from stroke should be helped to be part of the community as independently as possible. The guidelines also highlight a range of methods to include in rehabilitation similar to those involved in the ARNI programme. The Scottish Intercollegiate Guidelines Network: Management of Patients with Stroke (2002) guidelines suggest all stroke survivors should have access to further care to help them in the community, following initial rehabilitation.

### **Research Summary:**

There has been one recent (2008)<sup>1</sup> systematic review of therapy based rehabilitation services for patients living at home more than one year after stroke. However, this solely covered the standard rehabilitation provision received after stroke and not any extended rehabilitation services following on from this. The review identified five trials including 487 participants that met the eligibility criteria, one of which required that at least 75% of participants being recruited were at least one year from their initial stroke. It found that overall, there was inconclusive evidence as to whether therapy-based rehabilitation intervention one year after stroke was able to influence any relevant patient or carer outcome.

The review promotes the use of rehabilitation after stroke in that it acknowledges that all the trials reviewed use similar methods of therapy to obtain a shared outcome. This was that they all used task-oriented behaviour and goal-oriented activities to reduce levels of disability. Most interventions lasted around three months but one continued regularly throughout one year. However, the most beneficial levels of duration, intensity and method of long term rehabilitation are yet to be investigated. In two studies there were moderate changes in performance of activities of daily living that favoured the intervention but there were insufficient numbers of patients to identify statistically significant difference.

### **Ongoing Research:**

One piece of ongoing research was identified a study investigating an Interdisciplinary Team Approach to Stroke Rehabilitation in Home Care in Canada as part of the Hamilton Health Sciences Canadian Institutes of Health Research (CIHR), the Ontario Ministry of Health and Long Term Care, Toronto Central Community Care Access Centre, the Heart and Stroke Foundation of Ontario and the Greater Toronto Area Rehabilitation Network. This study was started in Feb 2006 and is reported to have finished in August 2008. However, no results have yet been published.

## **Part 2: Prioritisation Information**

### **1. The health problem**

#### **Epidemiology:**

Ischaemic Stroke is the most common form of stroke and is caused by a blood clot narrowing or blocking the blood vessels so that blood cannot reach the brain leading to brain damage. Approximately 110,000 people in England have a stroke every year and it is the third largest cause of death. There are over 900,000 people in England who have had a stroke and of those 300,000 live with moderate to severe disability as a result of stroke. Stroke is reported to cost the NHS and the economy £7 billion per year. Yet despite having services being the most expensive in terms of money and time the UK outcomes compare poorly internationally. Stroke is the leading cause of disability in adults with an incidence of 1.65 per 1000 population for first ever strokes. The consequences of stroke also impact the family and carers through personal, financial and societal burdens.

It is estimated in the south west that there are between 8,629-9,339 new strokes per year (about 8.5% of the total for England). 21% of the southwest population is aged 65 years and over and it is estimated that by 2029 a third of the Devon population will be 65 years and over, of these approximately 40% of those aged 70-74 years and 74% of those aged over 90 years have a long-term condition (such as coronary heart disease, stroke, diabetes, chronic fatigue, epilepsy and Parkinson's disease). Because of this the needs of older people and those with long term conditions are a particular priority in the South West.

### **2. Identification of the topic as a priority**

The Scottish Intercollegiate Guidelines Network: Management of Patients with Stroke (2002) guideline support the need for primary research to investigate different therapy interventions including optimum timing and intensity and which patients may benefit the most.

The Department of Health National Stroke Strategy (2007) recommends a range of services to be made locally available to support the individual long-term needs of people who have had a stroke and their carers. This objective will be one of several Quality Markers (QM). Evaluation of the effectiveness of rehabilitation interventions after the acute phase of stroke and into the longer term is also one of the top ten research priorities for the National Stroke Strategy.

#### **SW SHA Priorities framework 2008-11**

- Full implementation of all Quality Markers of the National Stroke Strategy in all Primary Care Trusts by March 2011.

### **3. Local perspective**

Priority for the Stroke Network

#### **Tractability:**

- Very relevant to service users and 'life after stroke'.
- The Clinical Network in the North West of England are already using this technique.
- Question from Stroke Network, support across local services.

#### **An overview of the local context:**

Would enable collaboration across the Peninsula, Avon, Somerset, Gloucestershire & Wiltshire, and Dorset stroke networks, as necessary according to eventual study design.

## References

(1) Aziz Noor, A., J. Leonardi Bee, et al. (2008). "Therapy-based rehabilitation services for patients living at home more than one year after stroke." Cochrane Database of Systematic Reviews.

**BACKGROUND:** Current practice of rehabilitation intervention mainly concentrates on the first six months of stroke. At present, there is no agreed consensus about the benefits of such a service more than one year after stroke. **OBJECTIVES:** To ascertain whether therapy-based rehabilitation services can influence outcome one year or more after stroke. **SEARCH STRATEGY:** We searched the trials registers of the following Cochrane Review Groups: Stroke Group (last searched September 2007), Effective Practice and Organisation of Care Group (last searched October 2006) and Dementia and Cognitive Improvement Group (last searched October 2006). We also searched the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library Issue 4, 2006), MEDLINE (1966 to October 2006), EMBASE (1980 to October 2006), CINAHL (1982 to October 2006), AMED (1985 to October 2006), PEDro (1952 to October 2006), British Nursing Index (1993 to October 2006), DARE (1994 to October 2006), HMIC (1979 to October 2006) and NHS EED (1991 to October 2006). We also searched dissertation databases and ongoing trials and research registers, scanned reference lists and contacted researchers and experts in the field. **SELECTION CRITERIA:** All randomised controlled trials of community-based stroke patients, in which at least 75% were recruited one year after stroke and received a therapy-based rehabilitation intervention that was compared with conventional care. **DATA COLLECTION AND ANALYSIS:** Two review authors independently selected trials and extracted data on a number of pre-specified outcomes. The primary outcomes were the proportion of participants who had deteriorated or were dependent in personal activities of daily living at the end of scheduled follow up. **MAIN RESULTS:** We identified five trials of 487 participants that were eligible for the review. Overall, there was inconclusive evidence as to whether therapy-based rehabilitation intervention one year after stroke was able to influence any relevant patient or carer outcome. Trials varied in design, type of interventions provided, quality, and outcomes assessed. **AUTHORS' CONCLUSIONS:** This review highlights the dearth of evidence investigating long-term therapy-based rehabilitation interventions for patients with stroke. **THERAPY-BASED REHABILITATION SERVICES FOR PATIENTS LIVING AT HOME MORE THAN ONE YEAR AFTER STROKE:** It is unclear if rehabilitation provided more than one year after a stroke can improve recovery. People who are recovering from a stroke for one year or more often have persistent disabilities. Although therapy-based rehabilitation for such patients is an accepted part of stroke management, the evidence base for such practice is unclear. We identified only five clinical trials, including 487 participants, which showed a tendency towards improved recovery but the results were inconclusive.