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Exercise rehabilitation post stroke

A sustainable exercise technology solution to increase rehabilitation uptake in NHS Hospitals

The problem

"Stroke patients should receive at least **45 minutes** of each relevant stroke rehabilitation therapy for a minimum of **5 days per week** for people who have the ability to participate, and where functional goals can be achieved."

NICE clinical guideline CG162

NHS currently provides
14 minutes per day

Gittins et al (2020)

Just **34% of patients** received the recommended rehabilitation therapy

SSNAP (2020)

53% of units **do not** provide 7 day therapy coverage

SSNAP (2020)

Which means

Patients are receiving an average 1.3 hours therapy per week: **2.5 hours short of NICE guidelines**

Patients are **sedentary** when they need **time critical rehabilitation** therapy

Patients have **limited access to repetitive movement therapy**

Physiotherapists are **stretched**

Current delivery model

Initial physiotherapy assessment

Rehab commences

Target delivery:
45 minutes per day, 5 days per week

Actual delivery:
14 minutes per day

Meeting NICE physiotherapy guidelines for an average 25 bed stroke unit would cost an

additional £80k per year minimum

It would cost an additional **£130+ per patient per week to meet current NICE guidelines with the current delivery model**

Innerva is the solution

What?

The Innerva range of **'Power Assisted Exercise'** equipment provides exercise therapy for the upper and lower body, initiating and sustaining global, multi directional movement.

How?

Accessible exercise with an assistive action that can be used either passively or actively helps to maintain and improve strength, cardiovascular health and flexibility and assists with the rehabilitation process.

▲ *Accessories support users with weak/no grip or limb control*

- Repetitive and safe movement for lost/reduced limb movement
- Whole body exercise to benefit upper limbs and trunk
- Safe and gentle
- Individual or group therapy
- Timed programmes
- Patients can move 'passively' or work to 8 or 9 METS
- Simple to use
- Accessories support users with weak/no grip or limb control

The five elements of healthy ageing

www.innerva.com/five-elements-to-healthy-ageing

Expected benefits for patients

On the ward

- ✔ 24/7 access to assisted exercise therapy
- ✔ Self service (where appropriate)

Ward based solution:
£8k to £10k per machine

x1 Machine

In the hospital rehabilitation unit

- ✔15 to 30 minutes of exercise per patient per day
- ✔ Work with several patients in a group setting

Hospital rehabilitation unit: £43k for 5 exercise therapy stations

x6 Machines

Saving a 25-bed stroke unit:

£350k over 5 years

Expected benefits

Achieve the NICE Guidelines target with no extra staff resource

- ✔ Reduced likelihood of complications
- ✔ Reduced sedentary time
- ✔ Reduced length of hospital stay
- ✔ Reduced risk of hospital readmission

- ✔ Increased likelihood of sustained/ ongoing exercise as norm
- ✔ Enhanced long term outcomes, with potential to reduce need for care

Expected benefits

Ward based power assisted exercise therapy machine

- ✔ Minimum 15 minutes exercise therapy per patient per day
- ✔ Reduced staff requirement
- ✔ Ward based machine and gym could together provide minimum 45 minutes of exercise therapy per patient per day

Small circuit in the hospital physiotherapy gym

- ✔ Could provide 15 to 30 minutes exercise therapy per patient per day

Academic studies

Sheffield Hallam University | Advanced Wellbeing Research Centre

Power assisted exercise for people with complex neurological impairment: a feasibility study

Seven participants, including people with stroke, with complex neurological impairment were recruited to eight sessions of power assisted exercise. Feasibility of the equipment was evaluated through analysis of attendance, completion, safety record and reported experience.

The programme completion rate was 100% with no serious adverse events reported. Participants reported that they enjoyed the intervention and associated it with physical and psychosocial benefits. Reported improvements in physical mobility suggest that further research in this area is indicated.

Users' experience of community-based power assisted exercise: a transition from NHS to third sector services

Eight participants with stroke were invited to explore their lived experience of rehabilitation during qualitative interviews. They recalled their in patient rehabilitation as a sedentary experience during which they felt disempowered.

Power assisted exercise equipment represented an accessible exercise solution and participants felt that the equipment could have augmented their earlier rehabilitation. Power assisted exercise was associated with continued physical recovery and participants refuted the concept of recovery plateau.

Innerva Testimonials:

Power assisted exercise for stroke rehabilitation

"The results have been fantastic, not just the physical benefits for patients but the emotional ones as well. I can't believe the difference power assisted exercise has made to so many people."

CEO, Brain & Spinal Injury Centre, Salford

"My left arm over time gets very stiff and is difficult to open and close. Once I've used the equipment, my hand is much better for up to a day."

Freddie, stroke survivor, I Can Therapy Centre, Andover

"Participation in physical activity and exercise presents a challenge for adults with complex neurological impairment. Power assisted exercise facilitates combined limb and trunk movement and present an option for people with movement impairment."

Dr Rachel Young MCSP, Health Innovation and Neurological Rehabilitation co Lead. Advanced Wellbeing Research Centre, Sheffield Hallam University

"I had a bleed on the brain, which caused a stroke. I've got no movement in my hand and I had to learn how to walk and talk. I've definitely noticed a difference in mobility and my balance."

Anieka, stroke survivor, The Charcot Centre, Gloucester

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