Standard Operating Procedure for Use of Functional Electrical Stimulation (FES) for Stroke Inpatients on the Acute and Stroke Rehab wards

1. Overview

Standard Operating Procedure for the use of Functional Electrical Nerve Stimulation (FES) for stroke inpatients within UHDB hospital sites.

2. SOP Governance

Department: Stroke In-patient Therapy Services

No of pages: 4

Version & Date: (V2) November 2023

Author: Rachel Sadler, Chloe Smith, Jan Jolly

Authorised by: Helen Hands and CDCS Divisional Gov

Review date: December 2024

Frequency and Time frame: Annual

3. Key indicators, output or purpose from this procedure

Functional electrical stimulation (FES) is an assistive technology which can be used for a number of interventions in stroke recovery. FES delivers small pulses of electrical stimulation to the nerves that supply paralysed muscles. The stimulation is controlled in such a way that the movement produced provides useful function. The technique is used as an aid to assist walking as well as practising functional movements for therapeutic benefit.

The 2023 revised National Clinical Guidelines for stroke (Data Source A) make a number of recommendation in relation to FES and Stroke recovery, including considerations of FES, as an adjunct to conventional therapy, for people with wrist and finger weakness which limits function after stroke, people with inferior shoulder subluxation within 6 months of hemiplegic stroke, and, or people with stroke with limited ankle/foot stability or dorsiflexion that impedes balance, mobility or confidence.

The NICE (National Institute for Clinical excellence) already advocated for use of FES for drop foot of central neurological origin in 2013. There was also a recommendation for consideration of this device for people who had evidence of muscle contraction in the Upper Limb. The 2023 updated guidelines now indicate that FES should also be considered for patients with focal spasticity (1.15.6) - (See Data Source B)

FES is advocated by The Stroke Association in supporting physical recovery from stroke (Data Source C). The Stroke Association is a charity that helps people rebuild their lives after stroke and provides advice and support that is widely accessible to service users. Provision of this modality at Derby would strive to meet service user expectations.

This treatment modality is already in current and effective clinical use within the University Hospital of Derby and Burton within the Gait Laboratory (Data source D).

FES will be used for stroke inpatients at UHDB, as an adjunct to existing therapy procedures. The key areas to focus use of this modality are: 1. To reduce shoulder subluxation, 2. To reduce the impact of foot drop to aid ambulation, 3. To support functional recovery of the wrist and hand.

Implementation of this well-established treatment approach for stroke in-patients at RDH is a cost-effective strategy for optimising patient recovery both within and between therapy contact sessions. Introduction of this device will support our commitment to the most current clinical guidelines for stroke and guidelines for clinical excellence. It will also align our stroke therapy delivery with our existing out-patient AHP services.

This SOP has been written to maximise patient safety when using FES with stroke inpatients at UHDB.

4. Data Source(s)

Data Source:

A: National Clinical Guidelines for Stroke: https://www.strokeguideline.org/app/uploads/2023/04/National-Clinical-Guideline-for-Stroke-2023.pdf

B: NICE (National Institute for Clinical Excellence) 2023mupdated guidelines including recommendations for use of FES: Recommendations | Stroke rehabilitation in adults | Guidance | NICE

C: Stroke Association: https://www.stroke.org.uk/effects-of-stroke/physical-effects-of-stroke

D: UHDB Gait Lab and FES Service: https://www.uhdb.nhs.uk/group-rehab-gait-and-movement-laboratory and UHDB FES Patient leaflet: https://neti.uhdb.nhs.uk/download.cfm?ver=54117

E: UHDB Shared Drive FES folder for all the relevant Evidence, Documentation, Health and Safety Information and Support Resources:

N:\Therapy\StrokRecommendations | Stroke Services\OT and PT\OT and PT\FES

N:\Therapy\Stroke Services\OT and PT\OT and PT\FES\Standard Operating Procedure (SOP)

N:\Therapy\Stroke Services\OT and PT\OT and PT\FES\Risk Assessment

N:\Therapy\Stroke Services\OT and PT\OT and PT\FES\Competencies

N:\ …….Paperwork

5. Process

1.	Complete FES competency for Stroke In-patients	☑
2.	Ensure the FES equipment is in safe working order and compliant with servicing	☑
3.	Consider all relevant available information	
4.	Complete the checklist of contraindications and cautions	
5.	Gain documented consent from the patient's stroke consultant	
6.	Gain documented consent form the patient	
7.	Make a clinical assessment to determine the goals and relevance for FES intervention	
8.	Provide the relevant patient and carer leaflet and education	
9.	Devise and individualised FES programme for electrode location, device settings and treatment frequency.	
10.	Provide before and after treatment skin checks and appropriate outcome review	
11.	Communicate to treatment to the relevant nursing and care team to feedback any after-effects.	
12.	Document treatment and any relevant outcome measures.	
13.	Discontinue treatment when it is no longer beneficial	

6. Validation Checks

Competency sign off to validate staff to authorise use of FES for a stroke in-patient under their care and review progress.

7. Sign off (separation, supervision, authorisation)

Stage/ purpose	Name and role	Date (how/ where evidenced)
Peer review:	SRT BU Clinical Governance	Dec 23
Supervisor/ Lead review:	Stroke Clinical Specialist PT and Lead PT staff for ASU and SRU	Dec 23

Information Asset Owner/ Trust Lead: Stroke Therapy Team Leader Dec 23

8. Information Governance

Patient consent, records, photographs and outcome measurements regarding FES intervention to be filed in the therapy section of the patient Integrated Care Pathway (ICP) record folder.

Approvals:

Stroke Senior Clinical Physiotherapy Team

Therapies Senior Management Team Meeting

SR & T BU Clinical Governance Meeting

9. Export/ use of data

To be used by stroke therapy staff to educate and standardise safe use of FES within the inpatient stroke service.

Currently FES data will only be recorded in the patient paper notes. There will be no routine electronic record.

Consent for any specific project work related to time-limited data collection for FES outcomes will be recorded in the patient notes. Agreement regarding the specific use of such data (individual project work or wider clinical or service teaching) will be evident in the documented consent that has been gained.

Currently, there is no requirement for password protection of this data.

10. Detailed Instructions

ⓘ 1 – How to Assess for and Apply FES treatment in Stroke Recovery

1.	**FES Competency:** Staff using FES equipment will have completed a competency for this device (Data Source ref. E) and have read the UHDB In-patient Therapy FES risk assessment (Data source ref. E). Competency will be reviewed and recorded on a yearly basis within staff appraisal documentation.
2.	**Assessment:** Assessment for the appropriate use of FES, for one of the outlined focus areas for stroke in-patient treatment, will be completed by a qualified therapist within the stroke therapy team who is competent for the assessment and use of FES using the correct FES assessment paperwork (ref. paperwork location on shared drive). The assessment will include: a) A review of the patient's history, and discussion of the contraindications for the use of FES, b) A clinical examination and data transferred to the clinical examination form c) Identification of specific treatment goals.
3.	**Contraindications and Cautions:** The named therapist will complete the FES checklist of contraindications and cautions within the assessment paperwork (Data ref. E).
4.	**Education and Information Sharing** The relevant patient information leaflets will be provided alongside any necessary patient and/or carer education to ensure informed introduction of this treatment approach.
5.	**Medical and Patient Consent:** The named therapist will gain documented consent for use of this device for the specified reason from both the patient and the named patient consultant. Where necessary, a capacity assessment will be completed and recorded (ref. capacity assessment document) and documentation of treatment in the patient's best interest will be completed.
6.	**Treatment Plan:** The named therapist will devise a treatment plan which will include a) A decision about electrode placement (and may include taking photos (with informed consent) to aid electrode

	placement accuracy and consistency) b) Parameters for electric impulse pattern, intensity, frequency and duration c) Direction for the duration and frequency of individual delivery sessions.
7.	**Skin Checks:** Skin checks will be completed before and after treatment and any relevant findings documented within the FES documentation paperwork.
8.	**Communication:** Communication to nursing staff caring for the patient regarding this intervention and guidance to communicate any changes relevant to the intervention in a specified period following treatment.
9.	**Clinical Outcomes and Outcome Measurement:** Treatment aims will be reviewed regularly, and the relevant outcome measures will be used and documented to record clinical outcomes of this treatment (Data Source ref. E). Treatment which ceases to be beneficial will be adjusted and, if necessary, stopped in a timely manner.
10.	**Treatment Availability:** Patients will be made aware that, at present, this treatment modality is in use within the Derby in-patient stroke service and follow-on therapy services may not have access to this treatment by all patients. Currently, there is not follow up UL FES service. Onward referral to the Gait Laboratory, for lower limb FES, may be made for eligible patients who will benefit from on-going FES to support walking recovery. Work is underway to introduce FES within stroke specific community services in DCHS to enable community provision of this treatment for stroke patients as an option, in the future.
11.	**Wider FES Accessibility:** Information regarding resources and contacts for recognised external FES providers may be given to patients who express a wish to receive this.