

From PPIE to Practice: Building a Collaborative Research Culture Through Patient Partnership in the STIM-HD Study

Niamh Quann¹, Faizan Awan², Nicole Bausch¹, James O Burton^{1,3,4}, Lily Gregory¹, April Kong¹, Pricilla Moreira¹, Meghan Tanel³, Tamara Valenčič³, and Emma L Watson^{1,3}

¹Leicester Partnership for Kidney Health Research, Division of Cardiovascular Sciences, School of Medical Sciences, College of Life Sciences, University of Leicester and NIHR Biomedical Research Centre: Leicester, Glenfield Hospital, Leicester; ²Lived experience partner and STIM-HD co-applicant; ³School of Sport, Exercise and Health Sciences, National Centre for Sport and Exercise Medicine, Loughborough University, Loughborough; ⁴University Hospitals of Leicester NHS Trust, Leicester.

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INTRODUCTION

STIM-HD is a **multicentre randomised controlled** trial evaluating the effectiveness of **neuromuscular electrical stimulation (NMES)** in improving **quadriceps muscle strength** in **haemodialysis patients**. Initially, delivering NMES sessions required ~45 minutes of researcher time, limiting their capacity for participant recruitment and outcome assessments. Through **Patient and Public Involvement and Engagement (PPIE)**, the study team **co-designed a transition** from researcher-led delivery to **participant self-delivery of NMES**.

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COLLABORATIVE APPROACH

Draft NMES Self-Delivery Guide & Session Log reviewed by haemodialysis patients.

Structured patient feedback collected via a short electronic questionnaire.

Practical barriers identified
(e.g., electrode placement, clarity of instructions, comfort during use).

NMES Self-Delivery Guide & Session Log redesigned in collaboration with STIM-HD Patient Co-Applicant.

Process documented in PPIE Impact Log
(i.e., patient feedback, revisions, & rationale for non-adopted suggestions).

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CO-CREATED OUTCOMES

Redesigned NMES Session Log: clearer spacing, simplified headings, embedded stimulation parameters and prompts (Figure 1)

NMES Self-Delivery Guide: 3 page draft → extensive step-by-step resource (Figure 2)

Participant-perspective photographs to demonstrate accurate electrode placement

Technical SOP language → accessible, participant-friendly guidance

Comfort and inclusivity guidance (clothing, skin irritation, advice for hairier legs)

Images illustrating optimal knee angles across set-ups (dialysis bed, chair, sofa)

Final PPIE feedback: Patient partners reported improved understanding and confidence in delivering NMES independently, with self-delivery described as “quicker” and “a good use of dialysis time”.

For participant to complete											For researcher to complete							
Session no.	Session date	What was the warm-up current? (Rate = 4 Hz, Width = 500 µs)	Progress level*	First set		Last set		Cool-down completed? (same settings as warm-up)	Did you experience any issues that might be related to the session?	Was there a visible muscle contraction during the last set?	Discomfort level at end of session	Rate of perceived exertion at end of session	Blood lactate (post-NMES)	Adverse event (A				
				Left leg current	Right leg current	Left leg current	Right leg current											
Example	23/01/2026	50	1	020	25	30	35	☒ Yes ☐ No	☐ Yes ☒ No	☐ Yes ☐ No	☐ Yes ☐ No	(0-10)	(0-10)	(mmol/L)	Yes / No			
WEEK 1	1																	
	2																	
	3																	
WEEK 2	4																	
	5																	
	6																	
WEEK 3	7																	
	8																	
	9																	
WEEK 4	10																	
	11																	
	12																	

Figure 1: Simplified NMES Session Log.

- Place the electrode pads on the lower and upper thigh of each leg, targeting the quadriceps muscle.
- Connect the red cable to the upper thigh electrode pad and black cable to the lower thigh electrode pad.
- Connect the left leg's lead wire to Channel 1 (CH1) and the right leg's lead wire to Channel 3 (CH3) of your NMES device.

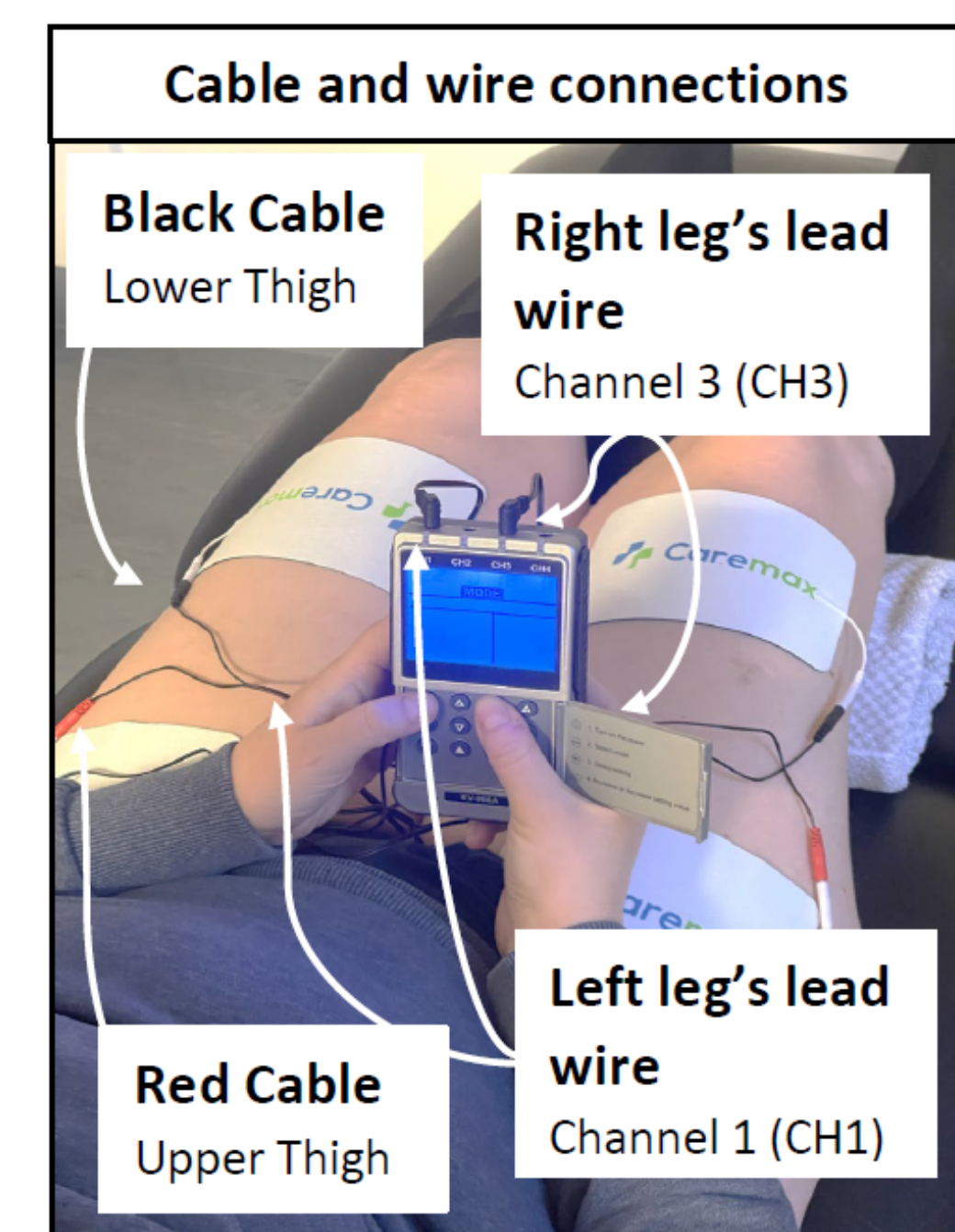


Figure 2: Example excerpt from NMES Self-Delivery Guide.

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CONCLUSION

Meaningful partnership and co-creation revealed practical needs that researchers alone may not have anticipated. Embedding this feedback supports more **sustainable study processes**, **increased staff capacity** across research locations, and a **research culture** grounded in **transparency**, **shared decision-making**, and **respect for patient expertise**.

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