Hope for Hearts Fund: End of Project Summary

Project title	D REACH-HF: Digital Rehabilitation Enablement in Chronic Heart Failure
BHF Investment	£166,662.00
Project duration	2 Years (July 2020 – June 2022)
NHS Trust	
Project Team	Dr Hasnain Dalal, Honorary Clinical Associate Professor, University of Exeter Dr Sinead McDonagh, Research Fellow Professor Colin Greaves, Professor of Psychology Applied to Health Professor Patrick Doherty, Professor of Cardiovascular Health and Director of the British Heart Foundation National Audit of Cardiac Rehabilitation (NACR) Dr Samantha van Beurden, Research Associate Professor Rod Taylor, Professor of Population Health Research Liz Clark, Volunteer

Overview of the clinical problem the team set out to address:

Heart failure (HF) affects approximately one million UK adults and costs the NHS £2 billion per year. Cardiac rehabilitation (exercise and self-care programmes). However, less than 20% of HF patients participate, often due to difficulties accessing clinic-based rehabilitation.

HF guidelines suggest that cardiac rehabilitation (CR) should be delivered in more personalised and accessible settings, such as the patient's home.

The Rehabilitation Enablement in Chronic HF (REACH-HF) is home based cardiac rehabilitation programme for heart failure patients. The programme has established NHS based evidence to improve quality of life, be acceptable to patients, caregivers and health-professionals as well as affordability to the NHS.
This programme comprises four elements:

- a paper-based HF manual for patients to support self-care
- a choice of two exercise programmes (chair-based or walking)
- a patient progress tracker
- a resource for family and friends and support from health-professionals

Patient, carers and healthcare professional feedback also included many requests for a digital version of the programme that could be accessed via a website or app.

This BHF funded project aimed to address that by developing a digital version of the REACH-HF programme to improve patient choice and accessibility to, cardiac rehabilitation.

How did you go about delivering the project?

As the aim was to create a digital version of the programme (D REACH-HF) to improve patient choice of and accessibility to CR, the D REACH-HF team identified and commissioned a technology partner with the relevant technical skills and experience to deliver a platform that could achieve its aims.

A person-based approach (a user-centred intervention development framework) to the platform's development. A cycle of interviews and discussions with patients, caregivers, and health care professionals (HCPs) helped the team understand and include their perspectives in the development of D REACH-HF. The team worked continually with its patient and public involvement group to help design and deliver a platform that was sensitive to the needs of patients with HF and to optimise engagement in the programme as well as undertaking refinements to the platform through its development phase.

How did you approach the evaluation of the project?

Following the development phase of the D REACH-HF platform, the team conducted an acceptability and feasibility study involving patients with HF, their caregivers and HCPs delivering the programme. They aimed to recruit participants centres in the UK with experience of delivering the paper-based version of the programme. Between January 2022 and May 2022, four NHS sites agreed to participate. and HCPs/facilitators were given additional training in use of the digital platform.

The ongoing COVID-19 demand on the NHS, limited the evaluation stage mainly linked to staff redeployment. As a result, the team recruited 10 participants from two sites: five patients with HF, two caregivers and three HCP/facilitators. Participants were interviewed at the commencement and the end of the 12-week rehabilitation programme to capture their perspectives and experience of using the D REACH HF platform. These interviews were undertaken remotely.

What outcomes did you achieve?

Patients and caregivers were positive about the potential of digital programmes to help self-manage HF at home. Overall, interview and questionnaire data from patients, caregivers and HCPs/facilitators suggested that the D REACH-HF programme is acceptable and engaging. Patients reported improvements in physical and mental health, self-monitoring behaviours and independence. Patients experienced health barriers, technical barriers and support barriers to engagement with D REACH-HF. However, factors such as caregiver and HCP support and the appropriateness and adaptability of the programme acted as enablers of patient engagement in the programme. HCPs/facilitators reported that being digitally competent themselves and having patients engaged with the programme enabled delivery of D REACH-HF. Patients and HCPs made suggestions on how D REACH-HF could be improved.

The findings of person-based approach to develop D REACH-HF were presented at the 2022 the British Association of Cardiovascular Prevention and Rehabilitation (BACPR) in Birmingham. (Digitally enhancing effective home-based cardiac rehabilitation for people living with heart failure | Heart (bmj.com))

Further presentations of the findings have been undertaken at relevant cardiac rehabilitation conferences and a citation in Heart journal will be available later in 2023.

What is novel about this project?

The programme had two novel aspects:

D REACH-HF was adapted from the paper-based version of REACH-HF which was positively evaluated in a multi-centre RCT. Few digital interventions in CR for patients with HF and their caregivers are based on robust RCT evidence.

Delivering CR digitally to improve access is attracting interest this option allows patients an alternative mode of accessing CR and could improve access even further. Use of the internet in people older than 65 years is increasing and web-based CR is advocated as 'one of the innovations required to future-proof cardiac rehabilitation.

The use of a digital tool for NHS staff to interact with patients to facilitate delivery of the intervention could reduce the need for and number of face-to-face visits, making the delivery of cardiac rehabilitation in the NHS more efficient.

What difference did the Hope for Hearts fund make for your project?

The Hope for Hearts fund enabled the team to adapt and evaluate its existing evidence-based CR programme for HF for digital delivery. This would not have been possible without the funding from the BHF. There is now an evaluated digital platform to deliver HF rehabilitation at home which is being further evaluated at early adopter sites.

Despite the impact of the COVID-19 pandemic, the team were able to test the feasibility and acceptability of D REACH-HF in a limited number of participants. Offering patients with HF a digital option for receiving CR in addition to the traditional centre-based modes of delivery should help to address the low uptake of CR in HF. This will help to improve patients' quality of life, reduce unplanned hospital admissions and go towards meeting the NHS Long Term Plan's goal of increasing the number of people participating in CR.

What happens next?

During 2023–24, the team intend to obtain further feedback on the D REACH-HF platform from up to seven early adopter sites in England and Northern Ireland (who have expressed interest in a wider pilot evaluation in prior to planning wider rollout across the NHS.