Review of the early implementation of KiActiv to support cardiac rehabilitation for patients with heart failure in Southampton

Version 1.0

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1. Overview

Why this pilot was undertaken

Health Innovation Wessex funded this pilot to explore how KiActiv could support the cardiac rehabilitation pathway for patients with heart failure in Southampton. The pilot was designed for a real-world service context, where some patients may be unable or unwilling to attend face-to-face cardiac rehabilitation, and where services are seeking flexible, home-based approaches that can support access, capacity and productivity.

The local team had previously piloted a digital intervention providing patients with videos and information to exercise at home, but reported limited uptake and success. KiActiv was therefore introduced as a different type of digital support, focused on helping people build meaningful physical activity into everyday life rather than relying solely on formal exercise sessions.

Key findings:

The pilot demonstrates that digitally enabled rehabilitation can provide an accessible option for patients who may struggle to engage with conventional services, supporting self-management and increased physical activity through everyday movement. For Trusts, KiActiv was viewed as compatible with existing workflows and offered an additional pathway that could help extend rehabilitation capacity and patient choice. For commissioners, the pilot highlights the potential of digital rehabilitation to support strategic priorities around prevention, personalised care, digital transformation and improved access to services.

Staff feedback was positive overall, although opportunities for improvement were identified, including greater visibility of patient progress, clearer clinical and operational ownership, and more consistent training and onboarding processes. While the pilot was small and not designed to demonstrate definitive effectiveness, the combined quantitative and qualitative findings suggest that KiActiv is feasible to implement, acceptable to staff and patients, and capable of delivering meaningful improvements in physical activity within a clinically complex heart failure population.

In summary;

- 20 heart failure patients took part, with a 75% completion rate.
- Participants increased everyday movement by an average of 36.6 minutes per day and moderate activity by 11.2 minutes per day.
- Participants achieved these improvements despite managing fatigue, breathlessness, pain and other health challenges.
- Staff reported that KiActiv was compatible with existing workflows and could support patients who may not attend traditional cardiac rehabilitation.

- Areas for improvement included staff visibility of patient progress, consistent training and clearer ownership of the service.
- Following the pilot, the service purchased 100 additional licences to support continued delivery and further evaluation.

What was tested

KiActiv is, "a digital health service that uses behavioural science and personalised technology with Mentor support, to convert everyday movement into continuous therapy, as smart, scalable home-based care.

They harness all daily movement, tailored to individual health, capacity and surroundings, validating all intensities of physical activity as therapeutic. There is no reliance on adherence to prescribed exercises or unsupervised exercise videos, which increases appeal and access to rehabilitation for those who are de-conditioned or with multi-morbidities. This reduces injury risk and rebuilds self-efficacy for Activities of Daily Living (ADLs) and expands the therapy to the full waking day for better cardiorespiratory fitness.[1]
"

KiActiv is one of six digital technologies conditionally recommended by NICE to support cardiac rehabilitation for adults. In this pilot, the service was tested as a potential precursor or alternative to traditional cardiac rehabilitation for a small group of heart failure patients.

Where and how was it implemented

Health Innovation Wessex facilitated the pilot at Hampshire and Isle of Wight Healthcare NHS Foundation Trust, which is commissioned to provide cardiac rehabilitation services for University Hospital Southampton. Health Innovation Wessex connected KiActiv with relevant stakeholders, assessed appetite to run the pilot, reviewed how the service could be incorporated into the existing pathway, funded an initial trial of 20 licences and project managed the implementation process.

This report summarises the early learning from the initial pilot cohort, drawing together objective physical activity data, patient-reported and mentor-recorded context, and staff feedback on implementation.

[1] Cardiorespiratory fitness is how well your heart, lungs, and blood work together to supply oxygen to your body during long periods of exercise. It measures your stamina, like how easily you can run, swim, or cycle without getting too tired

2. Pilot cohort and data sources

Who took part

The pilot included 20 heart failure patients signposted by the clinical team. The cohort was older and clinically complex, consistent with a population that may benefit from a more accessible, home-based rehabilitation model. There was a 75% completion rate. One patient, who chose to withdraw during the process, still had sufficient data to be included in the analysis.

Characteristic	Pilot cohort summary
Number of starters	20 heart failure patients
Completion rate	75%
Mean age	69.1 years
Median age	70 years
Age range	47 to 85 years
Sex split	10 female / 10 male
Mean BMI	32.9 kg/m2
Obesity category	65% of participants
Comorbidity	90% had at least one comorbidity

Table 1 - Overview of pilot cohort characteristics

What data was reviewed

Patients were recruited over a rolling period from April 2025(circa four months) and data was collected throughout their initial 12 weeks (mentor guided support period). Given the data is based on a small sample size, a single-site pilot and a short follow up period with no control/comparison groups, the findings should be interpreted as pilot learning rather than definitive evidence of effectiveness and should not be considered generalisable. Other studies, including a randomised controlled trial (Meenamkuzhy-Hariharan et al. 2024) and Liverpool University Hospitals NHS Trust: Heart Failure Virtual Wards – Real-World Pilot Evaluation (Duvva et al. 2025), also look at the impact of KiActiv and are referenced here for information. The review draws on both quantitative and qualitative data to develop insights including:

- Objective physical activity data collected using KiActiv's standard methodology.
- Self-reported data and qualitative feedback from participants.
- Mentor notes providing context about symptoms, life events, confidence and barriers to activity.
- Staff feedback collected through the NoMAD (Normalisation Measure Development) implementation survey and free-text comments.

3. Patient findings

Physical activity outcomes

Objective physical activity(recorded via the KiActiv wearable/wristband) was the core patient-level outcome for this pilot. KiActiv's standard method uses a 7-day blind baseline (collecting activity/movement data via the wearable) and evaluates change across the full intervention period, rather than relying only on simple pre/post comparisons. This approach is relevant in rehabilitation settings where physical activity can fluctuate because of illness, symptoms, appointments, weather and other real-world factors.

The strongest signal was in overall functional daily movement, reflected by an increase in non-sedentary time. This is clinically meaningful in heart failure rehabilitation because early improvement may be seen first through increased everyday movement and reduced sedentary time rather than through increases in structured exercise.

Physical activity domain	Mean total additional dose	Mean daily additional dose
Non-sedentary time	2,589.0 minutes	+36.6 minutes/day
Moderate activity	817.7 minutes	+11.2 minutes/day
Moderate bouts	323.2 minutes	+4.4 minutes/day
Calories	8,155.3	+115.6/day

Table 2 - Physical activity data of pilot cohort

Interpreting the activity data

Response was mixed which is expected in a small, clinically complex cohort. Some participants showed strong gains across multiple domains, while others showed more modest changes that could be explained by symptoms, mobility limitations, health events or other contextual factors (based on patient-reported data and feedback noted during mentor sessions).

Patient experience and barriers

The patient-reported data and mentor notes showed that many participants were managing genuine barriers to activity. These included fatigue, pain, breathlessness, hospital or acute health events, hot weather, and family or caring responsibilities.

At the same time, the notes highlighted several facilitators of change. Participants valued reassurance and encouragement from mentors, improved understanding of how everyday movement contributes to health, greater confidence in self-managing physical activity, visible progress through the dashboard and wearable data, and support from partners or carers.

Participant examples

The participant-level examples are useful in a pilot report because they show why objective activity data needs to be interpreted alongside patient context. They should be treated as illustrative vignettes rather than as proof of effect.

Participant example	Indicative findings (supported by patient reported data and mentor interactions)
One of the strongest responders increased non-sedentary activity by 136.8 minutes/day and moderate activity by 22.9 minutes/day.	Meaningful change can occur through sustained walking, household activity and

	family support, particularly when dashboard data helps reinforce behaviour change.
Another participant increased non-sedentary time by 27.1 minutes/day and moderate activity by 12.7 minutes/day despite persistent high fatigue, stress and pain.	More modest objective change can still represent progress in confidence, pacing and self-management for clinically complex patients.
A further participant showed only minimal objective activity change, but mentor notes documented a chest infection and hospital admission.	Real-world clinical events can affect activity outcomes and should be considered when interpreting apparent non-response.

Table 3 – Examples of patient context alongside activity outcomes

4. Staff feedback and implementation learning

Please refer to the Appendix for further detail.

Staff respondents and implementation measure

Four members of staff involved in delivery completed the NoMAD survey[2], an implementation measure based on Normalisation Process Theory. Normalization Process Theory (NPT) is a sociological implementation theory that explains how complex interventions and organisational innovations become routinely embedded (normalized) or rejected in everyday practice. It focuses on the practical work that people do together rather than on individual attitudes or intention. Respondents had between seven and 12 years in their current roles and were involved in directly onboarding patients to KiActiv or overseeing the process.

Staff familiarity and perceived fit

Familiarity with the service varied, partly because one respondent had recently returned from a period of leave. Despite this, all respondents felt that the service either was already, or would become, a normal part of their work in the future.

Staff agreed or strongly agreed that KiActiv differs from traditional ways of working. They reported understanding its purpose, how it affects the nature of their own work, and the value it adds.

Integration into workflow

Staff feedback suggests that KiActiv was broadly compatible with existing roles and workflows. Everyone surveyed felt that participating in the organisation or delivery of the service was a legitimate part of their role, that they were open to new ways of working, and that they would continue to support KiActiv.

[2] Finch, T.L., Girling, M., May, C.R., Mair, F.S., Murray, E., Treweek, S., Steen, I.N., McColl, E.M., Dickinson, C., Rapley, T. (2015). NoMAD: Implementation measure based on Normalization Process Theory. [Measurement instrument]. Retrieved from http://www.normalizationprocess.org.

Everyone also agreed that the service could be integrated into existing work and did not disrupt working relationships. This is an important feasibility finding for a pilot because workflow fit is often a limiting factor for adoption of digital health tools.

Training, resources and communication

The staff feedback also identifies areas to refine before wider spread. Three out of four respondents agreed that sufficient training was provided, while one neither agreed nor disagreed. Most felt that sufficient resources were available to educate patients. However, three out of four respondents neither agreed nor disagreed that they were kept adequately informed of patient progress.

This suggests that the implementation model was acceptable overall, but that the feedback loop between KiActiv, patients and clinical staff could be made clearer as the service scales.

Implementation ownership and championing

Only half of respondents agreed that key people championed or drove the service forward, with the others neither agreeing nor disagreeing. This is not unusual in an early pilot, but it is important for future spread. If KiActiv is expanded, it would be helpful to define clinical ownership, operational responsibilities and escalation points more explicitly.

Staff views on value and future use

All respondents agreed or strongly agreed that the service was worthwhile. Free-text feedback was generally positive and highlighted the potential for KiActiv to support patients who may not be appropriate for all face-to-face groups, to provide an option for patients who would otherwise decline rehabilitation, and to reduce pressure on traditional cardiac rehabilitation capacity.

Staff comments also identified practical learning. One respondent wanted more information on how participants improve and how mentors decide whether someone does or does not achieve their goals. Another noted that maternity leave meant they were less involved in the programme, which affected their understanding of assessments. These comments reinforce the importance of clear onboarding, role-specific training and progress reporting for staff.

5. Overall learning from the pilot

What worked well

- The pilot generated interpretable objective activity data for most participants.
- All participants achieved additional physical activity above baseline, with the strongest signal in everyday movement and non-sedentary time.
- Qualitative and contextual data helped explain why outcomes varied across participants.

- Staff viewed the service as worthwhile and broadly compatible with existing workflows.
- The pilot supported continuation of the service within the pathway, with additional licences purchased after the initial trial.

What needs refining

- Staff visibility of patient progress should be improved so that clinical teams can better understand how participants are engaging and changing over time.
- Clinical and operational ownership should be clarified if the service is expanded beyond the initial pilot group.
- Training and onboarding should be consistent for all staff, including those returning from leave or joining after the service has started.
- Eligibility criteria should be reviewed as the service moves from heart failure patients towards potentially broader cardiac rehabilitation populations.
- Future evaluation should consider whether additional metrics are needed to evidence access, capacity, productivity and health inequality impact.

What this suggests for future use

The pilot findings are indicative of benefit for the relatively small patient cohort and support continued use and further evaluation of KiActiv in this pathway. The findings should not be presented as proof of effectiveness, because this was not designed as a formal evaluation nor was there any comparator group. However, the observational data collected here suggests that KiActiv is feasible to implement, acceptable to staff, and capable of generating early signs of meaningful patient benefit in a clinically complex heart failure population. It is hoped that this report, in the context of KiActiv's existing evidence in both clinical research and real-world settings and their conditional recommendation by NICE for use in cardiac rehabilitation pathways, will be useful to commissioners and will help to inform decisions on the future use of KiActiv.

6. Conclusion and next steps

Conclusion

This pilot suggests that KiActiv can be used successfully within a heart failure cardiac rehabilitation pathway to support a clinically complex patient group in a real-world NHS setting. The strongest patient-level finding was an increase in everyday movement and non-sedentary time, supported by contextual evidence that participants were managing common barriers such as fatigue, pain, breathlessness and acute health events.

Staff feedback was positive overall. Staff saw KiActiv as worthwhile, compatible with existing work and a legitimate part of their role. The main implementation refinements relate to staff visibility of patient progress, consistency of training and clarity of championing or ownership as the service scales.

Overall, the pilot provides a proportionate basis for continued use, pathway refinement and further evaluation, rather than a formal finding of effectiveness. This pilot sits in the context of NICE's conditional recommendation of KiActiv for use in cardiac rehabilitation pathways whilst further evidence is generated, which is based on published data from a randomised control trial conducted within an NHS cardiac rehabilitation setting.

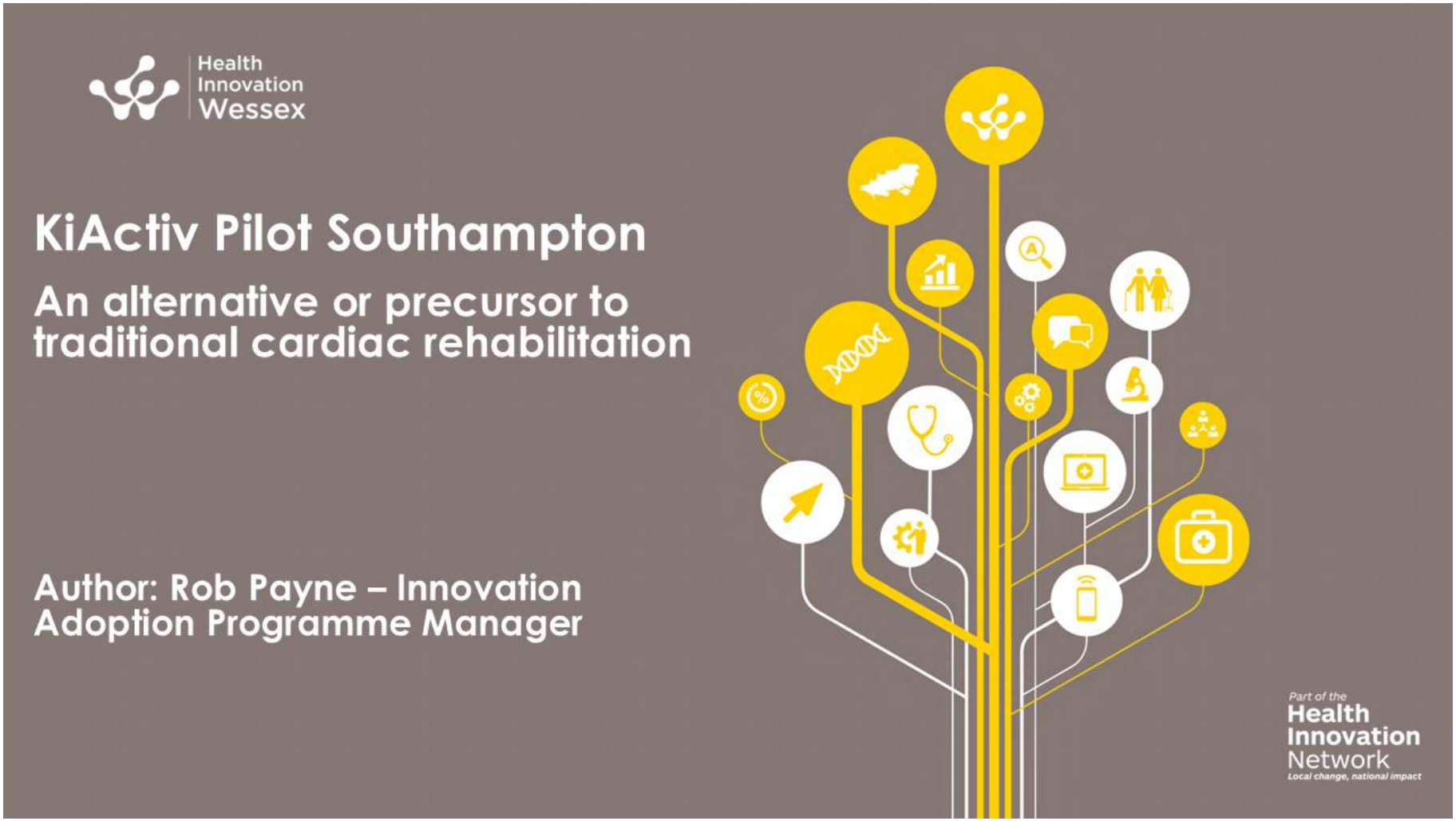
Next steps

Based on the early findings from the pilot and initial project, Hampshire and Isle of Wight Healthcare purchased an additional 100 licences using service development funding. This has enabled the service to continue offering KiActiv to heart failure patients. Plans are underway to use part of the next allocation of service development funding to support ongoing delivery.

The team is also exploring whether eligibility criteria could be expanded so that KiActiv can be offered to all suitable cardiac rehabilitation patients, not only those with heart failure. As this develops, the service should continue to monitor patient activity outcomes, patient experience, staff experience, equity of access, and any effect on service capacity and productivity.

Appendix

KiActiv staff feedback data



Staff feedback

Four members of staff involved with the delivery of the project completed the NoMad* (implementation measure based on Normalisation Process Theory) survey, designed specifically to understand how new technologies and complex interventions are applied and integrated in health care. Employment duration (current role) ranged from 7 to 12 years and everyone who completed the survey is involved in directly onboarding patients to KiActiv or overseeing the process. Familiarity with the service varied which is to be expected and partly influenced by one of the participants having recently returned from a period of leave. They did however all feel that the service either was already or would become a normal part of their work in the future.

Individual responses are represented by the following coloured dots: ●●●●●●●

How long have you been working in your current role?

7 years ●	12 years ●	9 years (2 years mat leave) ●	9 years ●		

How many years have you worked for cardiac services?

Less than 1 year	1-2 years	3-5 years	6-10 years	11-15 years	15+ years
			●●	●	●

What is your job title?

Cardiac Nurse	Cardiac Rehab Nurse	Cardiac Rehabilitation Nurse	Cardiac Services Lead Nurse		

When you work on the new service how familiar does it feel?

	1	2	3	4	5	
Still feels very new		●	●	●	●	Feels completely familiar

Do you feel the new service is currently a normal part of your work?

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
			●●●	●

Do you feel the new service will become a normal part of your work?

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
			●●	●●

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* Finch, T.L., Girling, M., May, C.R., Mair, F.S., Murray, E., Treweek, S., Steen, I.N., McColl, E.M., Dickinson, C., Rapley, T. (2015). Nomad: Implementation measure based on Normalization Process Theory. [Measurement instrument].

Staff feedback

Everyone surveyed either agrees or strongly agrees that KiActiv differs from traditional ways of working. Staff have an understanding of its purpose and how it effects the nature of their own work and the value it adds. 50% of participants agree that key people champion/drive forward the new service with the others neither agreeing or disagreeing. Crucially, everyone feels that participating in the organisation/delivery of the service is a legitimate part of their role, they're open to new ways of working and will continue to support KiActiv.

Part C: Detailed questions about the implementation of KiActiv as an alternative or addition to traditional cardiac rehab	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	Not relevant to my role	Not relevant at this stage
I can see how the new service differs from traditional ways of working				●	●●●		
Staff in this organisation have a shared understanding of the purpose of the new service				●●	●●		
I understand how the new service affects the nature of my own work				●●●	●		
I can see the potential value of the new service for my work				●	●●●		

Part C2	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	Not relevant to my role	Not relevant at this stage
There are key people who drive the new service forward and get others involved			●●	●	●		
I believe that participating in the organisation/delivery of the new service is a legitimate part of my role				●●●	●		
I'm open to working with colleagues in new ways to organise and/or deliver the new service				●	●●●		
I will continue to support the new service				●	●●●		

Staff feedback

Everyone agrees the new service could easily be integrated into their existing work and doesn't feel it causes any disruption to working relationships. 75% agree that sufficient training was provided with the other person neither agreeing or disagreeing. 75% neither agree or disagree that they're kept adequately informed of patient's progress and the majority feel that sufficient resources are available to educate patients. Everyone surveyed either agrees or strongly agrees that the new service is worthwhile.

Part C3

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	Not relevant to my role	Not relevant at this stage
I can easily integrate the new service into my existing work				●●	●●		
The new service disrupts working relationships	●	●●●					
I have confidence in other people's ability to onboard patients to the new service				●●●	●		
I feel that we are kept adequately informed on the progress of patients using the new service			●●●	●			
Sufficient training is provided to enable staff to educate and enable staff to onboard patients to the new service			●	●●	●		
Sufficient resources are available to educate patients on the new service and enable them to make an informed decision		●		●●	●		
Management adequately supports the new service				●●●	●		

Part C4

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	Not relevant to my role	Not relevant at this stage
I am aware of reports about the effects of the new service			●●	●●			
The staff agree that the new service is worthwhile				●●	●●		
Feedback about the new service can be used to improve it in the future				●	●●	●	

Staff comments

'KiActiv has not been appropriate for all HF patients, but many have opted to trial working more remotely and utilising a more tech-focused approach which is very positive in respect of current resources available to support this patient group. It has enabled the traditional CR service to reduce waiting times for patients who otherwise may have failed to see any benefit of joining a CR programme months after their event'.

'I would be interested to see some patient feedback and data regarding patient progress as following referral nurses do not have any updates of how these patients do or what goals they achieve.'

'I was on maternity leave whilst it was implemented, so I am going to look into potential training around the programme so that I can better inform patients when I am 'onboarding' them during my assessments.'

'I and my team were initially very apprehensive about a digital programme after having a disappointing experience with one previously. However, Kiactiv has completely changed our view of digital programmes in a positive way. We have used the programme alongside our existing face to face cardiac rehab sessions offering Heart Failure patients Kiactiv first and then once completed the opportunity to attend a face-to-face class. Only a handful of patients have taken this up and many patients are continuing to use Kiactiv past the 12 weeks. From a service perspective it has helped to reduce waiting times at face-to-face classes and the amount of patient input. We have been able to secure funding to purchase more licenses following the trial.'