



Digital innovation in cardiac rehab

Findings from the Care City Wave Two Test Bed project

Key implementation findings (1)

- **Tailor the innovation to the needs of the local population.**
 - Understand the needs of the local population when implementing innovations. This includes understanding the particular barriers or challenges people face in accessing cardiac rehab, as well as demographic factors such as language.
 - Although the need to increase cardiac rehab uptake is a national issue, understanding what the barriers are for different groups of patients (and therefore what the most appropriate solutions are) is essential for understanding where introducing digital tools can be most effective.
- **Ensure the implementation team are involved from the beginning.**
 - Implementation must be driven by the cardiac rehab team to secure buy-in, address any issues with the innovation and identify the appropriate pathway.
 - Having a champion within the team is a highly valuable asset, as they are able to drive forward the project and bring other team members on board.
- **It is valuable for the implementation team to receive practical, hands-on training and ongoing support from the innovator.**
 - Training more condensed due to staff capacity so important to make other resources available for ongoing support.
 - Training needs should be monitored throughout implementation to take into account changes (in this case, the shift to remote working).
 - The implementation lead also took an active role in supporting wider team members to use the innovation.

Key implementation findings (2)

- **Embed digital innovation within the wider care pathway, recognising the need for support and demonstrating innovation is not intended as a replacement or second-best.**
 - Recognised the value of the innovation as an adjunct, or to compliment face-to-face classes. Some level of face-to-face interaction was considered important for a number of reasons and, as a result of the Covid-19 pandemic, the cardiac rehab team began running online group exercise classes.
 - Face-to-face interaction can be helpful to demonstrate how to do the exercises correctly, or to make modifications if needed to take account of other pre-existing condition and to provide social interaction and an opportunity for patients to connect with others in the same situation, and to motivate others
 - Patients valued ongoing support of cardiac rehab team through weekly check-in, knowing who to contact if they had any problems.
- **Develop and improve the innovation collaboratively throughout the process of implementation.**
 - Involve all stakeholders (including implementation team, innovator and patients) in regular co-design to identify issues and respond to them practically and iteratively.
 - In the Test Bed this mainly took the form of organised workshops but more ‘informal’ co-design (spending time on the ground with patients and staff) is also valuable.

Care City and the Test Bed

- The NHS Test Beds programme has been designed to bring together NHS organisations and commercial providers of digital technologies. These partnerships test new ways of delivering care with the potential of improving patient experience and outcomes.
- Care City is a Community Interest Company based in Barking and a Test Bed site for Wave 2 of the programme.
- Nuffield Trust were invited as evaluation partners.

Aims of the Test Bed

- The real-world testing of innovations, sometimes in combination.
- The upskilling of care support staff
- Evaluation of the test bed would provide learning about the extent to which they:
 - engage service users
 - improve their outcomes and
 - alleviate some of the capacity challenges of the wider health and care systems.

Evaluation methodology

Project set up

- Reviewing evidence
- Choosing metrics

Feasibility and piloting

- Collaborative development of logic models
- Understanding how each innovation can be successful

Process evaluation

- Staged interviews with users, staff and non-adopters
- Monitoring process metrics including uptake
- Successful scaling up

Outcomes evaluation

- Staff and patient experience
- Clinical outcomes
- Cost

Cardiac rehab cluster

Background:

- Cardiac rehab is an evidence-based intervention which is a combination of exercise, education and support for wellbeing (NACR, 2020)
- It can be delivered in a variety of ways – group classes, supported self-managed home-based or web-based – it should be offered as part of a ‘menu of options’ to facilitate patient choice and preferences (BACPR, 2017)
- But, uptake is low - on average only 50% of eligible people take up cardiac rehab (NACR, 2019)
- There is an ambition in NHS Long Term Plan to increase uptake to 85% (NHS England, 2019)
- Covid-19 has resulted in huge changes to cardiac rehab delivery including an increase in web and app-based options (NACR, 2020)

Aims of the Test Bed project:

- To increase the uptake of cardiac rehab amongst patients with heart failure by providing an alternative route to accessing cardiac rehab
- Implemented in one large acute trust in East London

TickerFit

Digital cardiac rehab

Aims and benefits

- To provide an alternative route of access to cardiac rehab; to enable the team to provide a more personalised programme, to help addresses resource constraints, to offer greater flexibility for patients to exercise outside of organised sessions, to help service expand offer to patients by creating a 'menu of options'

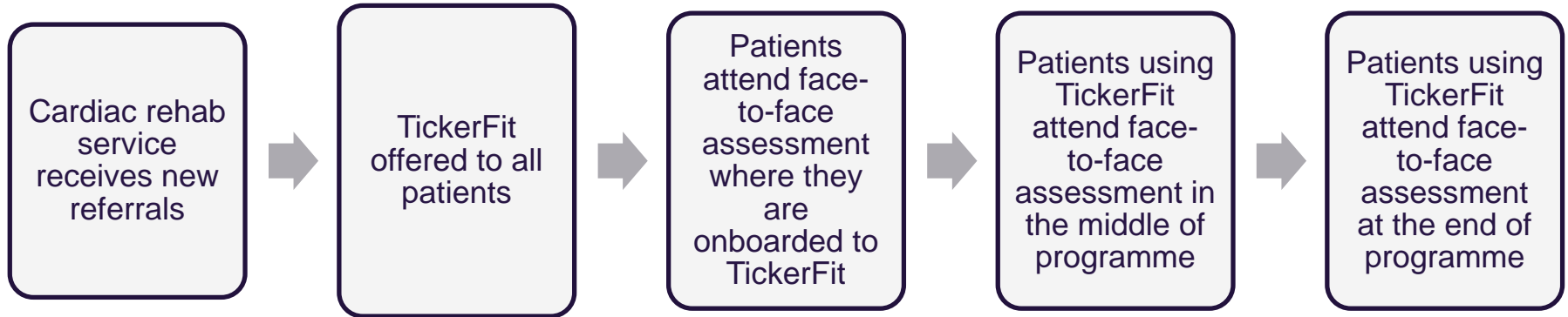
Features of the technology

- Digital technology that enables health professionals to prescribe a customised programme of exercise and education for patients via a web platform, which can be viewed by patients on a mobile app
- Can be used in any setting that operates cardiac rehabilitation services.

Prior use

- Not used in the NHS in a cardiac rehab setting prior to Test Bed project

Implementation pathway



(From inpatient and outpatient services)

- Patients with coronary heart disease
- Not just patients who are unable/unwilling to attend face-to-face classes

Week 1

Week 8

Cardiac rehab team monitors patient progress using dashboard and calls patients weekly to check in

Changes during implementation

Additions to the app

Made following engagement with cardiac rehab team and co-design sessions

- New videos featuring the team's exercise physiologist demonstrating warm-up and cool-down content
- New videos featuring the team's exercise physiologist demonstrating exercise at different intensity levels
- Video voiceovers in Bengali and Sylheti
- Signposting to educational content on different heart conditions

Changes to implementation pathway

Made following consultations between Care City and implementation team and co-design sessions

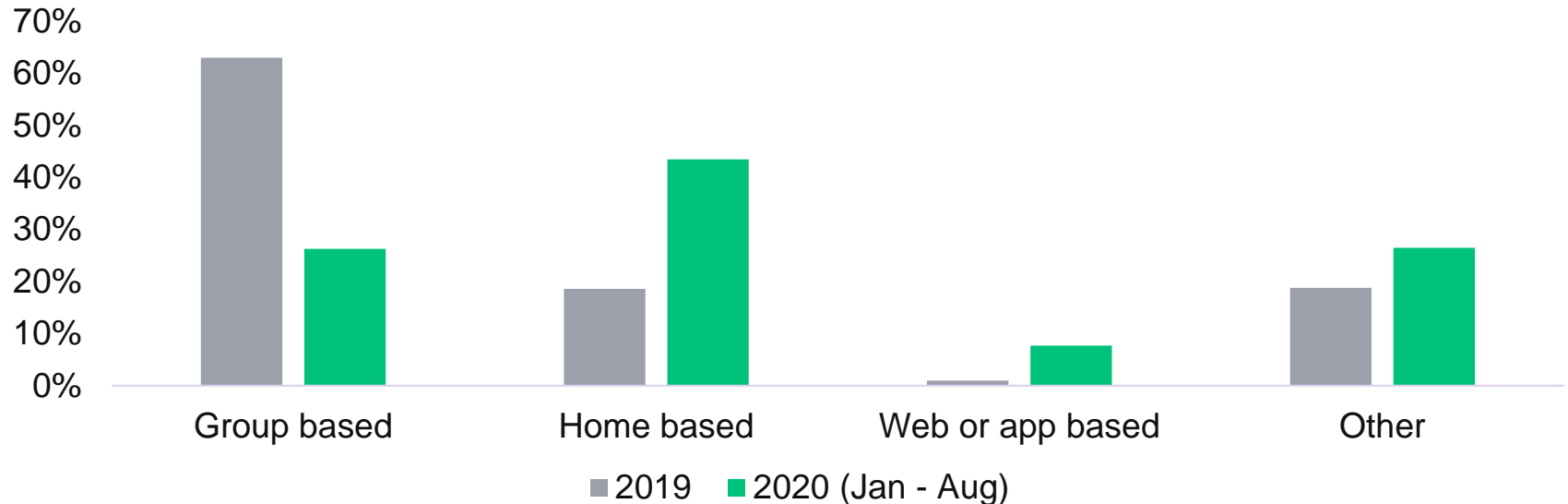
- Extending offer of TickerFit to patients with coronary heart conditions other than heart failure
- Extending offer of TickerFit to all eligible patients (not just those who decline face-to-face cardiac rehab)
- Face-to-face classes suspended due to Covid-19 in March 2020 – patients were then on-boarded, assessed and supported remotely over the phone

Impact of Covid-19 on project

- Some team members were redeployed to other clinical roles leading to reduced team capacity. Those who were not redeployed worked remotely.
- Face-to-face sessions were suspended in March 2020 – this wider impact on delivery mode was seen country-wide
- Covid-19 affected referrals to service (fewer outpatients/ emergency admissions)
- TickerFit uptake increased following suspension of face-to-face classes
- Staff were positive about having an alternative option to offer to patients during the pandemic
- Team began running online group exercise sessions to replicate some of the elements on face-to-face sessions

Impact of Covid-19 – mode

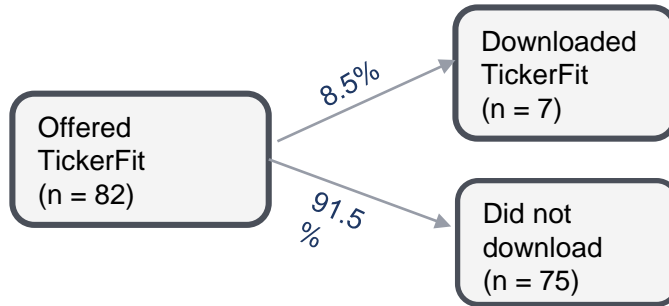
The proportion of people undertaking different modes of rehabilitation delivery in 2019 and 2020



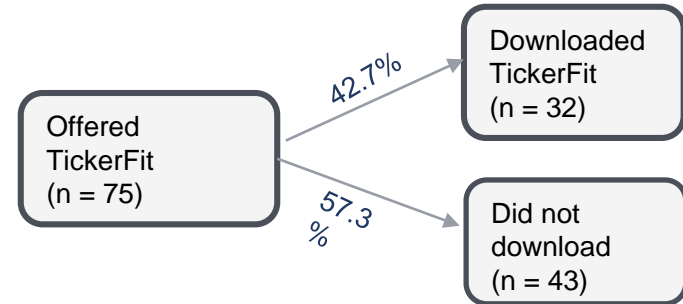
TickerFit uptake

157 patients were offered TickerFit with 39 (25%) downloading.
Rates of downloading increased markedly after end January 2020.

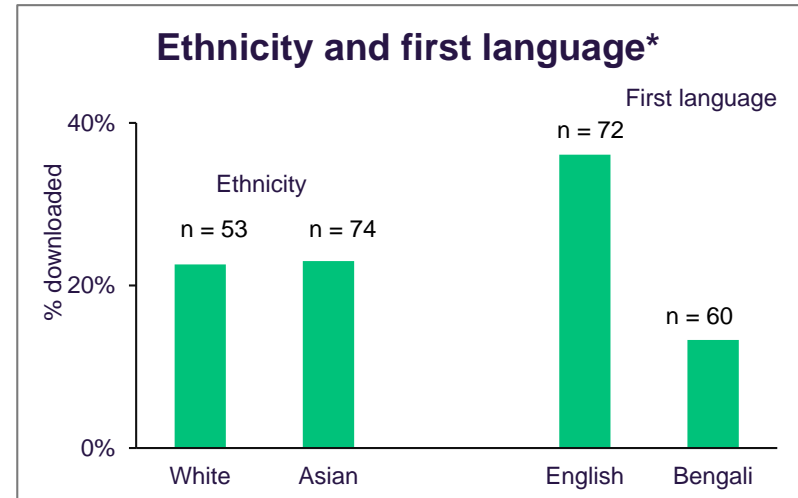
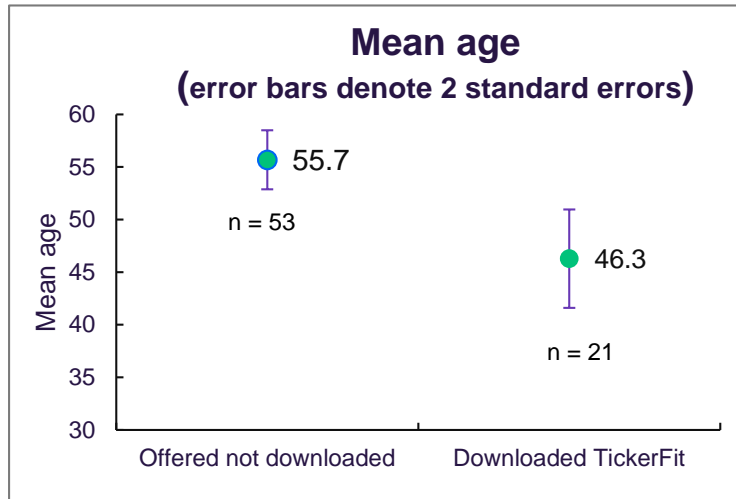
Between 1st Sept 2019 and 31st Jan 2020



Between 1st Feb and 19th Nov 2020



TickerFit uptake by age, ethnicity and first language

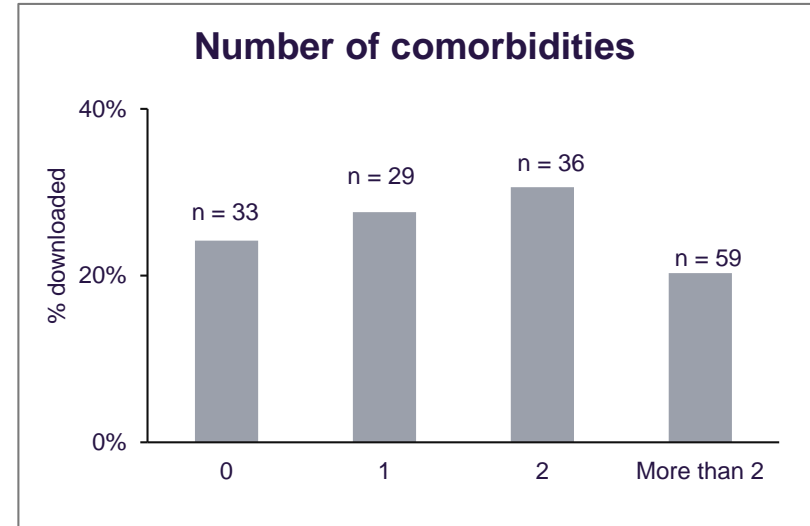
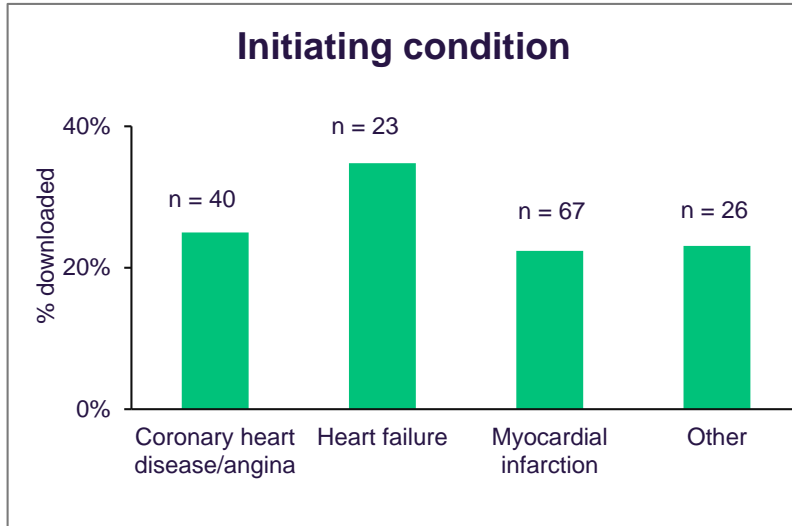


*Numbers of individuals with other ethnicities and first languages are too small to present

- Patients who choose to download TickerFit are significantly younger
- Although there is no significant difference in ethnicity, people with Bengali as a first language are less likely to engage

TickerFit uptake by clinical presentation

% patients offered TickerFit within each group who download the app



Although differences are not statistically significant:

- A higher proportion of patients with heart failure have downloaded the app compared to other conditions.
- Fewer patients with more than two comorbidities have downloaded.

Patient engagement and satisfaction

- **Recruitment** – uptake was lower than expected although did increase since start of the pandemic
 - Barriers suggested by interviewees included technology barriers (access to smartphone), 'data poverty'(limited access to data, WiFi or space on the phone) language, lack of confidence exercising and feeling vulnerable exercising alone, preference for face-to-face support because of on-site clinical support, opportunities for social interaction and peer support, preference for more personalised support.
- **Patient experience** – only able to do two patient interviews so not reported in detail
 - Healthcare professionals reported that patients who were using app were positive about it
 - Valuable for TickerFit to act an adjunct to wider cardiac rehab support and for people to be provided with ongoing support from the cardiac rehab team

Costs and impact

TickerFit resource costs: implementation only

	Care City support	Staff site support
Set-up	£1,004	£2,700
Delivery		£991
Onboarding		£139
Implementation support	£1,284	£3,830

- The high proportion of costs during the set-up phase reflects the considerable changes required during the course of the test bed.
- Licence costs are not shown due to the small numbers of patients onboarded to date.

Numbers of patients referred after 1 September 2019 with BMI readings recorded at the beginning and end of rehab

	Number of patients	Mean increase in BMI (kg/m ²) with 95% confidence interval
Offered TickerFit but not downloaded	21	0.30 (-0.10, 0.50)
Downloaded TickerFit	11	0.02 (-0.58, 0.62)

- There have been no significant differences in the impact on BMI between patients who downloaded and who did not download TickerFit
- However, because the patient numbers are small, real differences may be undetected



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