NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

HealthTech Programme

GID-HTE10060 Digital Platforms to Support Cardiac Rehabilitation: Early Value Assessment

Final scope

1 Introduction

The NICE prioritisation board agreed that digital platforms have the potential to address system needs in cardiac rehabilitation. This topic is being evaluated by the NICE HealthTech Programme as an early value assessment (EVA).

2 Technologies

This section describes the properties of the technologies based on information provided to NICE by manufacturers and experts, and publicly available information. NICE has not carried out an independent evaluation of these descriptions.

2.1 Purpose of the technologies

Cardiovascular disease (CVD) is a leading cause of death and disability affecting over 7.6 million people in the UK. CVD causes about a quarter (26%) of all deaths in the UK. Healthcare costs relating to managing heart and circulatory diseases in the UK are estimated at £12 billion each year (BHF UK Factsheet, 2025).

Cardiac rehabilitation is a secondary prevention programme that involves exercise and education for people with cardiovascular disease. Evidence

suggests that exercise-based cardiac rehabilitation may result in a 42% reduction in long term cardiovascular mortality (over 3 years from event) (Dibben et al. 2021). In England, only 41% of eligible individuals with acute coronary syndrome and 13% of those with heart failure participate in cardiac rehabilitation programmes (NACR, 2024). Clinical experts state that limitations in workforce and service funding restrict the ability of the NHS to provide cardiac rehabilitation to all people who may benefit.

The NHS Long Term Plan recognises the role of cardiac rehabilitation as a key intervention in improving exercise capacity and quality of life in up to 90% of people with heart disease. The plan aims to have 85% of people eligible accessing cardiac rehabilitation by 2028. The Getting It Right First Time (GIRFT) National Speciality report on cardiology recommends offering cardiac rehabilitation in community or hospital setting for the recovery and wellbeing of people with heart and valvular disease and who have had cardiac surgery, including the option of virtual rehabilitation at home. The NHS Commissioning standards for cardiovascular rehabilitation lists ways to improve access to cardiac rehabilitation services. This includes delivering programmes via a variety of modes for flexibility, supporting people to move between delivery modes, and providing processes for re-offer and re-entry into rehabilitation.

Digital technologies to support cardiac rehabilitation are a possible treatment option for people with CVD. These technologies can be used via mobile phones, tablets or computers and can be accessed remotely in a person's home environment. Following referral and initial assessment, digital technologies can be offered as an option to deliver cardiac rehabilitation programmes remotely (see section 4 on care pathway), enabling people with CVD to self-manage their care at a time and location that is convenient to their lifestyle. This could result in improved access, uptake and adherence to cardiac rehabilitation programmes, leading to a reduction in unplanned hospital admissions and acute events resulting from deterioration of the condition. Improved access could also reduce health inequalities (see section 9 on equality issues).

2.2 Product properties

This scope includes digital platforms for cardiac rehabilitation which vary in terms of the mode of delivery (website, applications or digital manuals), the components of cardiac rehabilitation that are offered, target populations, duration of programme, the frequency and level of support by healthcare professionals, and other features.

2.2.1 Inclusion Criteria

For this early value assessment (EVA), NICE will consider digital cardiac rehabilitation technologies that:

- are intended for use by people aged 18 and over
- provide multicomponent, multidisciplinary interventions including any of the following:
  - physical exercise training
  - education related to CVD and its treatment
  - psychological and behavioural interventions
  - nutritional support
- facilitate the delivery of a supported cardiac rehabilitation programme
- provide a cardiac rehabilitation programme with a minimum duration of 6 weeks
- meet the digital technology assessment criteria (DTAC) and have a CE or UKCA mark where required. Products may also be considered if they are actively working towards a required CE or UKCA mark or DTAC accreditation.
- will be available for use in the NHS by the time of final publication of the guidance.

For this EVA, NICE will not consider digital cardiac rehabilitation technologies that:

- replace the initial and final in-person assessment

- are solely tele-rehab i.e. live cardiac rehabilitation sessions delivered remotely.

Digital cardiac rehabilitation technologies may include other features that are not required for inclusion in this assessment, such as:

- sharing information between settings or practitioners involved in the individual's care
- communication functions to allow healthcare professionals to monitor or respond to people's needs
- smoking cessation
- connectivity to other devices such as blood pressure monitors, or wearables to track vitals and progress.

2.2.2 The technologies

Activate Your Heart (University Hospitals of Leicester NHS Trust)

Activate Your Heart is a web-based cardiac rehabilitation platform for a range of cardiac conditions including all coronary heart disease conditions, post-operative advice (bypass/valve surgeries), spontaneous coronary artery dissection (SCAD), heart failure and arrhythmias/implantable cardioverter defibrillator (ICD). It is part of the i-IMPACT online platform. The platform personalises features such as exercise programmes and educational resources using input from a healthcare professional and the user. Access to the website is provided by healthcare professionals after an initial face-to-face assessment. The platform provides direct access to healthcare professionals and an interactive forum. Users retain access for 12 months after discharge from cardiac rehabilitation services. Activate Your Heart is currently in use in some NHS trusts.

Beat Better (Avegen Limited)

Beat Better is an app-based cardiac rehabilitation platform for people who have had a myocardial infarction or coronary artery bypass graft. Users are onboarded by healthcare professionals following an assessment. Clinicians can use the platform to provide exercise and dietary recommendations for

users, as well as educational resources on heart health and symptom recognition. Users can track health measurements, exercise symptoms, mood and medication via the app, and this data can be viewed by clinicians to track progress. It is currently in use in some NHS trusts.

Datos Health - AI Driven Hybrid Care Platform (Datos health Ltd)

Datos Health is a digital remote monitoring AI-enabled platform for delivering cardiac rehabilitation. The platform includes a CareApp for people with cardiac conditions and a clinician dashboard. The Datos CareApp allows users to track vitals, report symptoms, complete assessments, and receive personalised educational content. Users can also communicate with their care team through secure in-app messaging, SMS, and phone or video calls. The Datos clinician dashboard provides real-time patient insights, automated alerts, and remote intervention capabilities, allowing clinicians to monitor progress, adjust care plans, and facilitate virtual consultations. It will shortly be available to the NHS.

D REACH-HF (Health & Care Innovations Ltd)

D REACH-HF is a digital version of a paper manual developed for people with heart failure that can be accessed via a website. The REACH-HF programme includes exercise programmes, educational content, progress tracking, resources for family and friends, and requires support from a healthcare professional. Participants enrolled in the programme typically receive 5 to 6 hours of clinical input from REACH-HF facilitators (who are REACH-HF trained allied health professionals in the NHS), delivered over 12 weeks via phone or video assessment, and regular follow-up phone calls. Users can track their own exercise and health parameters, which are accessible to clinicians through an online platform. A caregiver-facing platform is also available, through which family, friends or supporters have direct access to the progress tracker and educational content. Psychosocial support is provided to the user and family and friends via a stress management programme, including relaxation techniques and encouragement of enjoyable activities. D REACH-HF is currently in use in some NHS trusts.

Digital Heart Manual (NHS Lothian)

The Digital Heart Manual is a digital version of the Heart Manual Programme (NHS Lothian) that can be accessed via a website. There are two versions of the Digital Heart Manual. One version is for people who have had a myocardial infarction or angioplasty and the other for people who have had revascularisation (angioplasty and coronary bypass) but no myocardial infarction. It is a home-based supported self-management cardiac rehabilitation programme facilitated by clinicians. The platform provides a 6-week guided programme of information and self-help tools that can be used alone or in collaboration with the person's cardiac rehabilitation team. This includes an exercise guide, education, diet and medication support. The platform provides educational content on the recovery process, physical activity plans, lifestyle adjustment and medical management. It offers guidance on medication adherence, recognizing symptoms that require medical attention, and safety of activities during recovery. It also provides psychological support with a stress management programme including integrated relaxation tools, stress reduction techniques and downloadable support for family and friends. The manual includes sections for the user to complete and a daily diary to record activity based on the goals decided with the clinician at the beginning of the programme. The clinician in collaboration with the user can review and adjust goals based on the inputs via standard NHS communication channels. Access is provided by NHS health care professional. Users can choose to extend their programme beyond 6 weeks. The Digital Heart Manual is currently in use in some NHS centres.

Get Ready – Solution (Medtronic)

Get Ready is a class 1 CE marked patient management, remote monitoring and patient engagement platform that can be accessed via website or app for people with a wide range of conditions. Modules provided by the company are available to cover people with cardiovascular disease, including those who have had coronary revascularisation, valve repair or replacement, and heart failure. These deliver educational content on cardiac conditions and risk factors and general guidance on daily activities and can be customised by

healthcare professionals for local needs. The platform also provides reminders to keep users on track and uses regular questionnaires or measurements to document progress. Users can also record and share clinical measurements through wearables and connected devices. The Get Ready clinician portal allows clinicians to review progress, make changes to management and receive alerts if the software detects an abnormal event or trend. Users can share documents and pictures with clinicians and communicate with clinicians via secure messaging, request a call function or HCP-controlled video calls.

Gro Health HeartBuddy (DDM health)

Gro Health HeartBuddy is a class 1 CE marked app-based cardiac rehabilitation platform for people who have had a myocardial infarction, percutaneous coronary intervention (PCI), coronary artery bypass graft, new diagnosis of heart failure or atrial fibrillation, or following acute admissions for decompensated heart failure or uncontrolled atrial fibrillation. It provides education, exercise programmes, health tracking, dietary support, medication adherence support, psychosocial support, lifestyle and behavioural modifications and clinician engagement. The platform personalises content based on input from the user. Structured educational content can be accessed through video, audio and text formats, and live or pre-recorded exercise classes are available, tailored to individual fitness level. The initial class intensity can be set by a healthcare professional or determined by the in-app 6-minute walk test which is measured via GPS or step count. The platform automatically adjusts class intensity during each exercise session by prompting users to complete assessments at intervals. Users can keep track of health metrics and medication manually or through connecting wearable devices. The platform provides psychosocial support through modules on mindfulness and stress reduction, access to peer support groups and tools for mental health assessment. The GroCARE clinician dashboard can be used by clinicians to customise programmes, communicate with users, monitor health outcomes and engagement with the programme and receive alerts of abnormal health metrics. Access to the app is provided by healthcare professionals. Users are guided throughout the programme by health coaches

employed by DDM health. Users retain access to the platform after completing the core programme. It is currently in use in 2 NHS trusts.

KiActiv (Ki Performance Lifestyle Limited)

KiActiv is a digital platform for cardiac rehabilitation that incorporates a web application, mobile application and a proprietary wearable device that collects and processes physical activity data. It can be used by people with cardiac conditions including acute coronary syndromes, heart failure, cardiomyopathy, congenital heart disease and post-cardiac surgery. Data collected through the applications and from the wearable device help users create personalised cardiac rehabilitation programmes. The programmes are supported remotely by a dedicated KiActiv mentor. Users have access to a personalised dashboard and activity monitor. The KiActiv dashboard provides interactive tools for users to log and self-monitor medication use, physical activity data, pain, stress, fatigue, overall health, lifestyle behaviours and symptoms. The KiActiv mentor provides remote one-to-one support throughout the programme in live, scheduled sessions, as well as further support through telephone and email. The mentor signposts users to educational resources related to nutrition, medical risk management, smoking cessation, and psychosocial health (including peer-support groups) at set times. KiActiv mentors have access to user data via an online dashboard, which is also available to clinicians for remote monitoring. Users retain lifetime access to the platform after discharge from cardiac rehabilitation. It is currently in use in some NHS trusts.

Luscii vitals (Luscii healthtech B.V.)

Luscii is a class 2a CE marked app designed to help people manage their condition following discharge from hospital. It provides personalised exercise plans that are developed with the cardiac rehabilitation team. The platform allows users to contact their healthcare team and supports video consultations. Users can self-monitor by recording their symptoms or completing questionnaires, and outputs such as educational resources can be personalised based on these inputs. Luscii can communicate with a variety of medical devices via Bluetooth, but use of these is not required. Healthcare

professionals can access a dashboard via a web-based platform. Luscii is currently in use in some NHS trusts for other purposes but is developing a cardiac rehabilitation programme with an NHS trust.

myHeart (my mhealth Limited)

myHeart is a class 1 UKCA marked app and web-based cardiac rehabilitation platform. It is designed for people with heart disease or recovering from cardiac surgery. The platform automatically personalises educational content and guidance using the user's diagnosis and information about lifestyle including smoking cessation and weight management. This content can be completed remotely to complement face-to-face sessions. The platform provides lifestyle and risk factor interventions such as symptom trackers activity diary, medication diary, and electrocardiograph and echocardiogram results tracking. The app also hosts a mind tool kit which provides users with videos on anxiety awareness and management, positive mindful exercises, and meditation sessions. Participants retain access for life which enables self-management using the technology after the programme has ended. The platform provides a clinician portal that can be used by clinicians to personalise or make changes to the self-management plan and an in-app messaging function to guide users. The app provides assistance from digital health advisors (non-clinical members of staff employed by my mhealth), who are trained to provide support to users through various communication channels. The app version of the platform allows Bluetooth connection to medical devices such as blood pressure monitors and digital scales. myHeart is currently in use in some NHS trusts.

Pumping Marvellous Cardiac Rehab Platform (Pumping Marvellous Foundation)

Pumping Marvellous provide a web-based online cardiac rehabilitation platform for people with heart failure. It provides two 8-week structured exercise programmes based on the person's ability to exercise (low and medium). Users can switch between the programmes at will. Access to the website is provided by healthcare professionals after an initial face-to-face appointment. The platform also provides educational material and

psychosocial support through a peer-to-peer online community. Users retain access for life which enables self-management using the technology after the programme has ended. The Pumping Marvellous platform is currently in use in some NHS trusts.

R Plus Health (RPlusHealth Limited)

R Plus Health is a class 1 CE-marked app and web-based platform that provides exercise prescription and heart rate monitoring for people with a chronic heart condition including heart failure, stable angina, coronary revascularisation and post-cardiac surgery. R Plus Health includes a user app and a secure web portal for healthcare professionals. The portal allows the clinician to review and revise personalised fitness tests and exercise prescriptions suggested by the tool, monitor users' exercise logs and health metrics, adjust care plans or conduct reassessments and create personalised educational content. The app allows users to follow their exercise prescriptions, record vitals and diet and complete questionnaires. They can also access health education materials within the app and communicate with healthcare professionals. Users are prompted to measure vitals at intervals during exercise sessions which can trigger alerts to healthcare professionals if abnormal. Psychosocial support can be provided by mental health professionals through video consultation in the clinician portal. Clinicians can prescribe long-term exercise prescriptions and set follow-up plans after the initial programme. The R Plus Health app has an optional feature to connect with a heart rate monitoring device to enable real-time heart rate monitoring and alerting during exercise sessions. Access is provided by the healthcare professional after an initial assessment. It not currently being used in any NHS trusts.

Sword Move (Sword Health)

Sword Move is an app-based cardiac rehabilitation platform for people recovering from acute coronary syndrome, cardiac surgery, or those diagnosed with heart failure. It provides personalised exercise and guidance developed with a company-employed physical health specialist. Users receive guidance, advice and support from Sword Health’s physical health specialists.

The platform uses a proprietary AI model to analyse and collect the user's history and performance, suggest actions and alert abnormalities to the physical health specialists via the clinician portal. Users can communicate with the physical health specialists using the in-app messaging or call function. The platform also provides personalised educational content and resources to help users understand their condition and management through lifestyle changes, as well as guided meditation and breathing exercises. There is an optional feature for users to track activity and record heart rate during exercise using a proprietary wearable or other compatible device. NHS clinicians can also communicate with users via the Sword portal. Users retain access to their exercise programme in-app and can keep the Move wearable following discharge from cardiac rehabilitation programme. It will shortly be available to the NHS.

3 Target conditions

Cardiovascular disease (CVD), also known as heart and circulatory disease, is a long-term condition that affects the heart and blood vessels supplying different organs in the body. The term CVD includes but is not limited to:

- Coronary heart disease – conditions that cause narrowing or complete blockage of the blood vessels supplying the heart. This results in increased pressure on the heart and can lead to acute coronary syndrome and heart failure.
- Acute coronary syndromes – medical emergencies that include myocardial infarction (heart attack) and unstable angina (unexpected, severe chest pain).
- Heart failure – a structural or functional abnormality of the heart in which the heart is not able to pump blood efficiently.
- Valvular heart disease – conditions in which one or more of the valves in the heart does not function properly.
- Congenital heart disease – a group of conditions present at birth that affect the structure of the heart and the normal way the heart works.

- Peripheral arterial disease – a condition that results from build up of fatty deposits in the walls of the arteries which restrict blood supply to the muscles in the leg.

4 Care pathway

4.1 Management of cardiovascular disease

CVD is managed by a multidisciplinary team and involves risk factor modification, controlling symptoms and preventing progression. This can be in the form of medication, surgery, devices, behaviour change and cardiac rehabilitation services.

NICE guideline on acute coronary syndrome (NG185) recommends that people who have had a myocardial infarction (MI) should be given advice about and offered a cardiac rehabilitation programme with an exercise component.

- For people who have cardiac or other clinical conditions that may worsen during exercise, treatment should be offered if possible before they are offered the exercise component of cardiac rehabilitation.
- For some people, the exercise component may be adapted by an appropriately qualified healthcare professional.

NICE guideline on chronic heart failure in adults (NG106) also recommends that people with heart failure should be offered a personalised, exercise-based cardiac rehabilitation programme unless their condition is unstable.

The British Association for Cardiovascular Prevention and Rehabilitation (BACPR) Standards and Core Components for Cardiovascular Disease Prevention and Rehabilitation 2023 states that cardiac rehabilitation should be offered to all eligible individuals with the following cardiovascular conditions before discharge from hospital:

- acute coronary syndrome

- heart failure
- stable angina
- coronary revascularisation (percutaneous coronary intervention [PCI] and coronary artery bypass graft [CABG])
- pre and post-implantation of cardiac defibrillators and resynchronisation devices (for heart failure)
- post-heart valve repair/replacement
- post-heart transplantation and ventricular assist devices
- adult congenital heart disease (ACHD).

However, there is limited evidence to show that other populations could also benefit from cardiac rehabilitation including people with:

- atrial fibrillation
- non-obstructive coronary artery disease (NOCAD)
- peripheral artery disease (PAD)
- spontaneous coronary artery dissection (SCAD).

Currently, cardiac rehabilitation in England, Northern Ireland and Wales is prioritised for people with acute coronary syndromes, coronary revascularisation or heart failure (NACR, 2024), in line with NHS commissioning standards. Access may be available to wider populations depending on local resource. It is beyond the remit of this evaluation to determine which groups of people with CVD should be offered cardiac rehabilitation.

4.2 Delivery of cardiac rehabilitation

The BACPR recommends that cardiac rehabilitation programmes include the following core components:

- Health behaviour change and education
- Lifestyle risk factor management
- Psychosocial health
- Medical risk management

- Long-term strategies.

The care pathway follows 6 standards:

- Standard 1 – identification and referral. Programmes should be able to provide services to priority groups and extend them to other cohorts if capacity allows. The referral process should be clear, and providers should make contact within 5 working days of referral.
- Standard 2 – multidisciplinary team. The 5 core components of cardiac rehabilitation should be delivered by a multidisciplinary team.

  The team typically includes clinical exercise physiologists or physiotherapists, cardiac rehabilitation nurses, dietitians and occupational therapists.
- Standard 3 – initial assessment. People referred for cardiac rehabilitation should have an initial assessment of their individual needs, participation preferences, choices and co-morbidities. This is used to develop an ongoing agreed plan of care.

  The initial assessment is usually delivered by a clinical nurse specialist (cardiac rehabilitation nurse) in an outpatient setting, which can be a face-to-face clinic appointment or virtually by telephone. An assessment by dietitian or an exercise specialist could also be conducted.
- Standard 4 – delivery of programme. Programmes should follow an individualised approach to meet individuals' needs, preferences and priorities. It should start as soon as possible following the initial assessment, deliver evidence-based interventions and address the individual's needs across all relevant core components.
- Standard 5 (final assessment) - involves evaluation of progress since initial assessment by the cardiac rehabilitation nurse in an outpatient setting and prescription of long-term strategies to continue to improve and maintain cardiovascular health.

- Standard 6 - audit and evaluation (see section 8 on other issues for consideration).

The duration of cardiac rehabilitation programmes varies across the UK, with a median length of 8 weeks (NACR quality standards).

Courses may be held in local hospitals or a range of accessible venues such as community halls, health centres, leisure centres and at home.

The BACPR recommend that people in cardiac rehabilitation programmes should receive on-going assessment throughout their programme and a regular review of their goals, with adjustments to components as required.

4.3 Position of digital platforms in the care pathway

Digital platforms to support cardiac rehabilitation could be offered as a mode of delivery to people with CVD that are referred for a cardiac rehabilitation course. People would still need to attend live in-person or remote appointments for their initial and final assessments to enable the clinician to determine the most suitable mode of delivery based on the person's clinical condition and choice.

5 Comparator

The comparator for this assessment is cardiac rehabilitation where digital platforms are not offered as an option. This could consist of face-to-face cardiac rehabilitation programmes or a hybrid of in-person group-based and home-based programmes (including paper manuals, live online classes, home visits, or telehealth).

In 2023, about 40% of people took up offers of home-based options for cardiac rehabilitation in some services (but with face-to-face assessment before and after the programme) compared to 37% for group-based and 23% for hybrid cardiac rehabilitation programmes (comprising of group-based and home-based/self-managed) (NACR, 2024).

6 Decision problem

Decision question	Do digital platforms for cardiac rehabilitation have the potential to be clinically and cost-effective to the NHS? What are the evidence gaps?
Population	Adults aged 18 years or over who are eligible for cardiac rehabilitation, prioritising those who have a confirmed diagnosis of: • acute coronary syndrome • coronary revascularisation • heart failure. If the evidence allows the following populations can be considered: • stable angina • pre and post-implantation of cardiac defibrillation and resynchronisation devices • post-heart valve repair/replacement • post-heart transplantation and ventricular assist devices • adult congenital heart disease (ACHD) • atrial fibrillation • non-obstructive coronary artery disease (NOCAD) • peripheral artery disease (PAD) • spontaneous coronary artery dissection (SCAD)
Subgroups	If the evidence allows the following subgroups will be considered: • Age • Sex • Socioeconomic status • Ethnicity • Cardiovascular condition • Presence of comorbidities • Previous involvement with cardiac rehabilitation
Intervention	Any of the following digital technologies offered as an option to deliver cardiac rehabilitation: • Activate Your Heart • Beat Better • Datos Health Platform • D REACH-HF • Digital Heart Manual • Get Ready - Solution • Gro Health Heartbuddy • Kiactiv • Luscii vitals • myHeart

	• Pumping Marvellous Cardiac Rehab Platform • R Plus Health • Sword Move
Comparator(s)	Standard cardiac rehabilitation where digital tools are not offered as an option
Healthcare setting	Community
Outcomes	The outcome measures for consideration may include: • Adherence (concordance) rates for intervention and long-term strategies • Intervention uptake rates • Intervention completion rates • Attrition (dropout) rates • Hospital readmissions, referrals to specialist services, clinic visits • Mortality • Exercise capacity or performance (e.g. 6 Minute Walk Test, incremental shuttle walking test) • Cardiovascular risk profile (systolic blood pressure, body mass index, serum triglycerides, HDL cholesterol, total cholesterol, blood glucose, and peak oxygen uptake) • Psychological wellbeing (e.g. anxiety or depression scores) • Health-related quality of life • Nutrition status (e.g. Mediterranean Diet Score Tool) • Medication adherence • Time from post-discharge referral to start of core cardiac rehabilitation programme • Usability and acceptability of the platform • Behavioural change
Costs	Costs will be considered from an NHS and Personal Social Services perspective. Costs for consideration may include: • Cost of the technologies including device, license fees and staff training • Cost of other resource use (e.g. acute events, suspected acute events, hospital presentations, adverse events, or complications) • Healthcare appointments in primary, secondary and community care • Medication use and adverse events • Occupied bed days

Time Horizon	A lifetime time horizon should be used for estimating the clinical and cost effectiveness. This is to be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared.

7 Patient issues and preferences

Standard care involves attending a local class in-person, engaging from home (online or following a written programme) or a combination of both. According to the National Audit of Cardiac Rehabilitation (NACR) 2024 report, some services still offer only one mode of delivery. This is contrary to BACPR Standards and Core Components (BACPR 2023), which states that people should be offered different modes of cardiac rehabilitation.

Some people may prefer in-person clinician led treatment if this is available. Some people are unable to access in-person cardiac rehabilitation because they have restrictions in time, mobility and location. Digitally supported cardiac rehabilitation could also appeal to regular users of digital technologies (including medical devices) or people who prefer to access healthcare remotely. Digital platforms that provide access to peer-to-peer networks could provide a community for people with CVD who feel uncomfortable at in-person programmes.

People may have some of the following concerns when considering the use of digital technology as part of their cardiac rehabilitation:

- ability to use the technology
- possible costs incurred from using digital technologies, for example mobile data charges
- limited access to or ability to use appropriate devices or equipment
- level of human support provided during digitally supported cardiac rehabilitation
- trust in decisions made by the technology
- lack of in-person supervision in case of an acute event or unpredictable nature of comorbidities

- data security and quality control
- Whether information provided on platforms is kept up to date with research and guidelines
- issues of connectivity, including access to the internet and data needed for these devices, especially in rural areas.

People should be supported by healthcare professionals to make informed decisions about their care, including the use of digital technologies. Shared decision making should be supported so that people are fully involved throughout their care (see the NICE guideline for shared decision making).

8 Other issues for consideration

8.1 National Audit

Cardiac rehabilitation services are expected to submit data to the National Audit for Cardiac Rehabilitation (NACR) central database. Digital technologies for cardiac rehabilitation should be able to support the provision of suitable data for entry into NACR.

8.2 Certification of cardiac rehabilitation programmes

The National Certification Programme for Cardiac Rehabilitation (NCPCR) is a joint project between the BACPR and NACR that publishes quality standards for cardiac rehabilitation services across the UK. The NCPCR has seven key performance indicators which are minimum requirements each cardiac rehabilitation programme is expected to meet to achieve certification.

Minimum standard 1: MDT	At least three health professions in the cardiac rehabilitation (CR) team who formally and regularly support the CR programme
Minimum standard 2: Patient group	Cardiovascular rehabilitation is offered to all these priority groups: myocardial infarction, myocardial infarction and percutaneous coronary intervention, percutaneous coronary intervention, coronary artery bypass graft, heart failure
Minimum standard 3: Duration	Duration of Core CR programme at least 56 days.

Standard 4: National average for assessment 1	Percent of patients with recorded assessment at least 80% for England Northern Ireland 88% for Northern Island and 68% for Wales.
Standard 5: National average for CABG wait time	Time from post-discharge referral to start of Core CR programme for coronary artery bypass graft should be below the national median (46 days for England, 52 days for Northern Ireland and 42 days for Wales)
Standard 6: National average for MI/PCI wait time	Time from post-discharge referral to start of Core CR programme for MI/PCI should be below the national median (33 days for England, 40 days for Northern Ireland and 26 days for Wales)
Standard 7: National average for assessment 2	Percent of patients with recorded assessment 2 (end of CR) at least 57% for England, 61% for Northern Ireland and 43% for Wales

According to the NCPCR 2024 report, only 106 (40%) out of 205 programmes met all seven standards.

9 Equality issues and considerations

NICE is committed to promoting equality of opportunity, eliminating unlawful discrimination and fostering good relations between people with protected characteristics and others.

Age, sex, disability, race, and religion or belief are protected characteristics under the Equality Act 2010. CVD may have a substantial and long-term adverse effect on a person's ability to carry out normal day-to-day activities. People with these conditions may be classified as having a disability and therefore protected under the Equality Act 2010.

Lower completion rates of cardiac rehabilitation programmes are found in people aged 65 and under, women, and people from more deprived areas. Clinical experts advised that people who are struggling with psychological adjustment to their CVD are also less likely to uptake or complete cardiac rehabilitation .

CVD is most common in people over 65 with a mean age at diagnosis of 70.5 years. However, there is increasing incidence and mortality rates in younger populations resulting in changes to the demographics of people

requiring cardiac rehabilitation programmes (Conrad et al., 2024; British Heart Foundation, 2025). It is not always practical and feasible for people with full-time work commitments to attend face-to-face cardiac rehabilitation services twice a week. Digital platforms could provide options which are flexible and convenient for people to access cardiac rehabilitation from any location at any time.

Women are less likely to attend cardiac rehabilitation than men. Of all people eligible in 2017/18, only about 43% of women attended compared to 53% of men (British Heart Foundation, 2019).

There is a higher prevalence of cardiovascular disease in people from a lower socioeconomic background due to poorer living conditions and exposure to risk factors like smoking. People from more deprived areas are less likely to attend cardiac rehabilitation compared to those in less deprived areas (NACR, 2023).

Digital platforms for cardiac rehabilitation are accessed via a mobile phone, tablet or computer. They may also need to synchronise with other devices or wearables such as smart watches, blood pressure monitors etc. Some people may not be able to access the required devices. Regular access to a device with internet access is needed to use the technologies.

Some people with visual impairment or learning disabilities may find using digital technologies helpful, for example if data is uploaded automatically by smart devices which could improve data accuracy and improve their care. People with a visual, hearing, or cognitive impairment, problems with manual dexterity, a learning disability, or who are unable to read or understand health-related information (including people who cannot read English) or neurodivergent people may need additional support to use digital programmes. In addition, there are groups of people who may struggle to access digitally supported cardiac rehabilitation, including people who are experiencing homelessness, people living in homes of multiple occupancy, and people living in residential care.

Some people would benefit from digital supported self-management technologies in languages other than English. Uptake of cardiac rehabilitation among people from Black, Asian and other ethnic minority groups is lower than in the general population (NACR, 2023). People's ethnic, religious, and socio-cultural background may affect their views of digital technologies for cardiac rehabilitation. Healthcare professionals should discuss the language and cultural content of digitally enabled programmes with people with CVD before use.

10 Implementation issues

10.1 Capacity

Implementation of digital cardiac rehabilitation platforms may lead to an increase in the number of people who participate in cardiac rehabilitation programmes. This may initially increase staff workload to set up new pathways and become familiar with new systems. If digital cardiac rehabilitation platforms are used to augment rather than replace in-person cardiac rehabilitation programmes, there is a risk that there will be no reduction in clinician appointments and may increase the amount of GP or clinic visits. This may be more likely if there is more remote monitoring required or if the technologies have a lower threshold in terms of clinical risk to signal the user to contact their care provider.

Additional time may also be needed for staff to provide training to people with CVD on how to use the digital technologies. Some tools may offer user training, while some may expect local NHS staff to provide this.

If the platforms provide remote monitoring data that is shared with care providers, this may increase staff workload. It will be important to ensure that the level of monitoring is appropriate according to clinical need. Staff may need to spend additional time for training. Clinician interest and confidence in using digital tools and ability to train users may affect adoption of digital technologies for cardiac rehabilitation.

10.2 Integration with IT systems

The digital technologies will need to integrate with existing IT systems of both secondary care cardiology services and community care. Being able to communicate with both IT systems could ensure there is no disruption or delays to the workflow. The digital technologies require access to the internet to function, so hospitals without consistent internet access may have issues with onboarding users.

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Appendix A. Related Guidance

- **Related Guidelines:**
  - Acute coronary syndromes (2020). NICE guideline 185
  - Chronic heart failure in adults: diagnosis and management (2018). NICE guideline 106
  - SIGN (Scottish Intercollegiate Guidelines Network) National Clinical Guideline 150 [sign150] – cardiac rehabilitation
  - British Association for Cardiovascular Prevention and Rehabilitation (BACPR) Standards and Core Components for Cardiovascular Disease Prevention and Rehabilitation 2023

- **Related Quality Standards:**
  - Promoting health and preventing premature mortality in black, Asian and other minority ethnic groups (2018). NICE Quality standard 167.
  - Chronic heart failure in adults (2011). NICE Quality standard 9
  - Secondary prevention after a myocardial infarction (2015). NICE Quality standard 99.
  - National Certification Programme of Cardiac Rehabilitation (NCPCR).