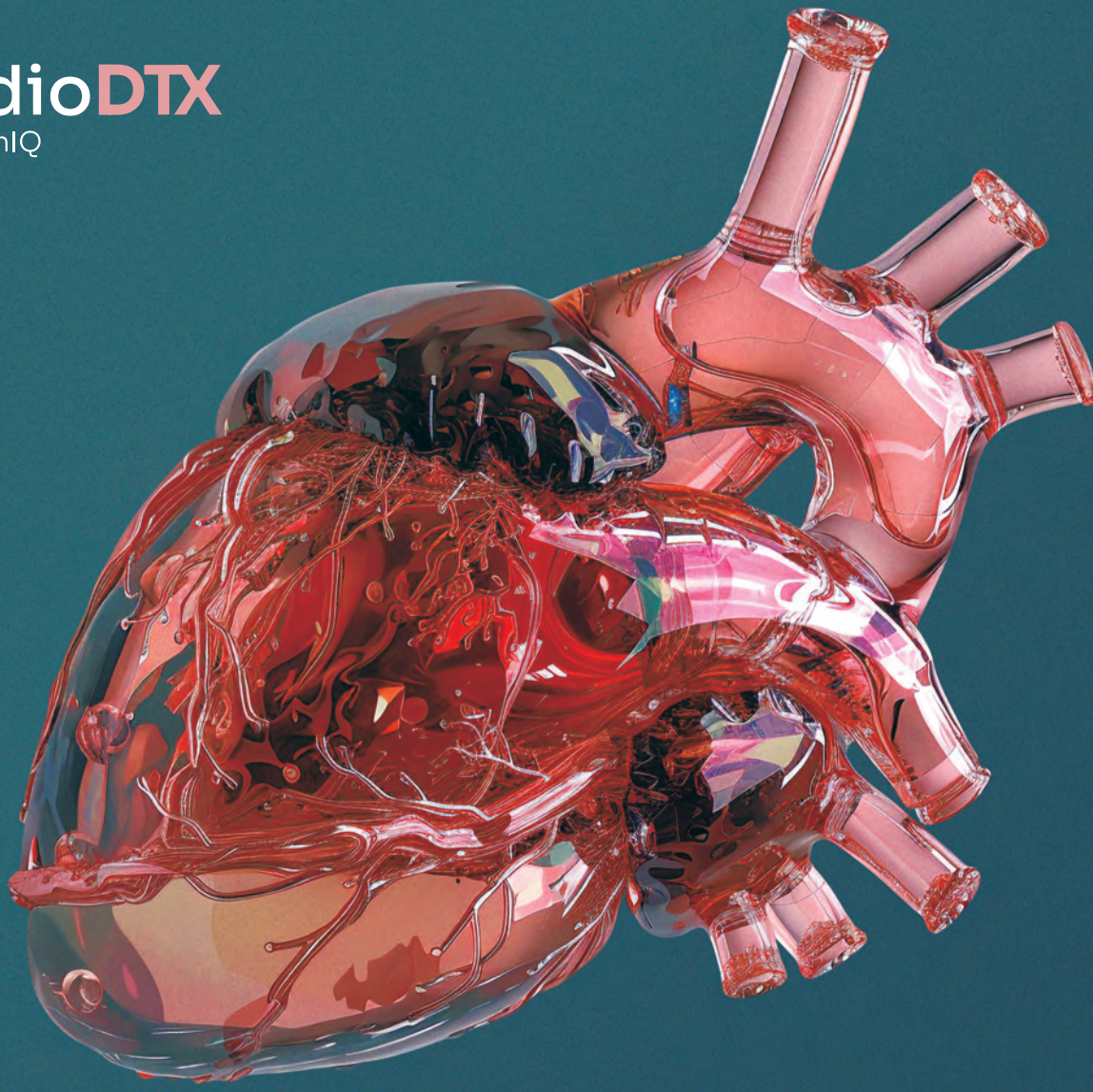
CardioDTX
by dHealthIQ



# Cardiac Rehabilitation Without Walls

A clinician-governed, AI-powered digital pathway for scalable cardiac rehabilitation

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# Cardiac rehabilitation saves lives. So why do most eligible patients never complete it?

Globally, only 20–30% of eligible patients enrol, and up to 50% discontinue cardiac rehabilitation prematurely. The limitation is not clinical efficacy – it is access, scalability, and system design. Traditional cardiac rehabilitation models are location-dependent, resource-intensive, and capacity-limited.

Only
**20-30%**
of eligible patients enroll in cardiac rehabilitation

Nearly
**50%**
Of patients drop out of rehabilitation before completing the program

Over
**1 million**
patients each year miss out on the benefits of rehabilitation

## CardioDTx Closes This Gap

CardioDTx is a clinician-governed, AI-powered digital care pathway that transforms cardiac rehabilitation into a scalable, home-based, data-driven model of care. It combines continuous physiological monitoring, AI-assisted personalization, and real-time clinical oversight.

- **Guideline-native**
- **Physiology-driven**
- **AI-enabled**
- **Clinician-governed**
- **Home-based**
- **Scalable by design**

## Built For

### Healthcare Providers

→ Scale cardiac rehabilitation without adding staff

→ Improve outcomes and quality metrics

→ Maximize capacity of existing resources

### Payers

→ Reduce readmissions and total cost of care

→ Close the rehabilitation access gap at scale

→ Improve population cardiovascular outcomes

### Clinicians

→ Continuous, objective data between visits

→ Maintain full clinical oversight

→ Zero additional workload

# Why Healthcare Providers Choose CardioDTx

## Expand Rehabilitation Capacity

Enable participation for patients who would otherwise never attend. Deliver cardiac rehabilitation without physical constraints, extending care into patients' homes.



## Reduce Readmissions

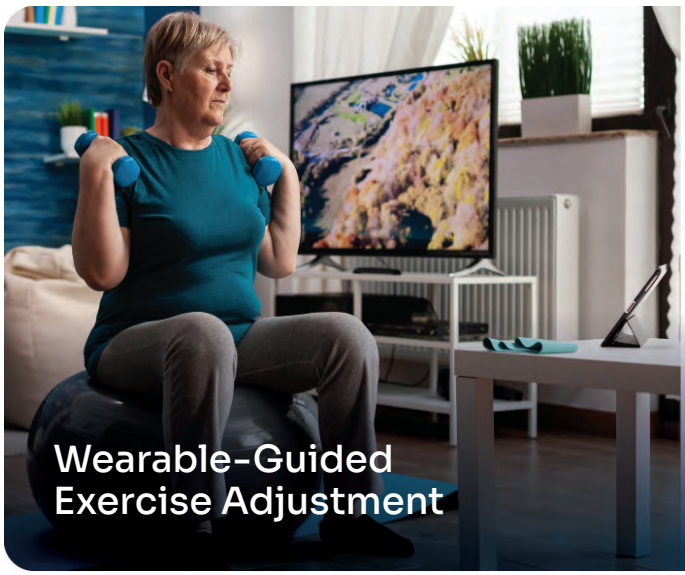
Continuous monitoring and early intervention enable a 30–40% reduction in cardiac readmissions and improve quality indicators.

## Built for Clinicians

Developed with cardiologists and rehabilitation specialists. Fully aligned with established workflows, ensuring safety, usability, and clinical relevance.

## Cost-Effective at Scale

Lower per-patient cost compared to centre-based rehabilitation. A single clinician can safely supervise a significantly larger patient cohort.



# Traditional vs. Digital Cardiac Rehabilitation



CardioDTx extends the core principles of cardiac rehabilitation – supervised exercise, education, and risk factor management – into a continuous, data-driven, and scalable care pathway.

| Dimension | Centre-Based Cardiac Rehabilitation<br>Conventional CR | Digital Care Pathway for Cardiac Rehabilitation<br>CardioDTx |
|---|---|---|
| **Delivery Setting** | Facility-based programme delivered in hospital or outpatient rehabilitation centre; supervised sessions typically 2–3 times/week; requires patient travel | Home- and community-based cardiac rehabilitation (HBCR); delivered remotely via digital platform; synchronous (teleconsultation) and asynchronous sessions |
| **Supervision Model** | Direct, on-site supervision by multidisciplinary team (cardiologist, physiotherapist, nurse); immediate clinical support available | Remote clinician oversight supported by continuous data streaming; one clinician supervises multiple patients; structured escalation and emergency protocols in place |
| **Personalization** | Individualised initial prescription based on baseline assessment; periodic adjustments during scheduled visits | Dynamic, individualised exercise prescription based on continuous physiological data (e.g. HR, HRR, symptoms); AI-supported adjustments validated by clinician |
| **Monitoring & Safety** | Intermittent monitoring during supervised sessions (ECG/telemetry for selected high-risk patients); reliance on patient-reported symptoms between visits | Continuous remote monitoring using wearable devices (heart rate, activity, recovery metrics); automated symptom capture and alert system; clinician dashboard for real-time oversight |
| **Adherence & Access** | Participation limited by geography, transport, and scheduling; adherence rates typically ~50% | Improved accessibility and flexibility; higher adherence (>80% reported in digital CR programmes); enables inclusion of rural, elderly, and underserved populations |
| **Programme Structure**<br>(Guideline-Based Phases) | Structured, phase-based rehabilitation (Phase I–III) delivered on-site; limited continuity beyond programme completion | Longitudinal, continuous care pathway spanning acute recovery to long-term secondary prevention; integrates rehabilitation, monitoring, and maintenance |
| **Scalability & Capacity** | Constrained by physical infrastructure, staffing, and geographic reach | Scalable by design; capacity primarily determined by clinician oversight and digital infrastructure |
| **Cost & Resource Utilisation** | High resource utilisation (facilities, staff time, patient travel); reimbursement typically session-based | Lower cost per patient; improved staff efficiency; compatible with value-based and outcome-based reimbursement models |

# CardioDTx Digital Cardiac Rehabilitation

## Patient Care Pathway — Clinician-Governed | AI-Enabled | Guideline-Native

A structured, clinician-governed digital cardiac rehabilitation care pathway that delivers the full rehabilitation programme remotely, while maintaining continuous clinical oversight and safety.

The pathway is aligned with the European Society of Cardiology (ESC), American Heart Association (AHA), and American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) principles and supports a broad spectrum of patients, including: post-myocardial infarction / acute coronary syndrome, post-coronary artery bypass grafting and valve interventions, heart failure, chronic coronary syndromes, valvular heart disease, elderly, and multimorbid populations.

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1

In Clinic

### Onboarding & Eligibility Assessment

Patient inclusion is determined according to established ESC/AHA cardiac rehabilitation criteria, with cardiovascular risk stratification based on the AACVPR classification. The process includes digital readiness assessment, wearable device provisioning, and initiation of the personalised care pathway.

| | |
|---|---|
| **Patient:** | Completes onboarding procedures, including digital platform setup, wearable device pairing, and initial data input. |
| **Clinician:** | Confirms eligibility, assigns risk category, defines level of supervision, and initiates the individualised cardiac rehabilitation pathway |

2

At Home | In Clinic

### Baseline Clinical & Functional Assessment

A baseline evaluation to assess functional capacity, physiological response to exercise, and overall risk profile. It includes resting vital signs, cardiovascular risk assessment, 6-Minute Walk Test (6MWT) with continuous heart rate monitoring, evaluation of chronotropic competence and heart rate recovery, and balance and mobility assessment using digital tools.

| | |
|---|---|
| **Patient:** | Performs functional assessments using the digital platform and wearable devices, and reports symptoms and perceived exertion. |
| **Clinician:** | Reviews and validates assessment results, confirms risk stratification, and uses baseline data to guide exercise prescription and pathway |

3

At Home | In Clinic

### Personalized Care Pathway & Exercise Prescription

An individualised care pathway is assigned based on patient phenotype and risk profile. Exercise intensity is prescribed using heart rate reserve (HRR: typically 40–60%), rate of perceived exertion (RPE 11–14), and medication-adjusted and ischaemia-aware thresholds. Risk factor modification targets are defined, and core rehabilitation components are activated, including exercise training, patient education, and psychosocial support.

| | |
|---|---|
| **Patient:** | Reviews the personalised plan, follows prescribed exercise and education modules, and tracks symptoms and progress via the digital platform. |
| **Clinician:** | Approves and adjusts the care pathway, sets safety thresholds, and defines the level of supervision and progression. |

# CardioDTx Digital Cardiac Rehabilitation

At Home

## 4 Home-Based Digital Rehabilitation

Patients perform guided aerobic, resistance, balance, and flexibility training in a home or community setting, supported by digital coaching via mobile device. Exercise sessions are monitored using wearable-based heart rate tracking with real-time feedback and automated intensity adjustment. Each session includes symptom tracking, data logging, and integrated self-care education.

| | |
|---|---|
| **Patient:** | Completes prescribed exercise sessions, follows digital coaching, and records symptoms and perceived exertion |
| **Clinician:** | Monitors patient progress via the dashboard, reviews flagged sessions or alerts, and intervenes or adjusts the programme when needed. |

At Home

## 5 Continuous Remote Monitoring & Clinical Oversight

Continuous monitoring of heart rate dynamics, recovery kinetics, and vital sign trends enables early detection of abnormal responses and performance changes. Adherence is tracked with automated engagement prompts, while algorithm-based alerts identify symptoms, safety signals, or declining progress. Structured triage and escalation pathways are supported by scheduled and on-demand teleconsultations.

| | |
|---|---|
| **Patient:** | Wears the device consistently, responds to prompts, and communicates symptoms or concerns via the app. |
| **Clinician:** | Reviews real-time data and alerts, conducts teleconsultations as needed, and adjusts the care pathway based on trends and clinical judgment. |

At Home In Clinic

## 6 Periodic Remote Functional Reassessment

Functional capacity and clinical progress are reassessed at defined intervals using remote assessments of the 6MWT, balance (Romberg), and gait. Heart rate recovery metrics and physical activity data are updated, and the Health Score is recalculated and trended over time. Progress is benchmarked against baseline and expected targets, with adaptive recommendations for pathway modification.

| | |
|---|---|
| **Patient:** | Completes scheduled reassessments and questionnaires via the platform. |
| **Clinician:** | Reviews progress, validates recommendations, and adjusts the care pathway and level of supervision as needed. |

In Clinic

## 7 Clinical Review & Long-Term Secondary Prevention

A comprehensive outcome evaluation is performed, including functional capacity, risk factor control, and psychosocial status. Patients transition to a long-term maintenance programme with personalised activity targets and continued lifestyle support, including nutrition, medication adherence, and stress management. A structured discharge summary is generated, ensuring continuity of care and handover to primary care with a complete digital rehabilitation record.

| | |
|---|---|
| **Patient:** | Continues long-term self-management, maintains physical activity, and applies |
| **Clinician:** | Conducts final evaluation, documents outcomes, defines long-term targets, and coordinates transition to ongoing care. |

# CardioDTx Delivers Clinical Framework

## Clinical-Grade Assessment

CardioDTx delivers a comprehensive, digitally enabled pre-rehabilitation assessment, replicating the core components of outpatient cardiac rehabilitation while ensuring clinical accuracy, safety, and scalability:

### Risk Stratification

Structured cardiovascular risk assessment integrates clinical history, left ventricular ejection fraction (LVEF), NYHA functional class, ECG findings, and functional capacity. Patients are stratified into low, moderate, or high risk, with corresponding levels of supervision and monitoring intensity.

### Functional Capacity Assessment

Functional evaluation includes a remote or supervised 6MWT with continuous heart rate monitoring, assessment of chronotropic competence, and analysis of heart rate recovery. These parameters provide objective insight into exercise tolerance and physiological response.

### Balance and Mobility Assessment

Balance and fall risk are evaluated using digital tools, including accelerometry-based Romberg testing, gait analysis, and mobility metrics. This supports the safe prescription of exercise, particularly in elderly and multimorbid populations.

## Personalized Exercise Prescription

Exercise prescription is individualised using heart rate reserve (HRR; typically 40–60%), rate of perceived exertion (RPE 11–14), and medication-adjusted safety parameters, including consideration of beta-blocker use and ischaemic thresholds. Exercise intensity and progression are dynamically adapted on a session-by-session basis using real-time wearable data and clinician-validated AI recommendations. AI-supported motion analysis enables real-time feedback on exercise technique, including form correction and automated repetition counting, supporting safe and effective execution of prescribed exercises.

## Continuous Monitoring

Continuous, multi-parameter monitoring captures heart rate dynamics, recovery kinetics, heart rate variability (e.g. RMSSD, SDNN), physical activity levels, vital signs, and patient-reported outcomes. All data are integrated and visualised on a clinician dashboard to support longitudinal assessment and timely clinical decision-making.

Automated algorithms detect abnormal physiological responses, declining performance, and potential safety signals, triggering alerts for clinician review. Exercise technique quality is additionally assessed through AI-based motion analysis to ensure adherence to prescribed training protocols.







## Composite Health Score

0–100 Scale

A multidimensional score integrating physiological response, functional capacity, balance and mobility metrics, patient-reported outcomes (including symptoms, quality of life, and mental health assessed using validated instruments such as KCCQ, PHQ-9, and GAD-7), and exercise adherence into a single, longitudinal progress indicator.

# Tailored Cardiac Rehabilitation Pathways

## by Patient Segment

Cardiac rehabilitation is individualised according to diagnosis, risk profile, and comorbidities. CardioDTx applies a structured, evidence-based approach to deliver personalised, safe, and clinician-governed care across key cardiac populations.

## Patient Segmentation & High-Level Logic

| Patient Segment | Clinical Focus | Personalisation Approach | Clinician & AI Role |
|---|---|---|---|
| Post-Myocardial Infarction (MI) / Acute Coronary Syndrome (ACS) | Restore functional capacity and optimise secondary prevention | Gradual progression of aerobic exercise; risk factor control; lifestyle modification | AI supports intensity and progression adjustments; flags symptoms (e.g. chest pain); clinician validates and adjusts plan |
| Post-CABG / Post-Valve Surgery | Surgical recovery and cardiovascular conditioning | Respect sternal precautions; progressive aerobic conditioning; upper-body mobility recovery | Wearables monitor physiological response; AI suggests progression; clinician approves modifications and safety thresholds |
| Heart Failure (HFrEF / HFpEF) | Safe exercise training with close symptom and volume status monitoring | Low-to-moderate intensity aerobic exercise; resistance and balance training; symptom-guided progression | AI monitors trends (HR, activity, symptoms); flags decompensation signals (e.g. dyspnoea, weight gain); clinician adjusts therapy |
| Chronic Coronary Syndromes (Stable CAD / Angina) | Improve exercise tolerance and symptom control | Aerobic training below ischaemic threshold; adherence support; risk factor optimisation | AI detects changes in physiological response and reported symptoms; clinician adjusts exercise prescription and thresholds |
| Valvular Heart Disease (Pre/Post-Intervention) | Maintain or restore functional capacity with condition-specific limitations | Individualised exercise intensity based on valve status; focus on endurance, balance, and symptom monitoring | AI monitors physiological trends; clinician validates progression and ensures safety |
| Elderly and Multimorbid Patients | Maintain mobility, independence, and reduce frailty risk | Low-intensity, function-oriented exercise; balance and flexibility training; mobility-adapted programmes | AI applies conservative thresholds; clinician defines supervision level and reviews alerts for safety |

This segmentation framework ensures that rehabilitation is personalised, clinically appropriate, and adaptable across patient groups. AI supports continuous optimisation, while clinicians retain full responsibility for all patient-specific decisions.

# Safety Framework and Risk Stratification

CardioDTx implements a structured, multi-layered safety framework that ensures safe delivery of cardiac rehabilitation in a home-based setting. This continuous safety loop integrates initial clinical assessment, real-time physiological monitoring, clinician oversight, and ongoing patient education.

Alerts, dashboards, and scheduled reassessments support early identification of risk signals, enabling timely intervention while maintaining full clinician control over all patient-specific decisions.

## → Risk Stratification

Patients are stratified at enrolment into low, moderate, or high-risk categories using established clinical criteria. The level of supervision and delivery model is adapted accordingly: higher-risk patients may start with hybrid or more closely supervised programmes, while lower-risk patients participate in fully remote pathways with structured follow-up.

## → Clinician Oversight

A real-time clinical dashboard provides visibility of patient activity, alerts, and risk status. Clinicians can intervene promptly via secure messaging, teleconsultation, or predefined escalation pathways, ensuring appropriate response to emerging clinical concerns.

## → Monitoring & Alerts

Wearable devices continuously capture physiological parameters and patient-reported symptoms during exercise and daily activity. Predefined safety thresholds and algorithm-based triggers generate alerts for abnormal responses, prompting guidance to pause activity, initiate clinician contact, or escalate care when required.

## → Ongoing Assessment and Patient Education

Regular reassessments, combined with structured education on safe exercise practices, including warm-up and cool-down routines, symptom awareness, and self-monitoring, reinforce patient safety and support long-term adherence.



## Quality & Compliance

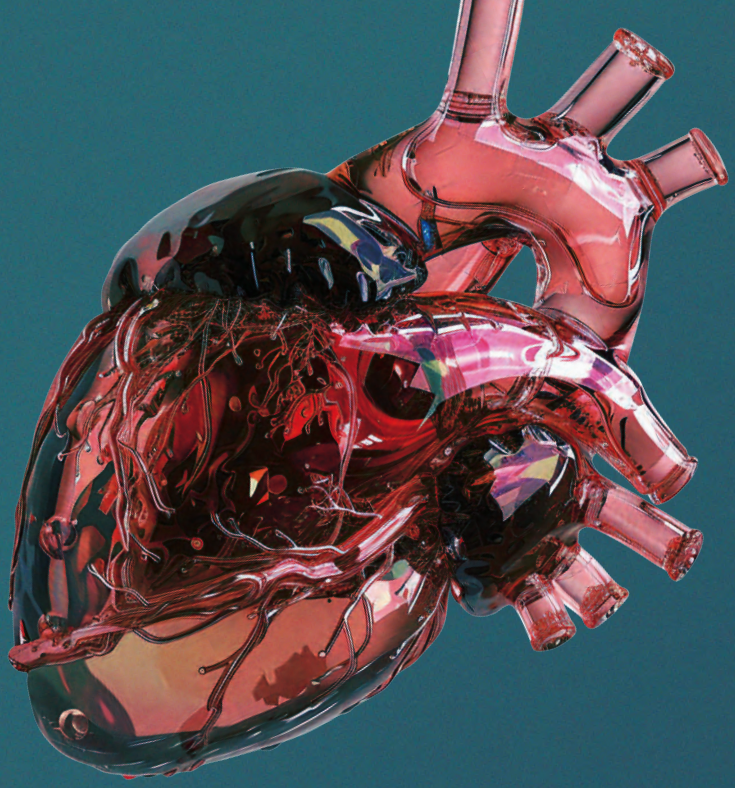
### Regulatory & Standards

- ISO Certified
- CE MDR Class II
  (EU Medical Device - pathway in progress )
- FDA 510(k)
  pathway in progress (US)

### Data Security & Privacy

- GDPR Compliant
- HIPAA Compliant
- SOC 2 Security Framework

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# Ready to Expand Cardiac Rehabilitation Without Walls?

We partner with healthcare providers, payers, and industry stakeholders to implement and scale a clinician-governed, AI-powered digital care pathway for cardiac rehabilitation.

Together, we can extend rehabilitation beyond the clinic and make it accessible to every patient who needs it.

## We welcome collaboration on:

- → Clinical suitability and patient selection
- → Integration into existing care pathways and referral workflows
- → Pilot programme design and real-world implementation
- → Reimbursement and scalable business models
- → Technical integration and deployment

## Get in touch

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