

Clinical Standard for Cardiac Rehabilitation Services

Queensland Health



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Queensland
Government

Clinical Standard for Cardiac Rehabilitation Services

Endorsed by the Queensland Cardiac Clinical Network and the Statewide Cardiac Rehabilitation Collaborative.

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An electronic version of this document is available at [Cardiac | Clinical Excellence Queensland | Queensland Health](#)

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Summary

Coronary heart disease (CHD) is the leading cause of death in Australia, accounting for nearly 20,000 deaths in 2020 [1]. According to the Australian Heart Foundation Heart Maps, Queensland has 12 regions in the countries' top 20 heart disease 'hotspots' [2]. Although mortality rates have declined in recent decades, the prevalence of those living with CHD has increased (3). Modifiable risk factors account for up to 80% of CHD and up to 50% CHD admissions are repeat events (3). Secondary prevention programs such as cardiac rehabilitation (CR) provide long-term self-management strategies achieved through exercise sessions and lifestyle change education. CR is recognised as the most cost-effective intervention to ensure favourable outcomes across a wide spectrum of cardiovascular disease (4).

CR programs that assess and address multiple risk factors (six or more) or oversee prescription and monitoring of cardioprotective medications reduce all-cause mortality (27% and 65% respectively), whereas programs that do not include such components have no effect on those outcomes (5). Additionally, CR programs that monitor, promote, and achieve high levels of exercise adherence by participants reduce all-cause and cardiovascular mortality (19% and 28% respectively), in contrast to the lack of effect of CR programs that have suboptimal exercise participation (5).

Objective

The objective of this standard for CR Services is to ensure that standardised and evidence-based content informs the delivery of CR in Queensland specifically, to enable service delivery that is evidence-based, person-centred, culturally aware, flexible, applicable to all modes of delivery and provides consistent and clear messaging.

Definition of CR

CR is a secondary prevention program that is a multicomponent intervention delivered via an interdisciplinary team that aims to halt disease progression and optimise functioning (3). This is achieved via exercise training, health behaviour change, education regarding lifestyle risk factor management, psychosocial health, medical risk factor management, and cardio-protective medications assessment and monitoring. Services should include physical activity, health education, counselling, behaviour modification strategies and support for self-management. CR is provided across the continuum of care, that is, inpatient (Phase I), outpatient (Phase II) and ongoing preventative approaches (Phase III – maintenance) [6].

Phase I occurs during the inpatient phase of care from hospital admission to separation. It includes the provision of an individualised care plan which addresses factors such as gradual physical activity, smoking cessation, medication, chest pain and emergency plan and therapies addressing psychosocial needs (My Heart My Life patient education booklet or similar), and includes a referral to an appropriate CR, or other secondary prevention program.

Phase II occurs after hospital separation and involves a supervised outpatient program including structured exercise and education. This includes regular individual appointments, participation in a supervised group-based program, home-based program, review assessments and onwards referral.

Phase III is the maintenance phase of exercise and lifestyle following completion of the core CR program. This involves self-management strategies and may involve a once/week group exercise program over several months. Phase III is often delivered from primary health setting, that is via a Primary Health Network, Non-Government Organisation, or peak body. Rarely do HHSs have the

resources to provide an ongoing maintenance phase program.

CR Model of Care

CR programs are multidisciplinary services that provide and support individually tailored programs that include disease management, case management, self-management, and rehabilitation.

A CR service is usually coordinated by a clinician with expertise in cardiac disease management. Essential elements of a CR program are outlined in Table 1, as adapted from the Heart Foundation of Australia, Australian Cardiovascular Rehabilitation Association [7] and supported by the European Society of Cardiology (4).

Table 1. Essential elements of CR programs

Essential elements of CR programs [4,7]	
Initial assessment	<p>Comprehensive assessment using QH QCOR web portal.</p> <p>Individual client focused goal setting and determination of suitable model of care.</p> <p>Provide the Client Management Plan to client and GP (auto loads into Viewer), outlining CR goals and attendance.</p>
Heart education and self-management	Educate CR participants about self-management strategies.
Medication education and review	<p>Give CR participants medication education that includes basic indications and benefits of commonly prescribed medication therapy.</p> <p>Encourage and support participants to adopt strategies promoting medication adherence.</p>
Managing medical risk factors	Equip CR participants with skills to self-manage and prevent hypertension, dyslipidaemia, and diabetes
Exercise and physical activity	<p>Give CR participants a tailored, progressive, and supervised exercise training program by an exercise specialist using the FITT (frequency, intensity, time (duration) and type of exercise) principle.</p> <p>Educate participants about strategies to increase general physical activity and reduce sedentary behaviour.</p>
Healthy eating and weight management	<p>Focus advice on making healthy dietary choices to reduce total cardiovascular risk.</p> <p>If resources allow, offer individualised consultation with a trained health professional to discuss diet.</p>
Tobacco cessation and alcohol reduction	<p>Give CR participants who smoke a brief intervention for smoking cessation.</p> <p>Encourage participants who continue to smoke to use a combination of nicotine replacement products and access their GP and Quitline for further support.</p> <p>Offer participants who are excessive drinkers brief advice/counselling to encourage reduction in alcohol.</p>

Psychosocial wellbeing	<p>Screen CR participants for depression and anxiety using the PHQ4 (opening to PHQ9 & GAD 7) within QCOR at initial and post program assessment.</p> <p>Measure Quality of Life (AQOL, Short QOL) within QCOR at initial and post program assessment.</p> <p>Give participants opportunity to discuss typical emotional response to a heart event.</p> <p>Educate participants about depression and mood disorders.</p> <p>Assist participants to respond appropriately to ongoing psychological symptoms.</p>
Activities of daily living	<p>Discuss driving restrictions, sleep, and energy conservation techniques with participants.</p> <p>Give participants opportunity to discuss any concerns about resuming sexual activity following a cardiac event.</p>
Reassessment and completion	<p>Complete the post program assessment on QCOR web portal.</p> <p>Review participants goals on completion of the program.</p> <p>Provide the participant and their GP the Ongoing Client Management plan as a discharge and summary letter (auto loads onto Viewer).</p>

QH: Queensland Health; QCOR: Queensland Cardiac Outcomes Registry; AQOL: Australian Quality of Life tool, PHQ: Patient Health Questionnaire; GAD: Generalised Anxiety Disorder Assessment.

Timing of CR

Evidence suggests that early attendance at CR assessment improves enrolment and participation [8] and attendance at CR improves quality of life while also reducing hospital readmissions [9,10]. Within Queensland Health, a referral to CR is sought within 3 days of patient hospital discharge. The target for CR assessment is within 28 days of hospital discharge (if public inpatient) or referral receipt (if non-public inpatient referral).

Referrals and inclusion criteria for CR services

Patients may be referred to a CR service from inpatient or outpatient settings, self-refer or be referred by primary care/GPs. Attendance at CR is indicated when a patient is admitted to hospital for a cardiac event, as part of their cardiac care journey. All Queensland Health clinicians can generate referrals to send to phase II CR services via the Queensland Cardiac Outcomes Registry (QCOR) using their existing Novell Login.

During phase I, the clinician should seek to gain consent for referral however in some instances when weekend discharge occurs, this is not possible. When referral consent is not achieved, this should be identified within QCOR. When referral to an outpatient CR program does not occur, this should be recorded within QCOR using the options available. Some cardiac patients identified in the inpatient setting are not suitable for a referral to CR at the time they are seen due to reasons including, but not limited to:

- Medical [clinical instability, frailty, mental incapacity, palliative]
- Social [work or family commitments]
- Patient choice [attendance refusal, electing to self-manage]
- Operational [program availability and timing]

Eligibility for CR as described by the Australian Cardiovascular Health and Rehabilitation Association

(ACRA) core components document [11] include:

- Acute Myocardial infarction (both ST elevation and non-ST elevation; including patients with and without post-MI revascularisation e.g., those medically managed only,
- Revascularisation procedures
 - Coronary artery bypass graft surgery
 - Percutaneous coronary interventions
- Medically managed coronary artery disease (CAD), e.g., stable angina
- Heart Failure and cardiomyopathy conditions
- Valve device, replacement, and repair
- Permanent pacemaker and implantable defibrillator insertion
- Heart transplant and ventricular assistive devices

Additionally, the following conditions will likely benefit from CR:

- Atrial fibrillation
- Those at high risk for coronary artery disease
- Other vascular or heart diseases and interventions
- Familial hypercholesterolaemia

Assessment

Comprehensive assessment of a public CR patient should occur with direct entry into the QCOR web portal, located on the Queensland Health intranet site. Clinicians are granted access to the QCOR web portal upon request when identified as a Queensland Health CR service clinician. An assessment record will be automatically generated that can be uploaded into the ieMR (after printing and scanning) or printed and added to the paper medical record. A copy will also be uploaded into The Viewer overnight (section: Event Summaries), enabling access for the GP. Private CR programs will use their own documentation processes. The comprehensive assessment will include:

- Socio-demographic information
- Clinical history
- Exercise capacity using a 6MWT and other functional measures
- Lifestyle risk factors (physical activity, diet, smoking, alcohol)
- Psychosocial health (depression, anxiety (PHQ4) and quality of life (AQOL or short QOL)
- Medications

When a referral lacks detail or concern exists about the potential cardiac function of a patient who is placed as a high risk for exercise (e.g., pulmonary hypertension, suspicion of pericarditis), additional medical clearance should be sought from the referring practitioner, prior to exercise commencement. Participation in initial assessment and education should still occur in a timely way.

Modes of delivery

CR can be delivered locally via a variety of modes. CR can be delivered in-person at centres and the home or via telehealth including video and phone. Services may be offered via group programs or individual appointments. Local staffing capacity and capability will determine which modes of CR delivery will occur at each site, and the ability to record these is available in QCOR. To be considered a CR

program, all essential elements need to be provided (Table 1). If essential elements are lacking, a cardiac service is offered, not a CR program. When a local site is unable to accommodate a patient's CR program needs, referral to the Self-Management of Chronic Conditions (SMOCC) program should occur. SMOCC delivers a structured telephone based chronic disease program for patients with coronary artery disease (including myocardial infarction, angina, cardiac stenting, and cardiac bypass surgery) across Queensland.

Frequency and duration

CR programs within Queensland vary in frequency and duration as determined by local resourcing, with the most frequent dosage of 12 sessions [twice a week for 6 weeks]. Evidence suggests that the minimum exercise dosage to reduce all case mortality is 12 sessions [12]. This dosage however is considered low for patients with cardio-vascular disease (CVD). A dosage of at least 36 sessions has been shown to reduce the need for percutaneous coronary intervention in patients with CVD [12].

The ability to record the mode of delivery and dosage in QCOR exists. This will assist with determining the performance of different CR service delivery models within Queensland Health and assist with determining optimal dosage for patient outcomes.

Discharge

CR programs should manage patient flow to ensure that there is continued capacity to care for new patients. Discharge from CR should occur when client goals have been met and optimal attendance dosage attained.

Prior to CR discharge, all patients (and/or their family care givers) should, at a minimum:

- Be able to self-manage, recognise worsening symptoms, have an action plan in place and know how to use it,
- Know how to exercise safely according to their condition and participate in life-long activity,
- Know how to manage risk factors,
- Be in the care of a GP (and outpatient specialist if required).

Benchmarking and outcomes

By using QCOR, Queensland Health CR program clinicians are automatically participating in the Statewide collection of important data relevant to CR referrals, timeliness of the CR journey, performance, and clinical outcome measures. By using QCOR, the National Quality Indicators (13) are also being gathered.

QCOR is a data rich registry. Clinicians prospectively enter patient data electronically via the QCOR web portal and can access all assessment documentation, service level data and receive quarterly performance and clinical indicator reports, without duplication of data entry. Patient reported outcome measures, pathological investigations and functional measures are recorded at the initial and post program assessment, which can demonstrate the client outcomes following CR participation.

Clinical indicator reports measure referral, assessment, and patient journey timeliness. The timely journey indicator is a Hospital and Health Service (HHS) performance measure that informs the Chief Executive. The attribute sheet can be found on the Queensland Health intranet site: Hospital and Health Service Performance Measures.

Outpatient Summary reports measure monthly referral and assessment activity, referral sources, demographics, and assessment outcomes at each CR service delivery site. Both these reports are sent quarterly to the identified contacts at each CR service and HHS. An annual report is also provided describing activity and performance at a Statewide level. The annual report can be located here: [Queensland Cardiac Outcomes Registry \(QCOR\) | Statewide Cardiac Clinical Network | Statewide Clinical Networks \(health.qld.gov.au\)](https://health.qld.gov.au/queensland-cardiac-outcomes-registry-qcor).

To determine that patients are receiving best care when participating in CR programs, measures are required to monitor and evaluate performance of the health system and CR program. These indicators will measure the processes impacting care delivery (clinical and quality indicators) (Table 2), and the patient outcomes of CR attendance (Table 3). Table 3 also provides some CR program activity data which informs the understanding of patient needs at that service.

These indicators will be used to inform discussions between the Queensland Cardiac Clinical Network and Hospital and Health Services.

Table 2. QLD and National CR indicators evaluating processes of care.

Target	Measure	Description
≥60%	CI1. Timely overall journey (inpatient referral)	Proportion of QH inpatient referrals to and from HHS, where the patient was referred within 3days of discharge and participated in the initial assessment within 28days of discharge.
≥95%-100%	CI2. Timely referral NQI1. Referral to CR	Proportion of all QH inpatient referrals from HHS where the patient was referred within 3days of discharge.
≥60%	CI3. Timely assessment (inpatient referral) NQI2. Time to enrolment	Proportion of QH inpatient referrals to HHS where the patient participated in the initial CR assessment within 28days of discharge.
≥60%	CI4. Timely assessment (non-acute referral)	Proportion of all other referrals to HHS where the patient participated in the initial CR assessment within 28days of referral date.
≥60%	CI5. CR service uptake	% CR referrals that participate in an initial assessment
≥60%	CI6. CR program uptake	% CR participants completing an initial assessment and participating in at least one education and/or exercise intervention
100%	NQI3. Comprehensive assessment	% CR patients who commence CR receive a comprehensive assessment of CV risk factors
80%	CI7. Timely CR program commencement	Proportion of patients receiving an initial assessment and the first CR program intervention within 35 days of referral date.
100%	NQI4. Depression and anxiety screening and referral	% CR participants tested using PHQ4 at initial assessment and referred for counselling if symptoms are identified
100%	NQI5. Assessment of smoking and referral	% CR participants assessed at initial assessment and referred for counselling if they are a current or recent smoker
≥80%	CI8. CR program completion NQI9. Re-assessment	% CR participants attend at least one of the CR program components and a post program assessment [initial assessment/post program assessment]
100%	NQI10. Care transition	% CR patients with documented communication which outlines patient risk factors and ongoing management plan between CR program and ongoing care provider (GP).

CI: QLD clinical Indicator; CR: cardiac rehabilitation; HHS: Hospital and Health Service; NQI: National Quality Indicator; PHQ4: Patient Health Questionnaire 4; QH: Queensland Health; 6MWT: Six Minute Walk Test

Table 3. QLD and National CR measures CR program activity and evaluating patient outcomes following CR program attendance.

Target	Measure	Description
Referral and access to CR service		
-	PO1. Number of referrals (total)	Number of referrals received by CR program /month
-	PO2. Average wait time for CR program commencement	Number of days until CR program commencement from receipt of referral/referral date
Initial Assessment		
-	PO3. Number initial assessments (total)	Number of initial assessments completed (signed and submitted) by CR program /month
100%	PO4. Number of initial assessments using a PHQ4	% CR participants tested / not tested using PHQ4
-	PO5. Result of PHQ4 at initial assessment	% CR participants meeting none, mild, moderate, and severe categories of PHQ4
100%	PO6. Number of initial assessments using the AQOL and SQOL	% CR participants tested using AQOL/Short QOL
-	PO7. Result of AQOL and SQOL at initial assessment	% CR participants meeting relevant criteria for different categories of AQOL/SQOL
-	PO8. Number of patients sufficiently active at initial assessment	% CR participants sufficiently active, insufficiently active, and inactive
100%	PO9. Number of initial assessments using a 6MWT	% CR eligible participants tested using 6MWT [eligible = those participants receiving an exercise component of CR]
-	PO10. 6MWT result at initial assessment	Median result presented as distance walked in metres, with minimum and maximum distance listed
Post Program Assessment		
	PO11. Number post program assessments (total)	Number of post program assessments completed (signed and submitted) by CR program /month
100%	PO12. Number of post program assessments using a PHQ4	% CR participants tested/ not tested using PHQ4
	PO13. Result of PHQ4 at post program assessment	% CR participants meeting none, mild, moderate, and severe categories of PHQ4
-	PO14. PHQ4 change from initial assessment	% CR participants demonstrating improvement in PHQ4 [any improvement]

100%	PO15. Number of post program assessments using the AQOL and SQOL NQI8 Assessment of Health related QOL	% CR participants tested using AQOL/Short QOL
-	PO16. Result of AQOL and SQOL at post program assessment	% CR participants meeting relevant criteria for different categories of AQOL/SQOL
-	PO17. AQOL and SQOL change from initial assessment	% CR participants demonstrating improvement in AQOL and SQOL [any improvement] according to categories
-	PO18. Number of patients sufficiently active at post program assessment	% CR participants sufficiently active, insufficiently active, and inactive
100%	PO19. Number of post program assessments using a 6MWT NQI7. Assessment of exercise capacity	% CR eligible participants tested using 6MWT [eligible = those participants receiving an exercise component of CR]
-	PO20. Result of 6MWT at post program assessment	Median result presented as distance walked in metres, with minimum and maximum distance listed
-	PO21. Activity and exercise assessment change from initial assessment	% CR participants demonstrating clinically significant improvement [≥ 25 m] in 6MWT % CR participants demonstrating improvement in activity level [any improvement]

AQOL: Australian Quality of Life tool; CI: QLD clinical Indicator; CR: cardiac rehabilitation; HHS: Hospital and Health Service; NQI: National Quality Indicator; PHQ4: Patient Health Questionnaire 4; PO: Performance Outcome; QH: Queensland Health; 6MWT: SQOL: Short Quality of Life tool; Six Minute Walk Test

Workforce

Patients require access to a multidisciplinary team of trained, experienced, health professionals who routinely see patients following a cardiac event / with cardiac disease. Often, the CR nurse may assume the CR coordinator role and be the sole clinician assigned to care for these patients. This is typical of rural and small centres. Access to allied health staff may occur via referral internally to Queensland Health staff or externally to local service providers. It is important that appropriate access to the full complement of staff and services occurs to ensure that a full CR service is provided.

Clinical Roles

Medical specialist

Most CR programs do not have a medical specialist in attendance however it is important to maintain a good working relationship with referring specialists and treating clinicians. When uncertainty exists regarding patient referral information, stability for CR program entry or any adverse events that might occur during the CR program, it is expected that contact is made with the specialist. It is also important to communicate at CR discharge so that an ongoing management plan is communicated to the specialist and GP to ensure transition of care.

Nursing

Responsible for providing clinical expertise in the comprehensive assessment, care planning and management of patients with cardiac disease to achieve optimal outcomes and goals. Includes the consideration of the patient's complex needs and comorbidities and interpretation of relevant investigations. Provides clinical advice and education to patients and their carers to enable them to understand their cardiac condition, modify their cardiac risk factors and learn to self-manage their heart health.

Allied Health

Allied health staff may be part of the team or accessed by referral. While it is recognised that not all centres will be able to maintain allied health specifically for a CR service, the strongest evidence for achieving optimal outcomes is based on specialised CR interdisciplinary care.

Physiotherapist / Accredited Exercise Physiologist

Physiotherapists or accredited exercise physiologists are responsible for: comprehensive assessment, interpretation of relevant investigations, evaluation of exercise capacity, consideration of the patient's complex needs and comorbidities, and prescribing individual and group exercise programs in accordance with evidence-based guideline, and carer education regarding physical activity and exercise specific to the individual's needs.

Pharmacist

Pharmacists with expertise in cardiac disease management are responsible for optimisation of medication management. This includes undertaking medication histories, medication reviews, assessment, and resolution of medication related problems, supporting medication titration (in the event of heart failure clients) in accordance with evidence-based guidelines, providing patient and carer education, supporting medication adherence, and liaison with community health providers to promote continuity of health care.

Dietitian

Assessment includes a diet history of client; calculation of estimated dietary intake; comparison of actual dietary intake to recommended dietary intake and screening for malnutrition; prescription of specific diets based on the identified needs of the individual and education. Patients with chronic heart failure and a malnutrition score of greater than 2 are a priority for dietetic intervention [14].

Occupational therapist

Occupational therapists assist independence for patients with chronic disease through personal goal setting; energy conservation and work simplification training; and home modifications for the purpose of maximising function, safety and falls prevention.

Social worker

Social workers may provide advice and assistance with practical issues and concerns; information and assistance with financial and legal matters; end of life planning; and use intervention strategies such as stress management and relaxation, counselling, and support.

Psychologist

Psychologists provide support for patients with chronic disease with psychological distress such as depression and anxiety.

Clinical Administration support

Administrative support may include telephone reception, scheduling of patients, data entry, clinical letters and minute taking.

Statewide CR Program advisor

The Statewide CR program advisor is accountable to the Queensland Cardiac Clinical Network and coordinates CR services across Queensland to ensure high standards of practice and further service development. The purpose is to support high standards of care by developing and maintaining systems of evaluation; service improvement initiatives; workforce training and education; service planning and development.

Appendix 1

Further resources

Qld Cardiac Rehabilitation Services

Webpage to be built but will be available on the Queensland Health intra and internet pages.

Statewide Cardiac Clinical Informatics Unit

[Statewide Cardiac Clinical Informatics Unit | Queensland Health](#) provides access to the Queensland Cardiac Outcomes Registry. Permission is required to for CR clinicians to access specific service details and worklists.

The QCOR annual report can be found here: [Queensland Cardiac Outcomes Registry \(QCOR\) | Statewide Cardiac Clinical Network | Statewide Clinical Networks \(health.qld.gov.au\)](#)

HEART Online

<http://www.heartonline.org.au> provides clinicians with assessment and management tools for use with patient with chronic heart failure and cardiac disease. Included are some pertinent resources that can also be downloaded to assist in care.

ACRA

[ACRA – Australian Cardiovascular Health and Rehabilitation Association](#) is the peak body which provides support and advocacy for multidisciplinary health professionals to deliver evidence-based best practice across the continuum of cardiovascular care.

Heart Foundation

[Home | The Heart Foundation](#) aims to improve heart disease prevention, detection, and support for all Australians.

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