

# Queensland Health Cardiac Rehabilitation Services: Model of Care Document

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## Summary

The Clinical Standard for Cardiac Rehabilitation Services describe the core elements of cardiac rehabilitation (CR) service delivery in Queensland Health (QH) facilities (1). Phase II CR programs however are delivered flexibly across Queensland from a variety of settings with different staffing profiles and at different frequency and dosage. Often local Hospital and Health Service (HHS) staffing resources, capacity, and capability influence the structure and delivery content of phase II CR programs. The Queensland Cardiac Outcomes Registry (QCOR) enables Statewide data collection to measure patient outcome measures as well as health system and CR program performance measures. QCOR has the capacity to capture model of care information, assisting with identification of evidence-based, patient-centred programs to assist with service planning, improvement and delivery that are effective in improving patient outcomes.

## Objective

This document describes the patient journey through the models of care that are commonly delivered from Queensland phase II CR programs and their interactions with QCOR.

This document should be read in conjunction with the 'Clinical Standard for Cardiac Rehabilitation Services: Queensland Health', QCOR user guides and the 'CSANZ position statement: A clinical guide for assessment and prescription of exercise and physical activity in cardiac rehabilitation'.

## Patient journey through phase II CR programs

Whilst phase II CR programs are delivered flexibly across Queensland, a common process underpins the patient journey and is described in Figure 1.

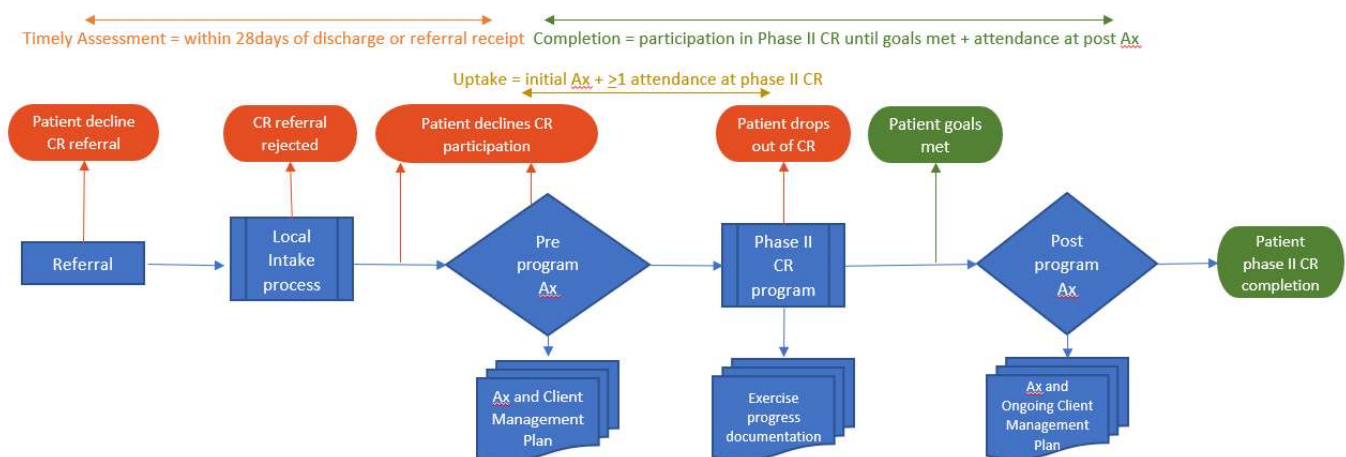


Figure 1. Patient journey through phase II CR programs

## Referral

A referral to phase II CR programs can occur via the inpatient and outpatient setting, self-referral or by primary care/GPs/private specialists. QH inpatient referrals are made electronically via QCOR. All other referrals are entered manually by the phase II CR program. Referrals are also communicated via the SMART referral process and triaged according to local HHS intake processes. Local processes determine how data is entered onto the systems that support appointment booking and clinic attendance. Clinicians may choose to decline a referral if the information suggests that the patient does not meet the inclusion criteria.

## Pre-program assessment

QCOR is used for direct entry of the phase II CR assessment information. Once the minimum data requirements are met, the information can be signed and submitted. This action generates an initial assessment and client management plan document that is automatically uploaded onto The Viewer overnight, and after printing and scanning can be included into the medical records. A timely assessment is considered to occur within 28 days of hospital discharge or referral receipt.

The risk factor assessment is usually performed by the CR coordinator and/or nurse and may be conducted via telehealth or within a centre. This assessment always occurs prior to a physical assessment. The physical assessment (performed by a physiotherapist or accredited exercise physiologist) is usually performed face to face, and QCOR will soon have the capacity (late 2023) to record the physical assessment. Currently it is encouraged that the 6MWT data is entered into the system when that information is available via an amended assessment.

At initial assessment completion, patient goals are determined, and an appropriate model of care identified for phase II CR participation. The patient may choose to decline participation in a CR program prior to or at completion of that assessment.

## Model of Care options

### Exercise triage

Exercise triage determines whether the patient agrees to or is suitable for a phase II CR program. At times exercise is absolutely contraindicated (Table 1) or additional information is required prior to commencement.

**Table 1. Absolute and relative contraindications to exercise and physical activity\***

| Absolute contraindications  | Relative contraindications <sup>#</sup>  |
|---|--|
| Progressive worsening of exercise tolerance or dyspnoea at rest or on exertion over previous 3-5 days (uncompensated heart failure) | 2kg increase in body mass over previous 1-3 days suggestive of heart failure   |
| Unstable angina   | Concurrent continuous or intermittent dobutamine therapy                       |
| Blood glucose < 4.0 mmol/L or > 15.0 mmol/L with symptoms of weakness/tiredness, or with ketosis                                    | Decrease in systolic blood pressure with exercise                              |
| Acute systemic illness or fever   | NYHA functional class IV   |
| Recent embolism (<4 weeks)  | Complex ventricular arrhythmia at rest or appearing with exertion              |
| Thrombophlebitis  | Supine resting heart rate ≥100 bpm   |
| Active pericarditis or myocarditis*   | Moderate aortic stenosis   |
| Severe symptomatic aortic stenosis  | Blood pressure >180/110 mmHg (evaluated on a case-by-case basis)               |
| Regurgitant valvular heart disease requiring surgery  | Sternal Instability Scale grade 1-2 (minimally to partially separated sternum) |
| Previously undiagnosed atrial fibrillation  |  |
| Sternal Instability Scale grade 3 (completely separated)  |  |
| Resting heart rate >120 bpm   |  |
| Orthostatic blood pressure <u>drop</u> of >20 mmHg with symptoms  |  |
| Third-degree atrioventricular block without pacemaker   |  |

NYHA, New York Heart Association

\* During recovery, limit to light to moderate intensity exercise until left ventricular dysfunction has resolved

<sup>#</sup>Relative contradictions are a guide only and should be combined with clinical judgement at every session. If in doubt, medical advice should be sought before commencing an exercise or physical activity assessment or session.

\*Adapted from HeartOnline<sup>54</sup>; American College of Sports Medicine Guidelines for Exercise Testing and Prescription<sup>22</sup>; El-Ansary et al<sup>34</sup>

CSANZ position statement 2023 (Verdicchio et al 2023)

## Exercise program

If an exercise program is indicated and to be conducted by a clinician within a QH facility, a variety of delivery modes are available. Where applicable a scheduled start date should be indicated. Some QH programs refer to exercise providers external to QH. This can be recorded during exercise triage.

### Brief intervention

A brief intervention is a one-off interaction between the patient and clinician, with no further plans for follow up. The patient is given information about maintaining physical activity and reducing sedentary activity at the time of initial assessment, to manage independently.

A brief intervention tends to occur if the patient is already meeting physical activity guidelines.

### Centre-based program

A real-time interaction between the clinician and patient where the patient attends a centre to participate in and progress exercise according to a structured exercise prescription. These programs also include formal exercise groups delivered from a community setting (e.g. walking group or community centre), where a clinician is in attendance. Sessions may occur in a group setting or individually with the clinician.

### *Telerehabilitation (video) program*

This involves a real-time interaction between the clinician and patient to deliver and progress exercise according to a structured exercise prescription at a distance using a video-call format. This may occur in a group environment or individually.

### *Hybrid program*

A hybrid program involves the combination of two or more delivery modes that may occur at the same time (attendance at a centre-based program once a week and telerehabilitation program once a week for 6 weeks) or sequentially (attendance at a centre-based program for 3 weeks before beginning a home exercise program for 4 weeks with follow up).

### *Home program only*

The home program service delivery mode captures those patients managing exercise at home via a case management approach where telephone is used to monitor and progress exercise with clinician guidance, or the patient self-directs activity progression. This mode of exercise program requires repeated interactions and follow up with a clinician. This also includes those occasions where exercise is delivered with the physiotherapist or exercise physiologist in attendance within the home environment.

## **Education program**

Education is always delivered as part of phase II CR programs and can be captured via a variety of delivery modes. Where applicable a scheduled start date should be indicated.

### *Brief intervention*

If a patient chooses to not progress to a phase II CR program, at a minimum a brief intervention will occur. This is when education is delivered to a patient at the time of assessment, with no plans for additional follow-up.

### *Centre-based program*

A real-time interaction between clinicians and patients where the patient attends a centre to participate in a structured education program. Programs may continue over a period of weeks or include a fast-track education day. Sessions may occur in a group setting or individually with the clinician.

### *Telerehabilitation (video) program*

Telerehabilitation (video) is the real time interaction between clinician and patient to participate in an education program at a distance using a video-call format. This can be delivered in a group environment or individually. Programs may continue over a period of weeks or include a fast-track education day.

### *Telerehabilitation (telephone) program*

Telerehabilitation (telephone) is the real time interaction between clinician and patient to participate in a structured education program at a distance using telephone format. This mode of delivery requires repeated interactions and follow up with a clinician. An example of this program is the Self-Management of Chronic Conditions (SMoCC) program.

### *Hybrid program*

A hybrid program involves the combination of two or more delivery modes that may occur at the same time or sequentially.

### *Self-directed*

A self-directed education program occurs when the patient reviews clinician directed education content in their own time and at their own pace. This includes a web platform education hub, or emailed video resources. This does not include My Heart My Life resource which is an expected deliverable from the initial assessment.

### **Additional referrals**

At times, further referrals are required to allied health, nursing, or specialist staff to support patients to achieve their goals. These professionals can be identified in this section however an automatic referral is not generated. Local referral processes will determine the approach to generating these referrals. Local record keeping processes will capture whether attendance occurred and what outcomes were achieved.

## **Phase II CR program**

Uptake into a phase II CR program occurs once a pre-program assessment is completed and attendance at, at least one identified program session occurs. Whilst a patient is attending phase II CR, all attendance information should be recorded in the medical record according to local HHS policies. Most CR programs capture detailed attendance information and progression via local exercise sheets, which upon program completion are uploaded into the medical record. A detailed entry into the medical record is made if an adverse event occurs at the time of attendance, however local policies will inform this practice. Please note, QCOR is not to be used for managing the patient whilst attending phase II CR.

## **Post Program Assessment**

After a patient has achieved their goals from attending CR, attendance at a post-program assessment is encouraged to determine patient outcomes and progress following intervention. Currently these assessments are performed anytime from the final day of CR program attendance up to 4 weeks post program completion. Most programs choose to perform this on the final day to maximise attendance rates. To date, no timeframe has been outlined by QH.

Prior to post program assessment submission, the attended model of care is confirmed. This enables clinician reporting of patient outcomes and service performance according to the different models of care, hence supporting any service improvement analysis and improvements. All assessment information is entered into QCOR to generate a medical record and ongoing management plan, upon signing and submitting.

### **Model of Care options**

If the model of care is completed as planned the exercise and education program detail auto-populates and cannot be overridden. However, if the actual model of care differed from what was intended, the opportunity exists to record this in addition to the reason for the change. Confirmation of the start and end dates is required in addition to recording the total sessions attended, so that a frequency and dosage count can be auto calculated. To understand the exercise prescription provided during the CR program, further detail is required regarding mode of exercise and the intensity of the aerobic exercise. It is encouraged to review the CSANZ position statement 'A clinical guide for assessment and prescription of exercise and physical activity in cardiac rehabilitation' to understand the exercise prescription guidelines for CR.



## **Mode of exercise**

CR should incorporate a range of exercise and physical activity options, with the aim to achieve moderate-to-vigorous intensity exercise and physical activity to receive the optimal health benefits and prevent recurrent CVD events. Exercise prescription should follow the FITT-VP [Frequency, Intensity, Time, Type, Volume, and Progression] principles (Verdicchio et al 2023).

Options to select one or multiple modes exist within QCOR. Please select the option that was predominately used during the phase II CR program.

### *Aerobic continuous exercise*

Aerobic continuous exercise involves any activity that uses large muscle groups that can be maintained continuously and is rhythmic in nature (e.g. walking according to an exercise prescription, treadmill, bike, arm ergometer). Moderate intensity continuous training (MICT) is beneficial to and safe for all patients with cardiac disease and is strongly recommended.

### *Aerobic interval exercise*

Aerobic interval exercise involves any activity that uses large muscle groups that can be maintained continuously and is rhythmic in nature, however, is delivered at intervals with timed bouts of intense exercise with rest periods, whilst performing the same exercise activity (e.g. High Intensity Interval Training (HIIT)). This style of exercise is becoming more widely adopted as the evidence strengthens.

### *Resistance/strength exercise*

Resistance training involves the contraction of one or more muscle groups against an external resistance (e.g. weights) with the intention to enhance muscular adaptations such as strength, mass and endurance. Prescription should align with the principles of individualisation, periodisation, and progression.

## Intensity of aerobic exercise

Intensity is the level of effort that the patient should be exercising at based on assessment of their exercise capacity. Within many phase II CR programs delivered from QH, the Borg and modified RPE scales are used to monitor intensity during sessions. This will be captured within QCOR as low, moderate, high, or very high (Table 2).

**Table 2. Aerobic exercise intensities**

|                                      |                    | Light intensity | Moderate intensity                            | High/Vigorous intensity    | Very High intensity |
|--------------------------------------|--------------------|-----------------|---|----------------------------|---------------------|
| Aerobic exercise / physical activity | VO2max (%)         | <40             | 40-69   | 70-85                      | >85                 |
|                                      | HRmax (%)          | <55             | 55-74   | 75-90                      | >90                 |
|                                      | HRR (%)            | <40             | 40-69   | 70-85                      | >85                 |
|                                      | 6MWT avg speed (%) |                 | 80  | 100                        |                     |
|                                      | Borg RPE           | 10-11           | 12-13   | 14-16                      | 17-19               |
|                                      | Modified RPE       | 2-3             | 4-6   | 7-8                        | 9                   |
|                                      | Talk test          | Able to sing    | Able to talk in full sentences/unable to sing | Unable to talk comfortably |                     |

Adapted from CSANZ position statement 2023 (Verdicchio et al 2023).

## Completion

Completion of CR involves the patient attending the phase II CR program until their CR goals are met and attendance at the post program assessment. If a patient chooses not to attend a post program assessment, the reason for this can be recorded in QCOR. Whilst the patient may have met their CR goals, for performance reporting purposes, they did not complete the phase II CR program.

Rarely a patient will not achieve their CR goals within the time frame offered by the HHS, and continued attendance at the phase II CR program is no longer possible. Discharge from the phase II CR program occurs and if post program assessment attendance occurs, for performance reporting purposes, completion did occur.

Once no further interaction with the patient is required, their information can be removed from the QCOR worklist using the complete button. If the post program assessment was not performed, the model of care information will present when using the complete button. It is encouraged to complete all patients from the worklist to keep the worklist manageable. Patients should be discharged from phase II CR to enable continued access for new patients.

## Conclusion

Data can be used to monitor progress toward delivering evidence-based, patient-centred programs to assist with service planning, improvement and delivery that are effective in improving patient outcomes. The Statewide Cardiac Clinical Informatics Unit regularly circulate reports measuring progress toward the clinical and quality indicators however services can also seek additional information to support individual quality improvement and business case agendas. The Queensland Cardiac Rehabilitation program advisor is available to support services with any of these activities. By capturing the different models of care, patient outcomes can be explored, and system and program performance monitored, identifying opportunities for investment and disinvestment.

## References

1. Department of Health Queensland. *Clinical Standard for Cardiac Rehabilitation Services: Queensland Health*. Queensland: Queensland Government; 2023.
2. Verdicchio, C., Freene, N., Hollings, M. et al. *A clinical guide for assessment and prescription of exercise and physical activity in cardiac rehabilitation. A CSANZ position statement*. Heart, Lung and Circulation, 2023. <https://doi.org/10.1016/j.hlc.2023.06.854>