National Cardiac Rehabilitation Quality Indicators: Data Dictionary

Version 10.0

June 2021

National Heart Foundation of Australia (National Cardiac Rehabilitation Measurement Taskforce*)*
National Cardiac Rehabilitation Quality Indicators: data dictionary. Version 10.0. June 2021

Acknowledgement: This document was based on:

- National Heart Foundation of Australia, NSW Agency for Clinical Innovation (ACI) and Cardiovascular Health and Rehabilitation Association NSW/ACT. NSW cardiac rehabilitation quality indicators data dictionary and definition guide 2017.
- International Council of Cardiovascular Prevention and Rehabilitation (ICCPR). International Cardiac Rehabilitation Registry. Data elements definitions 2.0. 2020
- AuSCR Data Dictionary. Version 6.0. 2019 Available online: https://auscr.com.au/health-professionals/variables-program-bundles/

The National Cardiac Rehabilitation Quality Indicators were developed by a Taskforce group originally comprising the following members in October 2019:

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Contents

Preamble

Care *quality* is an increasing focus of funders, providers and consumers of healthcare. Measuring quality and the clinical effectiveness of health services is important for ensuring accountability of healthcare providers, enhancing patient outcomes, minimising adverse events and aligning care with what patients want and the best available evidence.

Quality indicators are explicitly defined statements that aim to measure adherence to aspects of evidence-based care that are deemed necessary for reaching optimal patient outcomes and provide a basis for quality improvement projects.[1,2]

The need for Australian cardiac rehabilitation (CR) quality indicators was determined at a Think Tank on improving CR measurement, which was held on 26 September 2018 at the South Australian Advanced Health Research and Translation Centre and was attended by researchers, clinicians, policymakers and consumers with representation from each state and territory. The aim of the Think Tank was to discuss state-based CR quality activities and future national directions and it was agreed that a national set of quality indicators for CR service measurement was required.

A Taskforce, co-chaired by the National Heart Foundation of Australia and the Australian Cardiovascular Health and Rehabilitation Association (ACRA), was established to progress the development of the quality indicators. The purpose of the quality indicators is to set recommendations for what should be collected and reported on at a minimum so that CR programs can collect uniform data.

The Taskforce developed a draft set of 11 quality indicators and disseminated these to ACRA members for feedback, via email and at the 2019 ACRA Annual Scientific Meeting, on their perceived importance to: (i) clinicians, (ii) managers, and (iii) patients, as well as the feasibility of collecting the indicators. Based on feedback, one indicator (waist circumference) was removed. This process has been published in the following editorial:

- *Gallagher R, Thomas E, Astley C, Foreman R, Ferry C, Zecchin R, Woodruffe S. Cardiac Rehabilitation Quality in Australia: Proposed National Indicators for Field-Testing. Heart, Lung and Circulation. 2020 Epub Apr 30.*

This document provides the proposed 10 quality indicators developed by the Taskforce along with a description of how the indicators can be defined and measured. To collect this information a number of data elements need to be collected at two time points – pre and post-CR.

[1] Spertus JA, Eagle KA, Krumholz HM, Mitchell KR, Normand SL and American College of Cardiology/American Heart Association Task Force on Performance M. American College of Cardiology and American Heart Association methodology for the selection and creation of performance measures for quantifying the quality of cardiovascular care. *J Am Coll Cardiol*. 2005; 45: 1147-56.

[2] Campbell SM, Braspenning J, Hutchinson A and Marshall M. Research methods used in developing and applying quality indicators in primary care. Quality & Safety in Health Care. 2002; 11: 358-64.

The purpose of this document is to guide CR services in the type of information they should collect on every patient referred to their service. We provide a standardised format for data collection to ensure information is collected consistently across sites and provides a basis for comparison and reporting across sites. The purpose of the national CR quality indicators is not to duplicate effort but to ensure a) services that do not collect data have guidance on what to collect, b) services that are collecting data are doing so in a standardised way and c) services go beyond collecting data to measuring care quality against the quality indicators described within this document.

The National Cardiac Rehabilitation Measurement Taskforce is NOT collecting or collating this information. Services are required to collect and securely save their own data. Each state is at different levels of organisational readiness regarding how they collect and collate this information. The Taskforce will be evaluating the feasibility, acceptability, and usefulness of the quality indicators in the future.

Using the data dictionary

This data dictionary is divided into 2 sections:

- **Section A: the data elements**
  - To calculate the quality indicators, each service needs to collect several data elements for each eligible CR patient at two time points: Pre and post the CR program
  - To assist with standardised data collection, each data element contains the following information: reference number, common name, description, codes and values, help notes.

- **Section B: the quality indicators (with reference to Section A as needed)**
  - Once the data elements have been collected, they can be used to determine the quality indicators over a determined reference period (the recommended minimum period of assessment is annually).

The following terms are frequently used throughout the document and are defined below.

Table 1. Common terms

Term	Definition
CR program	A CR program that provides exercise training, health behaviour change and education regarding lifestyle risk factor management, psychosocial health, medical risk factor management, and cardio-protective medications assessment and monitoring.
Eligibility	Eligible patients for the purpose of measuring the quality indicators include patients hospitalised with any of the following procedures/conditions or interventions listed below: • Acute myocardial infarction (STEMI, non-STEMI) (see Appendix A for ICD codes) • Percutaneous coronary intervention (see Appendix A for ICD codes) • Coronary artery bypass surgery (see Appendix A for ICD codes) • Valve surgery (see Appendix A for ICD codes) • Atrial fibrillation, heart failure, unstable angina, arrhythmia, angina pectoralis, congenital heart disease, automatic implantable cardioverter defibrillator
Enrolment	Enrolment is defined as patient registration into the CR program and attendance at the first CR program visit (including an assessment session).
Comprehensive assessment	A comprehensive assessment is defined as the assessment of exercise capacity, lifestyle risk factors (smoking, diet, physical activity), psychosocial health status, clinical risk factors (e.g. blood pressure) and use of cardio-protective medication. Additionally, it should include assessment of the patient's secondary prevention needs.

	The assessment is finalised when the discussion and agreement of individualised goals to be achieved during CR has been completed, with a written self-management plan and a copy made available to the patient and/or family.
Completion	To complete the CR program a patient must have participated in at least some of the CR intervention components (guided by a health professional) and have had a documented re-assessment.
Health related quality of life (HRQoL)	HRQoL is a patient reported outcome measure that takes into account the patient's emotional, social, and physical well-being.
Individualised management plan	An individualised management plan is designed to promote the safe and timely transition of patients between different health care providers and across care settings.
Reference period	Reference period is defined as the time span of data collection that is included in analysis. The recommended minimum period of assessment is annually.
Referred	A referral is defined as an official written or electronic communication on behalf of any health care provider (including CR staff) to CR.

Summary – Data elements (Section A)

<table>
<tr><th colspan="2">Overview of data elements</th></tr>
<tr><td colspan="2">Pre-program</td></tr>
<tr><td>

Identifiable information

1. Patient record ID
2. First name
3. Last name
4. Hospital medical record number
5. Medicare number
6. Date of birth

Socio-demographic information

7. Age
8. Sex Recorded at Birth
9. Aboriginal and Torres Strait Islander status
10. Interpreter needed
11. Postcode

</td><td>

Referral information

12. Hospital discharge date
13. CR referral date
14. Principal referral diagnosis

Initial assessment

15. Initial assessment date
16. Depression screening
17. Depression referral
18. Smoking status
19. Smoking referral
20. Medication adherence
21. Exercise capacity
22. Health-related quality of life

</td></tr>
<tr><td colspan="2">Post-program</td></tr>
<tr><td>

Re-assessment

23. Re-assessment date
24. Re-assessment depression screening
25. Re-assessment depression referral
26. Re-assessment smoking status
27. Re-assessment smoking referral
28. Re-assessment medication adherence
29. Re-assessment of exercise capacity
30. Change in exercise capacity
31. Re-assessment of health-related quality of life
32. Change in health-related quality of life
33. Care transition

</td><td>

Service delivery information

34. Mode of program delivery
35. Frequency of program delivery
36. Content of program
37. Number of supervised exercise sessions attended
38. CR completion
39. Reason for CR non-completion

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</table>

Summary - Australian Cardiac Rehabilitation Quality Indicators (Section B)

The table below provides a summary of the 10 quality indicators for CR. Some indicators aim to evaluate processes of care (process indicators,) while others evaluate the outcomes of CR (outcome indicators). These are colour co-ordinated as per the key below the figure.

Overview of cardiac rehabilitation quality indicators
QI-1. Referral to CR
Eligible in-patients are referred to cardiac rehabilitation within 3 calendar days after hospital discharge.
QI-2. Time to enrolment
Eligible in-patients commence cardiac rehabilitation within 28 calendar days after hospital discharge.
QI-3. Comprehensive assessment
Patients who commence cardiac rehabilitation receive a comprehensive assessment of cardiovascular risk factors.
QI-4. Depression screening
Patients who commence cardiac rehabilitation are screened for depression at initial and re-assessment and offered counselling (or referral to counselling) if symptoms are identified.
QI-5. Assessment of smoking
Patients who commence cardiac rehabilitation are assessed for smoking use at initial and re-assessment and offered smoking cessation counselling (or referral to counselling) if they are a current or recent smoker.
QI-6. Assessment of medication adherence
Patients who commence cardiac rehabilitation are assessed for medication adherence at initial and re-assessment.
QI-7. Assessment of exercise capacity
Patients who commence cardiac rehabilitation have an initial assessment and re-assessment to determine exercise capacity change.
QI-8. Assessment of health-related quality of life
Patients who commence cardiac rehabilitation have an initial assessment and re-assessment to determine health-related quality of life change.
QI-9. Re-assessment
Patients who participate in cardiac rehabilitation receive a comprehensive re-assessment of their cardiovascular risk factors.
QI-10. Care transition
Patients and ongoing care providers are provided with a report which outlines patient risk factors and an individualised ongoing management plan.
Process indicator / Outcome indicator

SECTION A

PRE-PROGRAM

The following information should be collected for each eligible CR patient and stored securely by each service according to institutional protocols and should not be shared beyond the service-level unless clear data sharing approvals and governance structures are in place.

IDENTIFIABLE INFORMATION

Patient record ID

Reference number	1
Description	This number represents a unique identifier that indicates which clinical record this patient relates to but does not identify the patient's identity.
Codes and values	Free text
Help notes	Services should ensure patient record IDs are provided in a systematic and consistent way. Each patient record ID is unique for each episode of care. This number is useful to identify records whilst observing confidentiality of patient information. This should not be the patients MRN or URN.

First name

Reference number	2
Description	The person's identifying name within the family group or by which the person is socially identified, as represented by text.
Codes and values	Free text
Help notes	The format in which it is written should be the same as that indicated by the person (e.g. written on a form) or in the same format as that printed on an identification card, such as a Medicare card, to ensure consistent collection of name data.

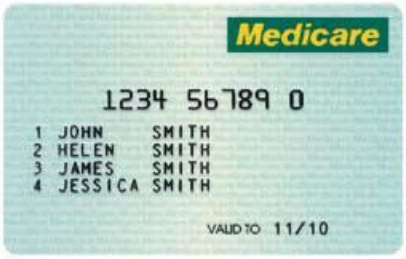
Last name

Reference number	3
Description	That part of a name a person usually has in common with some other members of his/her family, as distinguished from his/her first or given names, as represented by text.
Codes and values	Free text
Help notes	The full family name should be recorded. The format in which it is written should be the same as that printed on an identification card, such as a Medicare card, to ensure consistent collection of name data.

Hospital medical record number (MRN)

Reference number	4
Description	Person identifier unique within an establishment or agency also known as Unit Record Number (UR) and Patient Record Number.
Codes and values	Free text.
Help notes	The MRN is collected to assist in individual patient identification and to identify potential duplicates in the database. It is useful for linking the CR patient with their hospital record to determine the number of eligible patients that were referred to CR.

Medicare number (once data-linked)

Reference number	5
Description	Number on the person's Medicare Card used as an Australian Commonwealth Government identifier.
Codes and values	Free text
Help notes	The full Medicare number for an individual should be recorded, without including the person (individual reference) number. For example, John Smith's full Medicare number is 1234567890  For overseas visitors or patients without Medicare Card please leave blank

Date of birth

Reference number	6
Description	The date of birth of the person.
Codes and values	DD/MM/YYYY
Help notes	If day of birth is unknown, use 01 for the day (01/MM/YYYY). If the day and month of birth are unknown, use 01 for the day and month (01/01/YYYY).

SOCIO-DEMOGRAPHIC INFORMATION

Age

Reference number	7
Description	The age in completed years at the time of CR referral.
Codes and values	DD/MM/YYYY
Help notes	Subtract current date from DOB

Sex Recorded at Birth

Reference number	8
Description	The sex recorded at birth (male, female, non - binary) that the person identifies as.
Codes and values	1 Male 2 Female 3 Non-binary sex – people who reported their sex as non – binary sex 99 Not stated / inadequately described
Help notes	Sex recorded at birth should be captured as it is written in the medical record. If there is a conflict, document with the self-identified sex recorded at birth, i.e. sex recorded at birth as reported by the person.

Aboriginal and Torres Strait Islander status

Reference number	9
Description	Whether a person identifies as being of Australian Indigenous, Aboriginal or Torres Strait Islander origin.
Codes and values	1 No 2 Yes Aboriginal origin 3 Yes Torres Strait Islander origin

	4 Yes both Aboriginal and Torres Strait Islander origin 5 Missing/not stated
Help notes	Aboriginal or Torres Strait Islander origin status should be captured as it is written in the medical record. If there is a conflict, document with the self-identified origin, i.e. origin as reported by the person.

Interpreter needed

Reference number	10
Description	Whether an interpreter service is required for the patient to participate in CR.
Codes and values	1. Yes 2 No
Help notes	Includes whether an approved interpreter service is required. Any form of sign language should also be coded as 'Yes'.

Post code

Reference number	11
Description	The numeric descriptor for a postal delivery area, aligned with locality, suburb or place for the address of a person. METeOR Identifier: 611398
Codes and values	Free text
Help notes	Leave blank when the locality name or geographic area for a person is not known, or when a person has no fixed address. For person's visiting from overseas, record their local Australian address.

REFERRAL INFORMATION

Please note that all referred patients' information should be entered (not just those who attend the initial assessment) so that the proportion of referred patients enrolling can be assessed.

Hospital discharge date

Reference number	12
Description	The date the patient was discharged from an acute episode of care.
Codes and values	DD/MM/YYYY
Help notes	The patient may have several inpatient separations during a single acute episode of care (i.e. short stay unit to ward to ICU to ward). The final date of discharge from the acute episode of care should be used. May source from patient's medical record, CR referral log.

CR referral date

Reference number	13
Description	Date CR referral document was signed by referring healthcare provider
Codes and values	DD/MM/YYYY)
Help notes	May source from patient's medical record, CR referral log, GP letter

Principal referral diagnosis/Interventions

Reference number	14a
Description	The referral diagnosis refers to the most recent diagnosis preceding the patient's referral to cardiac rehabilitation.
Codes and values	Select from below 1. STEMI 2. NSTEMI 3. CABG

	4. Valve Sx 5. Elective PCI 6. Heart Failure (HFrEF, HFpEF) 7. Arrhythmia 8. AICD/PPM 9. Angina Pectoralis 10. Congenital Heart Disease 11. Congenital Heart Sx 12. TAVI 13. Other
Help notes	Please use ICD codes to guide selection (See Appendix A). There may be more than one possible referral diagnosis reported if the second occurred within the same hospitalization period. DO NOT report historical diagnoses/interventions. May source from patient's medical record, CR referral log. AICD = Automatic implantable cardioverter defibrillator; ICD = International Classification of Disease PPM=permanent pacemaker
Reference number	14b
Description	Additional diagnosis/interventions
Codes and values	Select from below 1. CABG Sx 2. Valve Sx 3. Primary PCI 4. Staged PCI 5. Elective PCI 6. Heart Failure (HFrEF, HFpEF) 7. Arrhythmia 8. AICD/PPM 9. Congenital Heart Sx 10. TAVI 11. Other 12. Medical Management
Help notes	There may be more than one possible referral diagnosis reported if the second occurred within the same hospitalization period. DO NOT report historical diagnoses/interventions. May source from patient's medical record, CR referral log.
Reference number	14c
Description	Additional diagnosis/interventions
Codes and values	Select from below 1. CABG Sx 2. Valve Sx 3. Primary PCI 4. Staged PCI 5. Elective PCI 6. Heart Failure (HFrEF, HFpEF) 7. Arrhythmia 8. AICD/PPM 9. Congenital Heart Sx 10. TAVI 11. Other 12. Medical Management
Help notes	There may be more than one possible referral diagnosis reported if the second occurred within the same hospitalization period. DO NOT report historical diagnoses/interventions. May source from patient's medical record, CR referral log.

Initial assessment date

Reference number	15
Description	Enter the date of the initial assessment took place i.e. the date the patient had their initial visit at CR for assessment of risk, history, etc.
Codes and values	DD/MM/YYYY
Help notes	May source from CR administrative database, initial assessment information.

Depression screening

Reference number	16
Description	Was the patient screened for depression using a valid and reliable screening tool?
Codes and values	0 Yes 1 No
	If no provide reason for not screening [open text].
	If yes, please document the depression scores and the depression screening tool used.
Help notes	May source from patient's medical record, patient initial assessment. Suggested tools include (but are not limited to) the following: the Patient Health Questionnaire (PHQ) -2 and PHQ-9, the Hospital Anxiety and Depression Screener (HADS), the Cardiac Depression Screener (CDS), the Beck Depression Inventory (BDI-II), and the Kessler Psychological Distress Scale (Kessler-10).

Depression referral

Reference number	17
Description	Patients who screen positive for depression were offered/referred for counselling
Codes and values	0 Yes 1 No 99 N/A
	If no select reason for not referring for further management [optional] Declined Under current treatment Unknown Other
Help notes	May source from patient's medical record (i.e. documentation of referral or counselling support provided).

Smoking status

Reference number	18
Description	Was the CR patient's smoking status assessed?
Codes and values	0 Yes 1 No 99 Unknown
	If no provide reason for not screening.
	If yes, document smoking status 1 Daily smoker (A person who smokes daily) 2 Weekly smoker (A person who smokes at least weekly but not daily) 3 Irregular smoker (A person who smokes less than weekly) 4 Ex-smoker (A person who does not smoke at all now, but has smoked at least 100 cigarettes or similar amount of other tobacco products in his/her lifetime)

	5 Never-smoker (A person who does not smoke now and has smoked fewer than 100 cigarettes or similar amount of other tobacco products in his/her lifetime 99 Unknown
Help notes	May source from patient's medical record, patient initial assessment, self-report.

Smoking referral

Reference number	19
Description	Patients who are current or recent smokers were offered smoking cessation counselling (or were referred to counselling).
Codes and values	0 Yes 1 No 99 Unknown
	If no, select reason for not offering smoking cessation counselling (or a referral to counselling) N/A Declined Under current treatment Unknown
Help notes	May source from patient's medical record (i.e. documentation of referral or smoking cessation support provided).

Medication adherence

Reference number	20
Description	Medication adherence was assessed?
Codes and values	0 Yes 1 No 99 Unknown
	Is the patient adhering to prescribed treatment 0 Yes 1 No 3 Unknown Reason for non-adherence Cost Cognitive issues Side effects/Contraindication Patient choice Unknown
Help notes	May source from patient's medical record, patient initial assessment, self-report. Suggested tools include the Brief Adherence Self-Report Questionnaire (Zeller, Schroeder et al., 2008); the Voils Measure of Extent and Reasons for Medication Non-Adherence (Voils et al., 2012); Brief Medication Questionnaire (Svarstad et al., 1999) or self-report response to medication adherence questions such as: • Are you taking your medications as instructed? (Y/N) • If no, reason why (e.g. forgot, cost, side effects, other) • What would you do if you missed your regular dose? (Take dose later in the day, call GP or local pharmacist, miss the dose altogether, other)

Exercise capacity

Reference number	21
Description	Functional exercise capacity was assessed
Codes and values	0 No 1 Yes 99 Unknown
	If Yes – please add number of metres achieved for 6MWT or METs achieved for EST or according to questionnaire results
Help notes	May source from patient's medical record, patient initial assessment. Suggested tools depending on local CR program requirements/capabilities include: **The Six Minute Walk Test (6MWT)** Distance walked within 6 minutes can be measured using standardised 6MWT protocols. **The Exercise Stress Test (EST)** The METs can be estimated from standard equations using speed and grade, or can be calculated from the direct measurement of oxygen consumption using gas analysis. **Self-reported exercise capacity** The Specific Activity Questionnaire (SAQ) is a 13-item self-report measure of exercise capacity. The scoring method of the tool can be used to estimate METS. The SAQ is publicly available and free of charge and has been validated against exercise stress testing in cardiac patients

Health-related quality of life

Reference number	22
Description	Health-related quality of life was assessed using a validated tool.
Codes and values	Yes No Unknown
	Score for each domain as per validated tool used
Help notes	May source from patient's medical record, patient initial assessment. Suggested tools include: freely available options: Assessment of Quality of Life (AQOL), EuroQol(EQ)-5D-L and pay-for options: Short Form (SF) -12 and SF-36.

POST PROGRAM

RE-ASSESSMENT

Re-assessment date

Reference number	23
Description	Enter the date the re-assessment took place i.e. the date the patient had their final visit at CR and/or were re-assessed.
Codes and values	DD/MM/YYYY
Help notes	May source from CR administrative database, re-assessment information.

Re-assessment depression screening

Reference number	24

Description	Was the patient re-screened for depression using a valid and reliable screening tool?
Codes and values	0 Yes 1 No 99 N/A
	If yes, please document the depression scores and the depression screening tool used
	If no select reason for not screening
Help notes	May source from patient's medical record, patient re-assessment. Use the same tool as used in initial assessment.

Re-assessment depression referral

Reference number	25
Description	Patients who screen positive for depression were offered/referred for counselling
Codes and values	0 Yes 1 No 99 N/A
	If no select reason for not referring for further management Declined Under current treatment Other Unknown
Help notes	May source from patient's medical record (i.e. documentation of referral or counselling support provided).

Re-assessment smoking status

Reference number	26
Description	Was the CR patient's smoking status re-assessed?
Codes and values	0 Yes 1 No 99 Unknown
	If yes, document smoking status 1 Daily smoker (A person who smokes daily) 2 Weekly smoker (A person who smokes at least weekly but not daily) 3 Irregular smoker (A person who smokes less than weekly) 4 Ex-smoker (A person who does not smoke at all now, but has smoked at least 100 cigarettes or similar amount of other tobacco products in his/her lifetime) 5 Never-smoker (A person who does not smoke now and has smoked fewer than 100 cigarettes or similar amount of other tobacco products in his/her lifetime 99 Unknown
Help notes	May source from patient's medical record, patient re-assessment, self-report.

Re-assessment smoking referral

Reference number	27
Description	Patients who are current or recent smokers were offered smoking cessation counselling (or were referred to counselling).
Codes and values	0 Yes 1 No 99 NA
	If no, select reason for not offering smoking cessation counselling (or a referral to counselling) Declined

	Under current treatment Other Unknown
Help notes	May source from patient's medical record (i.e. documentation of referral or smoking cessation support provided).

Re-assessment medication adherence

Reference number	28
Description	Medication adherence was re-assessed?
Codes and values	0 Yes 1 No 99 Unknown
	Is the patient adhering to prescribed treatment 0 Yes 1 No 3 Unknown Reason for non-adherence Cost Cognitive issues Side effects/Contraindication Patient choice Unknown
Help notes	May source from patient's medical record, patient re-assessment. Use the same tool as used in initial assessment.

Re-assessment of exercise capacity

Reference number	29
Description	Functional exercise capacity outcome on reassessment
Codes and values	0 No 1 Yes 99 Unknown
	If no provide reason for not screening [open text].
Help notes	May source from patient's medical record, patient re-assessment. Use the same tool as used in initial assessment.

Change in exercise capacity

Reference number	30
Description	The difference between pre and post changes in exercise capacity measured using a validated measurement tool.
Codes and values	May be expressed as: a) 6MWT Absolute delta change in metres (numerical) b) EST and SAQ Absolute delta change in metabolic equivalences or METS (numerical)
Help notes	**The Six Minute Walk Test** An absolute delta change simply calculates the difference between the two distances: B1 - A1 = Absolute Δ, where B1 is the re-assessment 6MWT measurement and A1 is the initial 6MWT measurement.

	i.e. 285 metres (re-assessment 6MWD measurement) – 224 metres (initial 6MWD measurement) = 61 metres; the patient has increased his/her exercise capacity by 61 metres.
	The Exercise Stress Test An absolute delta simply calculates the difference between two MET values: B1 - A1 = Absolute Δ, where B1 is the reassessment MET measurement and A1 is the initial MET measurement.
	Self-reported exercise capacity An absolute delta simply calculates the difference between two MET values: B1 - A1 = Absolute Δ, where B1 is the reassessment MET measurement and A1 is the initial MET measurement.

Re-assessment of health-related quality of life

Reference number	31
Description	Health-related quality of life was assessed same using a validated tool as per entry assessment.
Codes and values	0 No 1 Yes 99 Unknown
Help notes	May source from patient's medical record, patient re-assessment. Use the same tool as used in initial assessment.

Change in health-related quality of life

Reference number	32
Description	The difference between pre and post changes in HRQoL measured using a validated measurement tool.
Codes and values	Scores for each Domain as per validated tool used
Help notes	An absolute delta simply calculates the difference between two HRQoL values: B1 - A1 = Absolute Δ, where B1 is the reassessment HRQoL measurement and A1 is the initial HRQoL measurement.

Care transition

Reference number	33
Description	Is there documentation of communication with ongoing care providers?
Codes and values	0 Yes 1 No 99 Unknown
Help notes	May source from patient's medical record, patient re-assessment (e.g. documented communication with health care provider)

SERVICE DELIVERY INFORMATION

Mode of program delivery

Reference number	34
Description	The primary modality in which the CR program was delivered
Codes and values	Select all that apply 1. Centre-based 2. Community-based 3. Home-based 4. Telephone

	5. Videoconference (e.g. via platform such as Zoom, Coviou, Skype) 6. Web 7.Hybrid (combination of above) 8. Other
Help notes	May source from patient's medical record or CR administrative database.

Frequency of program delivery

Reference number	35
Description	How often did the patient participate in the CR program?
Codes and values	1. once only 2. 1 per week 3. 2 times per week 4. >2 times per week
Help notes	May source from patient's medical record or CR administrative database.

Content of program delivered

Reference number	36
Description	What aspects of the CR program did the patient receive?
Codes and values	Select all that apply Exercise and Education Exercise Only Education only – Individual Education only – Group Other
Help notes	May source from patient's medical record or CR administrative database.

Number of CR exercise sessions attended

Reference number	37
Description	Enter the total number of supervised exercise classes attended by the patient during their CR program (excluding pre and post assessments if applicable)
Codes and values	Number
Help notes	May source from patient's medical record or CR administrative database.

Number of CR education sessions attended

Reference number	38
Description	Enter the total number of educational classes attended by the patient during their CR program
Codes and values	Number
Help notes	May source from patient's medical record or CR administrative database.

CR completion

Reference number	38
Description	Patients have completed exercise sessions and reassessment of exercise.
Codes and values	0 Yes 1 No 99 Unknown
Help notes	May source from CR administrative database, re-assessment information.

Reasons for CR non-completion

Reference number	39
Description	If known, enter the reason for a CR registered patient to have not completed exercise sessions and reassessment of exercise using the below options.
Codes and values	1. N/A 2. Incomplete - documented cardiac reason for noncompletion, such as an adverse health event and/or readmission 3. Incomplete - documented non cardiac reason for noncompletion, such as an adverse health event and/or readmission 4. Incomplete - death 5. Incomplete - return to work 6. Incomplete – relocation (referral to CR service closer to patient's home/ referral to closest CR) 7. Incomplete - – Lack of contact/lost to follow-up 8. Incomplete – Transport issues 9. Incomplete – lack of social supports 10. Other
Help notes	May source from the patient's CR record.

SECTION B

CR QUALITY INDICATOR – 1

Eligible in-patients are referred to cardiac rehabilitation within 3 calendar days of hospital discharge.	
Short name	QI-1 – Referral to CR
Description	The percentage of eligible in-patients who are referred to a CR program within 3 calendar days of hospital discharge
Individual data elements required to be collected	• Ref 12: Hospital discharge date • Ref 13: CR referral date
Method of calculation	This variable will be reported as a percentage. Step 1. CR referral date (Ref 13) – Hospital discharge date (Ref 12) Step 2. (Numerator/Denominator) * 100
Numerator	The total number of patients who were referred to a CR program within 3 calendar days of hospital discharge (Ref 13 - Ref 12) $\leq$ 3 days.
Denominator	The total number of CR eligible patients in the reference period as per eligibility definition (Table 1)
Rationale	CR participation significantly reduces mortality and morbidity. In-patient referral prior to discharge facilitates timely, universal access to CR.
Clinical recommendations	*ACRA Core Component No. 1:* All eligible patients must be offered referral to a CR service which best suits their individual needs, as soon as possible after diagnosis or before discharge from hospital.

CR QUALITY INDICATOR – 2

Eligible in-patients commence cardiac rehabilitation within 28 calendar days after hospital discharge.	
Short name	QI-2 Time to enrolment
Description	The percentage of eligible in-patients who are enrolled in a CR program within 28 calendar days of hospital discharge.
Individual data elements required to be collected	• Ref 12: Hospital discharge date • Ref 15: Initial assessment date
Method of calculation	This variable will be reported as a percentage. Step 1. Initial assessment date (Ref 15) – Hospital discharge date (Ref 12) Step 2. (Numerator/Denominator) * 100
Numerator	The number of patients who had an initial assessment within 28 calendar days of hospital discharge (Ref 15 - Ref 12) $\leq$ 28 days.
Denominator	The number of CR eligible patients in the reference period as per eligibility definition (Table 1)
Rationale	Current literature suggests that targeting earlier enrolment in rehabilitation improves overall enrolment, participation, and outcomes (Thomas et al., 2018; Pack et al., 2013; Collins et al., 2015, Candelaria et al.; 2021). Addressing time from discharge to start in rehabilitation is important in that it can influence potential processes or barriers at the patient (conflict with return to work), hospital, provider, and program (workflow and throughput) levels.
Clinical recommendations	*ACRA Core Component No. 1:* All eligible patients must be offered referral to a CR service which best suits their individual needs, as soon as possible after diagnosis or before discharge from hospital care.

CR QUALITY INDICATOR – 3

Patients who commence cardiac rehabilitation receive a comprehensive assessment of cardiovascular risk factors.	
Short name	QI-3 Comprehensive assessment
Description	Percentage of patients who commence CR who have had a comprehensive assessment of cardiovascular risk factors.
Individual data elements required to be collected	• Ref 16 Depression screening • Ref 18 Smoking status • Ref 20 Medication adherence • Ref 21 Exercise capacity
Method of calculation	This variable will be reported as a percentage. (Numerator/Denominator) * 100
Numerator	The total number of patients enrolled in a CR program who received a comprehensive assessment (Ref 16, 18, 20, 21 assessed)
Denominator	The total number of patients enrolled in a CR program
Rationale	All major clinical CR guidelines (e.g. British, Scottish, Canadian, American, Australian Core Components) support individualised assessment of CR participants.
Clinical recommendations	*ACRA Core Component No. 2:* All eligible cardiac patients to receive an individualised initial assessment that includes physical, psychological and social parameters with referral on to appropriate services (internal or external to the CR service) based on patient needs; followed by ongoing review, discharge assessment and follow-up.

CR QUALITY INDICATOR – 4

Patients who commence cardiac rehabilitation are screened for depression at initial and re-assessment and offered counselling (or referral to counselling) if symptoms are identified.	
Short name	QI-4 Depression screening
Description	Percentage of patients who commence CR that are screened for depression at initial and reassessment using a valid and reliable screening tool and referred for counselling if symptoms are identified.
Individual data elements required to be collected	• Ref 16. Depression screening • Ref 17. Depression referral • Ref 24. Re-assessment depression screening • Ref 25. Re-assessment depression referral
Method of calculation	Both variables will be reported as a percentage. Step 1. Percentage of patients assessed/reassessed: (Numerator/Denominator) * 100 Step 2. Percentage of patients screened positive referred (Numerator/Denominator) * 100
Numerator	*Initial assessment:* Step 1. The total number of patients who were screened for depression at initial assessment (Ref 16) Step 2. The total number of patients who screened positive and were referred (Ref 17+) – (Ref 17) *Re-assessment:* Step 1. The total number of patients who screened for depression at re-assessment (Ref 24) Step 2. The total number of patients screened positive who were referred (Ref 25+) – (Ref 25)
Denominator	Step 1. The total number of patients enrolled in a CR program Step 2. The total number of patients that screened positive for depression
Rationale	All major clinical CR guidelines (e.g. British, Scottish, Canadian, American, Australian Core Components) support individualised assessment of CR participants.
Clinical recommendations	*ACRA Core Component No. 2:* All eligible cardiac patients to receive an individualised initial assessment that includes physical, psychological and social parameters with referral on to appropriate services (internal or external to the CR service) based on patient needs; followed by ongoing review, discharge assessment and follow-up.

CR QUALITY INDICATOR – 5

Patients who commence cardiac rehabilitation are assessed for smoking use at initial and re-assessment and offered smoking cessation counselling (or referral to counselling) if they are a current or recent smoker.	
Short name	QI-5
Description	Percentage of patients who enrol in a CR program who are assessed for smoking use at initial assessment and offered or referred to smoking cessation counselling if they are a current or recent smoker.
Individual data elements required to be collected	• Ref 18 Smoking status • Ref 19 Smoking referral • Ref 26 Re-assessment smoking status • Ref 27 Re-assessment smoking referral
Method of calculation	Both variables will be reported as a percentage. Step 1. Percentage of patients assessed/reassessed: (Numerator/Denominator) * 100 Step 2. Percentage of current or recent smokers referred (Numerator/Denominator) * 100
Numerator	*Initial assessment:* Step 1. The total number of patients who were assessed for smoking status at initial assessment (Ref 18) Step 2. The total number of current or recent smokers who were referred (Ref 19+ – Ref 19) *Re-assessment* Step 1. The total number of patients who assessed for smoking status at re-assessment (Ref 26) Step 2. The total number of current or recent smokers who were referred (Ref 26+) – (Ref 27)
Denominator	Step 1. The total number of patients enrolled in a CR program Step 2. The total number of current or recent smokers
Rationale	Simple smoking cessation advice from health professionals increases the likelihood that someone who smokes will quit (Stead et al, 2013). Prompting a person to try to quit, brief reiteration of cardiovascular and other health hazards and agreeing on a specific plan with a follow-up arrangement are evidence-based interventions.
Clinical recommendations	*ACRA Core Component No. 2:* All eligible cardiac patients to receive an individualised initial assessment that includes physical, psychological and social parameters with referral on to appropriate services (internal or external to the CR service) based on patient needs; followed by ongoing review, discharge assessment and follow-up.

CR QUALITY INDICATOR – 6

Patients who commence cardiac rehabilitation are assessed for medication adherence at initial and re-assessment.	
Short name	QI-6 Assessment of medication adherence
Description	The percentage of patients who are assessed for medication adherence at initial and re-assessment.
Individual data elements required to be collected	• Ref 20 Medication adherence • Ref 28 Re-assessment medication adherence
Method of calculation	This variable will be reported as a percentage. (Numerator/Denominator) * 100
Numerator	The total number of patients enrolled in a CR program who were assessed for medication adherence at initial and re-assessment (Ref 20 & Ref 28)
Denominator	The total number of patients enrolled in a CR program
Rationale	Medication adherence is often suboptimal for many reasons, including affordability, treatment complexity and lack of consumer understanding. Optimal medication adherence has been associated with a 20% reduction in cardiovascular disease risk and a 35% reduction in all-cause mortality (Chowdhury et al, 2013). CR is the ideal time to review and optimise cardio-protective therapies as per key guidelines (National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand acute coronary syndromes guidelines (Chew et al, 2016).
Clinical recommendations	*ACRA Core Component No. 2:* All eligible cardiac patients to receive an individualised initial assessment that includes physical, psychological and social parameters with referral on to appropriate services (internal or external to the CR service) based on patient needs; followed by ongoing review, discharge assessment and follow-up.

CR QUALITY INDICATOR – 7

Patients who commence cardiac rehabilitation have an initial and re-assessment to determine exercise capacity change.	
Short name	QI-7 Assessment of exercise capacity
Description	Change in exercise capacity from initial assessment to re-assessment.
Individual data elements required to be collected	• Ref 21 Exercise capacity • Ref 29 Re-assessment of exercise capacity
Method of calculation	This variable will be reported as a percentage. (Numerator/Denominator) * 100
Numerator	The total number of patients enrolled in a CR program who were assessed for exercise capacity at initial and re-assessment (Ref 21 & Ref 29)
Denominator	The total number of patients enrolled in a CR program
Rationale	Exercise training decreases mortality and morbidity in CHD patients (Anderson et al., 2016). As part of a comprehensive CR program, exercise training can reduce hospital admissions and increases health-related quality of life (Anderson et al., 2014). Pre and post assessment of functional exercise capacity is a valid way of evaluating the exercise component of CR programs. A half MET improvement is related to health benefit.
Clinical recommendations	*ACRA Core Component No. 2:* All eligible cardiac patients to receive an individualised initial assessment that includes physical, psychological and social parameters with referral on to appropriate services (internal or external to the CR service) based on patient needs; followed by ongoing review, discharge assessment and follow-up.

CR QUALITY INDICATOR – 8

Patients who commence cardiac rehabilitation have an initial and re-assessment to determine health-related quality of life change.	
Short name	QI-8 Assessment of health-related quality of life
Description	Change in health-related quality of life from initial assessment to re-assessment.
Individual data elements required to be collected	• Ref 22 Health-related quality of life • Ref 31 Re-assessment of health-related quality of life
Method of calculation	This variable will be reported as a percentage. (Numerator/Denominator) * 100
Numerator	The total number of patients enrolled in a CR program who were assessed for HRQoL at initial and re-assessment (Ref 22 & Ref 31)
Denominator	The total number of patients enrolled in a CR program
Rationale	There is evidence that HRQoL can predict adverse outcomes (e.g. mortality) independent of traditional risk factors (Liang et al 2017).
Clinical recommendations	*ACRA Core Component No. 3:* CR services should facilitate patients to return to, or to improve on, baseline everyday functioning, including employment, driving, resumption of sexual activity, and other activities of daily living and maintain lifelong. When the cardiac condition or other co-morbidities preclude this, the CR service should focus on maximising potential and providing coping strategies.

CR QUALITY INDICATOR – 9

Patients who participate in cardiac rehabilitation receive a comprehensive re-assessment of their cardiovascular risk factors.	
Short name	QI-9 Re-assessment
Description	Percentage of patients who commence CR who have had a comprehensive re-assessment of cardiovascular risk factors.
Individual data elements required to be collected	• Ref 23 Re-assessment date • Ref 24 Re-assessment depression screening • Ref 26 Re-assessment smoking status • Ref 28 Re-assessment medication adherence • Ref 29 Re-assessment of exercise capacity • Ref 37 Number of supervised exercise sessions attended • Ref 38 CR completion • Ref 39 Reasons for noncompletion
Method of calculation	This variable will be reported as a percentage. (Numerator/Denominator) * 100
Numerator	The total number of patients enrolled in a CR program who completed and received a comprehensive re-assessment (Ref 23, 24, 26, 28, 29, 37, 38 assessed)
Denominator	The total number of patients enrolled in a CR program
Rationale	Ideally, at re-assessment participants will have attained their CR goals, have ceased smoking, have depression treated, will be meeting exercise and nutrition guidelines, will be taking medications as prescribed and will be within recommended targets for blood pressure and lipids.
Clinical recommendations	*ACRA Core Component No. 2:* All eligible cardiac patients to receive an individualised assessment at CR discharge that includes physical, psychological and social parameters with referral on to appropriate services (internal or external to the CR service) based on patient needs.

CR QUALITY INDICATOR – 10

Patients and ongoing care providers are provided with a report which outlines patient risk factors and an individualised ongoing management plan.	
Short name	QI-10 Care transition
Description	Percentage of CR patients with documented communication which outlines patient risk factors and an ongoing management plan between the CR program and the ongoing care provider (e.g., general practitioner).
Individual data elements required to be collected	• Ref 33 Care transition
Method of calculation	This variable will be reported as a percentage. (Numerator/Denominator) * 100
Numerator	The total number of patients who completed a CR program with documented communication and ongoing management plan from the CR program to at least one ongoing care provider (e.g., general practitioner)
Denominator	The total number of patients who completed the CR program (see Table 1 for definitions)
Rationale	Communication between CR programs and other health care providers may improve further management of patients' cardiac risk (Redfern & Briffa, 2014). A CR program should have strategies in place to communicate CR participants' status at entry/exit from the CR program to their general practitioner and other ongoing care providers (e.g., cardiologist, Phase III CR). Communication should be sent to the ongoing care provider at program exit regardless of patient continuation in a maintenance program.
Clinical recommendations	BACPR Core Components and Standards, 2012 • On programme completion there should be a formal assessment. This should be communicated by discharge letter to the referrer and the patient as well as those directly involved in the continuation of healthcare provision. • There should be communication and collaboration between primary and secondary care services to achieve the long-term management plan.

Appendix A. International classification of disease (ICD) codes eligible for cardiac rehabilitation or secondary prevention referral.

Code id	asci desc
121.9	**acute myocardial infarction**
121.0	**ST elevation myocardial infarction**
121.4	**non ST elevation myocardial infarction**
Procedures	
Coronary artery surgery	
38497-00	coronary artery bypass, using 1 saphenous vein graft
38497-01	coronary artery bypass, using 2 saphenous vein graft
38497-02	coronary artery bypass, using 3 saphenous vein graft
38497-03	coronary artery bypass, using ≥4 saphenous vein graft
38497-04	coronary artery bypass, using 1 other venous graft
38497-05	coronary artery bypass, using 2 other venous grafts
38497-06	coronary artery bypass, using 3 other venous grafts
38497-07	coronary artery bypass, using ≥4 other venous grafts
38500-00	coronary artery bypass, using 1 LIMA graft
38500-01	coronary artery bypass, using 1 RIMA graft
38500-02	coronary artery bypass, using 1 radial artery graft
38500-03	coronary artery bypass, using 1 epigastric graft
38500-04	coronary artery bypass using 1 other arterial graft
38500-05	coronary artery bypass, using 1 composite graft
38503-00	coronary artery bypass, using ≥ 2 LIMA grafts
38503-01	coronary artery bypass, using ≥ 2 RIMA grafts
38503-02	coronary artery bypass, using ≥ 2 radial artery grafts
38503-03	coronary artery bypass, using ≥ 2 epigastric grafts
38503-05	coronary artery bypass, using ≥2 composite grafts
90201-00	coronary artery bypass using 1 other graft not elsewhere classified
90201-01	coronary artery bypass using 2 other grafts not elsewhere classified
90201-02	coronary artery bypass using 3 other grafts not elsewhere classified
90201-03	coronary artery bypass using ≥4 other grafts not elsewhere classified
Percutaneous coronary intervention	
38300-00	percutaneous transluminal balloon angioplasty of 1 coronary artery
38300-01	open transluminal balloon angioplasty of 1 coronary artery
38303-00	percutaneous transluminal balloon angioplasty of ≥2 coronary arteries
38303-01	open transluminal balloon angioplasty of ≥2 coronary arteries
38306-00	percutaneous insertion of 1 transluminal stent into a single coronary artery
38306-01	percutaneous insertion of ≥2 transluminal stents into a single coronary artery
38306-02	percutaneous insertion of ≥2 transluminal stents into multiple coronary arteries
38306-03	open insertion of 1 transluminal stent into a single coronary artery
38306-04	open insertion of ≥2 transluminal stents into a single coronary artery
38306-05	open insertion of ≥2 transluminal stents into multiple coronary arteries

Valves	
38475-00	mitral valve annuloplasty
38475-01	tricuspid valve annuloplasty
38475-02	aortic valve annuloplasty
38477-00	mitral valve annuloplasty with ring insertion
38477-01	tricuspid valve annuloplasty with ring insertion
38477-02	aortic valve annuloplasty with ring insertion
38480-00	repair of aortic valve, 1 leaflet
38480-0	repair of mitral valve, 1 leaflet
38480-02	repair of tricuspid valve, 1 leaflet
38481-00	repair of aortic valve, 2 or more leaflets
38481-01	repair of mitral valve, ≥2 leaflet
38481-02	repair of tricuspid valve, ≥2 leaflet
38488-00	replacement of aortic valve with mechanical prosthesis
38488-01	replacement of aortic valve with bioprosthesis
38488-02	replacement of mitral valve with mechanical prosthesis
38488-03	replacement of mitral valve with bioprosthesis
38488-04	replacement of tricuspid valve with mechanical prosthesis
38488-05	replacement of tricuspid valve with bioprosthesis
38488-08	percutaneous replacement of aortic valve with bioprosthesis
38488-09	percutaneous replacement of mitral valve with bioprosthesis
38488-10	percutaneous replacement of tricuspid valve with bioprosthesis
38489-00	replacement of aortic valve with homograft
38489-01	replacement of aortic valve with unstented heterograft
38489-02	replacement of mitral valve with homograft
38489-03	replacement of tricuspid valve with homograft

Citation: Independent Hospital Pricing Authority, Australian Classification of Health Interventions (ACHI), First Eleventh edition. 2019 11th edition.

References

Atherton JJ, Sindone A, De Pasquale CG, Driscoll A, MacDonald PS, Hopper I, et al. National Heart Foundation of Australia and Cardiac Society of Australia and New Zealand: Guidelines for the Prevention, Detection, and Management of Heart Failure in Australia 2018. Heart, Lung & Circulation. 2018 Oct;27(10):1123–208.

Dion Candelaria, Robert Zecchin, Cate Ferry, Laila Ladak, Sue Randall, Robyn Gallagher. Shorter Wait Times to Cardiac Rehabilitation Associated With Greater Exercise Capacity Improvements: A MULTISITE STUDY. J Cardiopulm Rehabil Prev2020 Sep 16. doi: 10.1097/HCR.0000000000000548. Online ahead of print.

Chew DP, Scott IA, Cullen L, French JK, Briffa TG, Tideman PA, et al. National Heart Foundation of Australia & Cardiac Society of Australia and New Zealand: Australian Clinical Guidelines for the Management of Acute Coronary Syndromes 2016. Heart, Lung and Circulation. 2016 Sep;25(9):895–951.

Chowdhury R, Khan H, Heydon E, Shroufi A, Fahimi S, Moore C, et al. Adherence to cardiovascular therapy: a meta-analysis of prevalence and clinical consequences. Eur Heart J. 2013 Oct;34(38):2940–8.

Collins ZC, Suskin N, Aggarwal S, et al. Cardiac rehabilitation wait times and relation to patient outcomes. Eur J Phys Rehabil Med. 2015;51:301–9.

Cowie A, Buckley J, Doherty P, Furze G, Hayward J. et al Standards and core components of cardiovascular disease prevention and rehabilitation. Heart 2019;105(7):510-515.

Liang JW, Cheung YK, Willey JZ, Moon YP, Sacco RL, Elkind MSV, Dhamoon MS. Quality of life independently predicts long-term mortality but not vascular events: the Northern Manhattan Study. Quality Life Res; 2017 (8) 2219-2228

May HT, Horne BD, Knowlton KU, Bair TL, Lappe DL, Le VT, Muhlestein JB. The association of depression at any time to the risk of death following coronary artery disease diagnosis. Eur Heart J Qual Clin Outcomes. 2017; 3(4): 296-302.

Pack QR, Mansour M, Barboza JS, et al. An early appointment to outpatient cardiac rehabilitation at hospital discharge improves attendance at orientation: a randomized, single-blind, controlled trial. Circulation. 2013;127:349–55

Redfern J, Briffa T. The transition from hospital to primary care for patients with acute coronary syndrome: insights from registry data. Med J Aust 2014; 201 (10): S97-S99.

Richards SH, Anderson L, Jenkinson CE, et al. Psychological interventions for coronary heart disease. Cochrane Database Syst Rev. 2017; 4: CD002902.

Scottish Intercollegiate Guidelines Network (SIGN). Cardiac rehabilitation: a national clinical guideline. Edinburgh: SIGN, 2017.

Stead LF, Koilpillai P, Fanshawe TR, Lancaster T. Combined pharmacotherapy and behavioural interventions for smoking cessation. Cochrane Database of Systematic Reviews 2016, Issue 3. Art. No.: CD008286

Thomas et al. (2018). ACC/AHA Clinical Performance and Quality Measures for Cardiac Rehabilitation. Journal of the American College of Cardiology. 2018; 71(16):1814-1837.

Woodruffe S, Neubeck L, Clark RA, Gray K, Ferry C, Finan J, et al. Australian Cardiovascular Health and Rehabilitation Association (ACRA) Core components of cardiovascular disease secondary prevention and cardiac rehabilitation 2014 Heart Lung and Circulation 2015;24(5):430-431.

Zecchin R, Candelaria D, Ferry C, Ladak L, McIvor D, Wilcox K, Bennett A, Bowen S, Carr B, Randall R, Gallagher R. Development of Quality Indicators for Cardiac Rehabilitation in Australia: A Modified Delphi Method and Pilot Test. Heart Lung Circ. 2019 Nov;28(11):1622-1630. doi: 10.1016/j.hlc.2018.08.004. Epub 2018 Sep 7.