

Recommended Framework

for Cardiac
Rehabilitation

'04

National Heart Foundation of Australia
& Australian Cardiac Rehabilitation Association



**Heart
Foundation**



This document updates the recommendations for cardiac rehabilitation prepared by the National Cardiac Rehabilitation Advisory Committee of the National Heart Foundation of Australia in 1998. It represents the current recommendations for cardiac rehabilitation throughout Australia. The update was prepared by an Advisory Group and adopted a consensus approach.

The Advisory Group reviewed key Australian and international evidence-based clinical guidelines and conducted interviews and written consultations with key stakeholders from the cardiac rehabilitation sector across Australia. The National Heart Foundation of Australia's Clinical Issues Committee, Cardiovascular Health Advisory Committee and National Board then reviewed and signed off the recommendations. These recommendations will be reviewed by end 2007.

The recommendations have been revised and updated to reflect current practice and to recognise the range of program delivery models that have been developed in response to wide variations in local resources and community need.

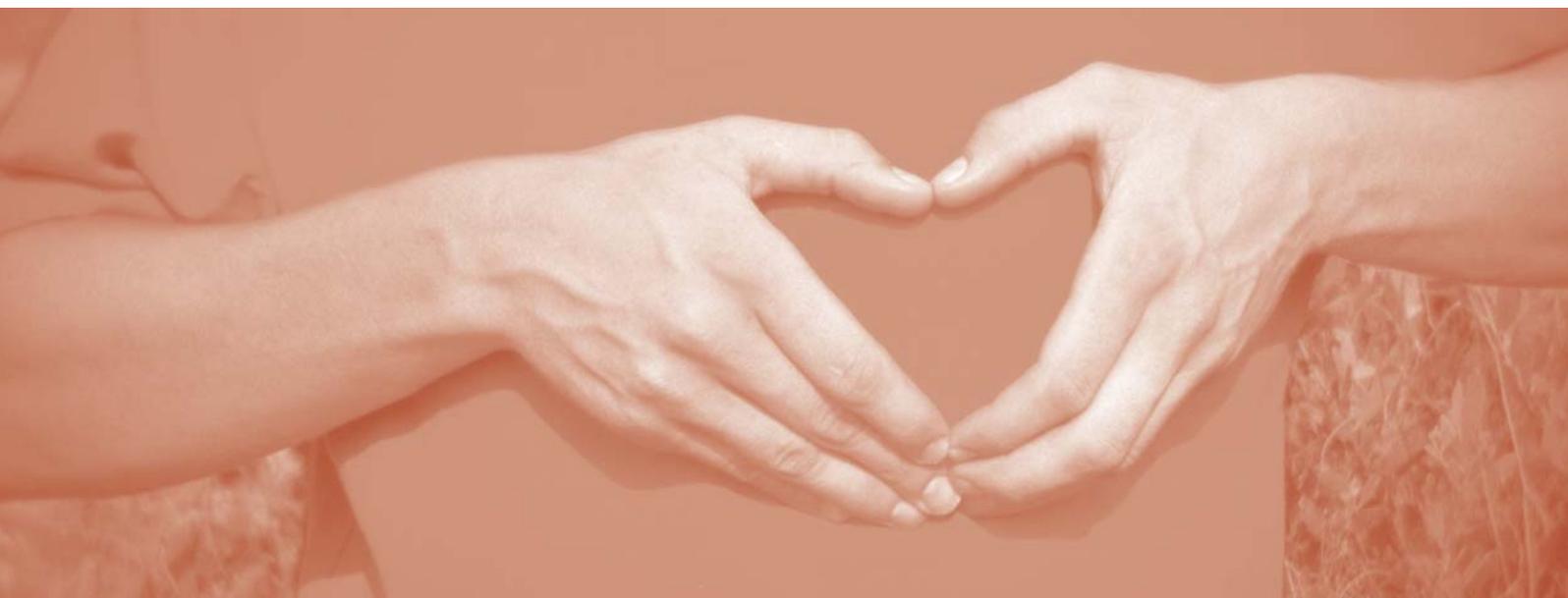
Purpose of the recommendations

There is overwhelming evidence supporting ongoing prevention for those with cardiac disease. The National Heart Foundation of Australia recognises the importance of cardiac rehabilitation services as the launching pad for ongoing prevention following diagnosis of cardiac disease. These recommendations are designed as a concise framework to guide the establishment, content and ongoing development of cardiac rehabilitation services.

These recommendations have been produced for medical and other health professionals interested, or working in, the field of cardiac rehabilitation and the ongoing prevention of heart disease. This is not a policy document, nor is it a comprehensive review of the literature.

How to use these recommendations

These recommendations provide a general framework, which providers may expand and remodel in response to local circumstances. They should be read in conjunction with a range of other reference materials such as other National Heart Foundation of Australia best-practice guidelines and other sources of evidence. These companion documents and resources are referenced throughout the body of the document and are listed in Appendix 1.



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1. Overview

Cardiac rehabilitation describes all measures used to help people with heart disease return to an active and satisfying life and to prevent recurrence of cardiac events.

Cardiac rehabilitation services should be provided in collaboration with the patient's cardiac specialist, general practitioner and other health professionals who retain overall responsibility for the patient's management.

Both the National Heart Foundation of Australia* and the World Health Organisation recommend that cardiac rehabilitation services should be available, and routinely offered, to everyone with cardiovascular disease and be delivered by trained health professionals (see Appendix 6). There are a number of evidence-based best practice guidelines for cardiac rehabilitation that have been developed in Australia and internationally (see Appendix 1).

1.1 Broad aims of cardiac rehabilitation

- i. Maximise physical, psychological and social functioning to enable people with cardiac disease to lead fulfilling lives with confidence.
- ii. Introduce and encourage behaviours that may minimise the risk of further cardiac events and conditions.

1.2 Specific aims of cardiac rehabilitation

- i. Facilitate and shorten the period of recovery after an acute cardiac event.
- ii. Promote strategies for achieving mutually agreed goals of ongoing prevention.
- iii. Develop and maintain skills for long-term behaviour change and self-management.
- iv. Promote appropriate use of health and community services, including concordance with prescribed medications and professional advice.

Cardiac rehabilitation is an organised approach to achieving these aims and should be integrated into the routine management of all patients. Cardiac rehabilitation includes, and complements, the support and individual medical care given by specialists and general practitioners.

Services should include physical activity, health education, counselling, behaviour modification strategies and support for self-management. They should be tailored to meet the individual and cultural needs of the patient and their family.

Cardiac rehabilitation services are available across a continuum that includes inpatient, outpatient and ongoing prevention approaches. However, participation in cardiac rehabilitation is not necessarily sequential. People may access services at different stages and entry points.

* Hereafter referred to as the Heart Foundation

1.3 Eligible patients

The core group of people eligible for cardiac rehabilitation are those who have had:

- myocardial infarction (ST elevation MI, non-ST elevation MI)
- re-vascularisation procedures
- stable or unstable angina
- controlled heart failure
- other vascular or heart disease.

In some cases, separate programs will be provided for people with different diagnoses, however, in many instances the approach adopted will address the differing needs of these groups.

It may also be appropriate for patients awaiting cardiac investigation or intervention to attend inpatient or outpatient cardiac rehabilitation programs.

People with other presenting problems, such as Type 2 diabetes or multiple risk factors, may also participate in cardiac rehabilitation as many elements have broad relevance, however, these recommendations are based around the needs of the core group listed above.

Companion documents (see Appendix 1)

National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Reducing Risk in Heart Disease. Guidelines for preventing cardiovascular events in people with coronary heart disease, 2003.

National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Guidelines for the Contemporary Management of Heart Failure, 2002.

National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Unstable Angina Guidelines, 2000 (plus addenda).

National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Lipid Management Guidelines, 2001 (plus addenda).

National Heart Foundation of Australia – Hypertension Management Guide for Doctors, 2004.

The cardiac specialist, general practitioner, cardiac rehabilitation team and the patient and family should all be involved in planning the patient's rehabilitation. This ensures that appropriate cardiac rehabilitation services are available to meet the needs of the patient and their family. Family members and other support people should be encouraged to participate throughout the cardiac rehabilitation process. Where possible, all cardiac rehabilitation services should accommodate the cultural and linguistic background of the patient and family/support people.

1.4 Staffing requirements

Preferably, a multidisciplinary team of health professionals, with one nominated coordinator, should deliver cardiac rehabilitation services. In some instances, for example in rural and remote areas, a program may function adequately with only one trained health professional provided there is access to medical guidance and the availability of referral for medical opinion.

A trained health professional has a degree, diploma or certificate of registration in medicine, nursing, physiotherapy, occupational therapy, exercise physiology, psychology, social work, pharmacy or nutrition, and should have additional training and/or work experience encompassing adult education principles and physical activity programs as set out in these recommendations.

In Aboriginal communities the Aboriginal Health Worker should be the key member of the cardiac rehabilitation team. Aboriginal Health Workers undertake certification such as a Degree in Health Science or Diploma in Aboriginal Health. Aboriginal Health Workers should be supported and encouraged to deliver cardiac rehabilitation in a range of settings.

All staff working in cardiac rehabilitation should participate in ongoing professional development specific to the field.

1.5 Cardiac rehabilitation coordinator

All public and private hospitals treating people with heart disease, as well as all centres offering cardiac rehabilitation, should appoint or identify a trained health professional with specific expertise and knowledge of cardiac rehabilitation and program planning, development and evaluation to take on the role of cardiac rehabilitation coordinator. Opportunities for professional development should be provided where this level of expertise is not readily available. (See Appendix 1 for professional development courses in cardiac rehabilitation).

1.5.1 Recommended role and responsibilities of the coordinator

Coordinators are responsible for managing the overall program. This involves:

- developing a system that supports referral of all eligible persons to cardiac rehabilitation
- liaising with the patient's cardiac specialist, general practitioner, other primary care provider/s and relevant community services
- coordinating input from other rehabilitation practitioners and facilitating communication between team members
- establishing systems to ensure that the structure, content and delivery of services remains appropriate
- establishing systems for maintenance of an adequate patient database and evaluation and monitoring mechanisms (see page 8)
- promoting cardiac rehabilitation to medical practitioners to encourage referral.

Companion document

Australian Cardiac Rehabilitation Association,
A Practitioner's Guide to Cardiac Rehabilitation, 1999.

1.6 Aboriginal and Torres Strait Islander people

Aboriginal and Torres Strait Islander people are known to die from CVD at twice the rate of other population groups. It is also well known that Indigenous people are under-represented in cardiac rehabilitation and thus there is a strong need to provide flexible methods of delivery.

Aboriginal Health Services employ Indigenous Health Workers and Community Support Workers who should be supported to deliver cardiac rehabilitation.

Consideration of the Aboriginal patient and their family should be expanded to include the community. This is an important factor in the Aboriginal view of health – an holistic view that includes the spiritual, the body and the past dreaming.

Staff working with Aboriginal and Torres Strait Islander communities should be supported to access appropriate training.

Companion documents

National Heart Foundation of Australia – Summary of Aboriginal and Torres Strait Islander Townsville Cardiovascular Disease Workshop, October 1999. Access online at www.heartfoundation.com.au. Go to Professional > Aboriginal and Torres Strait Islander > Townsville Cardiovascular Disease Workshop.

6th National Rural Health Conference Proceedings, 2001 – Chalmers et al, Improving access to cardiac rehabilitation for remote Indigenous clients.

2. Inpatient cardiac rehabilitation

Inpatient rehabilitation should begin as soon as possible after admission to hospital. It is recognised that the length of hospital stay continues to decrease and, as a consequence, not all elements will be addressed for every patient. Where there is insufficient time available for completing the recommended inpatient mobilisation and education program, the emphasis should be on providing:

- basic information and reassurance
- supportive counselling
- guidelines for mobilisation
- appropriate discharge planning, including the involvement of the general practitioner/primary care provider and follow-up
- referral to outpatient cardiac rehabilitation.

A system should be in place that ensures every eligible patient has access to an individualised program and, where possible, group education and discussion while they are an inpatient.

2.1 Main elements of inpatient rehabilitation

2.1.1 Basic information and reassurance

It is recognised that after admission to hospital patients often have difficulty understanding and absorbing detailed and complicated information. Information given should be clear, simple and based on the individual needs of the patient and their family. Reassurance, support and empathy should underpin all discussions. The following topics should be considered for discussion, individually or in a group setting:

- reassurance and explanation of cardiac condition, treatment and procedures
- psychological issues e.g. mood (depression), emotions, sleep disturbance
- social factors e.g. family and personal relationships, social support/isolation
- explanation of the inpatient activity (mobilisation) program
- development of an action plan by patient and carer to ensure early response to symptoms of possible heart attack
- medications, highlighting the importance of concordance
- identification and modification of risk factors
- wound care (if applicable)
- resumption of physical, sexual and daily living activities (including driving and return to work)
- information about income support/entitlements.

Group education sessions may supplement individual education and discussion, however, not all topics will be relevant for everyone. It is also recognised that group sessions are often not practical in the short-stay hospital environment.

2.1.2 Supportive counselling

Counselling in this context does not necessarily mean specialised professional counselling, but rather integrating individualised attention with information provision, reassurance and support for the patient and their family as part of routine daily care.

2.1.3 Mobilisation and resumption of activities of daily living

The mobilisation program balances the risks of premature activity with the deleterious effects associated with continued bed rest. It also promotes self-confidence. It usually commences within 24 hours of admission and can be quite rapid. The inpatient mobilisation program aims for a progressive increase in activity so that the patient can be independent in basic self-care at the time of discharge.

Early mobilisation programs will vary according to individual patient need and hospital protocols. The rate of progress through a program will depend on factors such as co-morbidity, age, habitual activity, surgical or medical condition and specific medical instructions. In some situations, e.g. uncomplicated myocardial infarction, cardiac surgery or coronary angioplasty, some stages may be notional and mobilisation may be achieved in a single day. In more complicated conditions, e.g. cardiac failure, mobilisation may be much slower. A six-stage progression of mobilisation has been developed (see Appendix 4).

Progression through the stages of the program will vary according to the patient's capacity and symptoms. Changes in symptoms suggesting possible deterioration or instability will require medical review.

2.1.4 Discharge planning

Appropriate discharge information should include:

- assessment of a patient's suitability for discharge (including level of self-care and availability of, and access to, relevant health and community services)
- routine referral to outpatient cardiac rehabilitation and promotion of its benefits
- communicating with specialist, general practitioner and/or other health professionals as determined by assessment of individual need and confirming follow-up appointments
- patient information including:
 - medications
 - a specific plan for management of symptoms at home including provision of suitable written information about the educational topics covered and guidelines for the resumption of daily living activities
 - written information to reinforce verbal information
 - contact details for local community resources including patient support groups.

In the case of Aboriginal and Torres Strait Islander patients, Aboriginal Liaison Officers should be engaged to assist with discharge planning and referral to specific Aboriginal and Torres Strait Islander Health Services.

Companion documents

Heart Foundation consumer publications are available through Heartline, the Heart Foundation's national telephone information service, on 1300 36 27 87 (local call cost) and on the Heart Foundation's website www.heartfoundation.com.au

2.1.5 Referral to outpatient rehabilitation

As the length of stay for cardiac conditions and procedures continues to decrease, patient and family participation in outpatient cardiac rehabilitation assumes an even greater importance.

3. Outpatient cardiac rehabilitation

Structured outpatient cardiac rehabilitation is a recognised focal point for the development of a life-long approach to prevention. Empowering the patient to adopt self-management strategies is a key objective of outpatient cardiac rehabilitation.

Traditionally, people with cardiac disease have been referred to outpatient cardiac rehabilitation from in-patient settings following a hospital admission for an acute event or revascularisation procedure. However, referrals are increasingly being encouraged for people with coronary heart disease, and for those at high risk of developing coronary heart disease. These referrals come from a wide variety of other sources including general practitioners, cardiologists, other medical specialists, community health centres and diabetes and other hospital outpatient clinics.

Outpatient cardiac rehabilitation may be provided in a range of settings, such as hospitals, community health centres and general medical practices, or a combination of these. Outpatient cardiac rehabilitation may also be provided on an individual basis in the patient's home. Home-based cardiac rehabilitation may include a combination of home visits, telephone support, telemedicine or specifically developed self-education materials.

Examples of home-based cardiac rehabilitation include:

- home-based, with clinic visits as well as telephone and mail support^{1,2}
- home-based, with internet, telephone and mail support^{3,4}
- home-based, with telephone and mail support^{5,6}
- home-based, with patient educational resources and home visits or telephone support.⁷

The length, content and type of program will vary according to the specific needs of the individual and the available resources. Generally, programs commence on discharge from hospital and last until optimal recovery is achieved, typically in four to 12 weeks.

All education provided to patients should be based upon adult learning principles. It should ideally have a clearly defined process, with explicitly stated formal learning objectives that specify the knowledge, skills and other benefits the patient will acquire as a result of their participation. Teaching strategies and learning

activities should be derived from behavioural theory and should incorporate behavioural change elements. The content of education sessions should reflect current evidence and information provided by cardiac rehabilitation team members should be consistent throughout the program. Education sessions should be evaluated on a regular basis to ensure learning objectives are met.

Companion documents

National Heart Foundation of Australia – Nutrition Recommendations for Cardiac Rehabilitation, 2002.

National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Reducing Risk in Heart Disease. Guidelines for prevention of cardiovascular events in people with coronary heart disease, 2003.

Goble and Worcester – Best Practice Guidelines for Cardiac Rehabilitation and Secondary Prevention, 1999.

3.1 Main elements of outpatient cardiac rehabilitation

The main elements of outpatient cardiac rehabilitation are consistent, regardless of the type of program being provided.

3.1.1 Assessment, review and follow-up

- Individual assessment and regular review, which includes attention to physical, psychological and social parameters.
- Referral to appropriate health professionals and services as required.
- Discharge or summary letters sent to the GP, cardiologist and other primary care provider as nominated by the patient.

3.1.2 Low or moderate intensity physical activity

- Can include a supervised group or individual program, including a warm-up and cool-down period, and catering for the individual needs and capacities of each patient.
- Resistance training as appropriate (see ACRA – Practitioner's Guide to Cardiac Rehabilitation).
- Written guidelines for resumption of daily activities,

including a home walking program, and aiming to accumulate a minimum of 30 minutes of light to moderate intensity physical activity on most, or all, days of the week.

- Individual review of a physical activity program on a regular basis (at least three times during participation in the program).
- Instruction in self-monitoring during physical activity.

For definitions of intensity of physical activity see Appendix 2.

Companion documents

National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Reducing Risk in Heart Disease. Guidelines for prevention of cardiovascular events in people with coronary heart disease, 2003.

Australian Cardiac Rehabilitation Association – A Practitioner’s Guide to Cardiac Rehabilitation, 1999.

National Heart Foundation of Australia – Physical Activity for People with Heart Disease, 2000.

3.1.3 Education, discussion and counselling

- Basic anatomy and physiology of the heart.
- Effects of heart disease, the healing process, recovery and prognosis.
- Risk factors for heart disease and their modification for ongoing prevention (e.g. smoking cessation, physical activity, healthy eating, control of blood lipids, weight, blood pressure and diabetes).
- Supporting skill development to enable behaviour change and maintenance.
- Resumption of physical, sexual and daily living activities including driving and return to work. Return to work is the general rule for people previously employed (return to full activities for retired/unemployed) and this should be emphasised.
- Psychological issues e.g. mood (depression), emotions, sleep disturbance.
- Social factors e.g. family and personal relationships, social support/isolation.

- Management of symptoms e.g. chest pain, breathlessness, palpitations.
- Development of an action plan by patient and carer to ensure early response to symptoms of a possible heart attack.
- Medications e.g. indications, side effects, importance of concordance.
- Investigations and procedures.
- Cardiac health beliefs and misconceptions.
- The importance of follow-up by specialist, GP or other primary care provider.

The above is a list of issues to be considered as the basis for interactive discussions. When held in a group setting, staff trained in group leadership skills should facilitate the discussion. Not all of the issues will be relevant for all patients.

In addition to group discussions, patients should have access to individual/family counselling.

Companion documents

National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Reducing Risk in Heart Disease. Guidelines for prevention of cardiovascular events in people with coronary heart disease, 2003.

National Heart Foundation of Australia – Nutrition Recommendations for Cardiac Rehabilitation, 2002.

National Heart Foundation of Australia – “Stress” and Coronary Heart Disease – Position Paper, 2003.

AustRoads – Assessing Fitness to Drive, 2003.

3.2 Physical activity supervision, emergency procedures and equipment

The risk of a cardiac event in low to moderate intensity physical activity programs is small and the potential benefits of establishing or reinforcing the habit of long term physical activity are great. However, supervision by health professionals is necessary during group physical activity sessions. Patient monitoring may include rating of perceived exertion (RPE), recording of heart rate, blood pressure, respiratory rate (where indicated) and symptoms pre and post activity.

A documented emergency protocol needs to be clearly established, regardless of the intensity or type of

physical activity. Health professional staff supervising the physical activity program should have current cardiopulmonary resuscitation accreditation. One trained health professional can supervise a low intensity physical activity program for groups of less than 10 patients. For groups of 10 to 15 patients, or for a moderate intensity physical activity program, a second person with current cardiopulmonary resuscitation accreditation should also be present. (For a definition of physical activity intensity, see Appendix 2). People with conditions that may require particular medical assessment prior to participating in the physical activity program include those with unstable angina, uncontrolled hypertension, severe aortic stenosis or uncontrolled diabetes, those following a complicated acute myocardial infarction, untreated heart failure or cardiomyopathy and those with symptoms such as shortness of breath on low exertion or a resting heart rate over 100 beats/minute.

3.3 Exercise testing

Exercise testing is always at the discretion of the treating physician and is not an essential part of cardiac rehabilitation. It is optional for assessment of physical capacity at any time or for assessment of progress. It may be useful for patient and family reassurance. If a high intensity physical activity program is offered, a symptom-limited graded exercise test is desirable before the patient enters the program.

3.4 Monitoring and evaluation

Fundamental to the process of quality improvement is the “Plan, Do, Check, Act” cycle in which plans and activities are constantly reviewed to assess the degree to which anticipated outcomes have been achieved. The findings of such reviews are then acted upon to inform the development of subsequent plans and strategies. This cyclical approach applies at all levels of operation from service systems to program delivery. The following paragraphs outline some approaches to the “Check” element of the quality improvement framework described above, which could be adopted by cardiac rehabilitation programs.

3.4.1 National recommendation for the collection of cardiovascular data

The National Health Priority Area (NHPA) report on cardiovascular health recommended the establishment of a national indicator for monitoring cardiac rehabilitation.⁸ The gaps and deficiencies in the monitoring of cardiac rehabilitation have again been identified in an Australian Institute of Health and Welfare (AIHW) discussion paper published in 2003.⁹ National indicators identified in this paper for which data are not yet available include:

- i The proportion of eligible cardiac patients who enter and complete a rehabilitation program, all ages.
- ii The proportion of people with mild/moderate/severe disability at six months following diagnosis of an initial cardiac event, all ages.
- iii Accurate identification of Aboriginal and Torres Strait Islander patients.

The Heart Foundation and ACRA recommend that: “each cardiac rehabilitation program should, at a minimum, collect the number of patients who are referred as well as the proportion who enter and complete a rehabilitation program.”

3.4.2 Data Set Specification for collection of CV data

The National Health Data Committee has also recommended a Data Set Specification (DSS) for the collection of CV data (CV/Data).¹⁰ This data set is not mandated for collection but is recommended as best practice. The definitions used in the CV data are designed to underpin the data collected by health professionals in their day-to-day practice. Examples of CV data elements include:

Sociodemographic elements such as:

Person identifier	Sex
Date of birth	Date of referral to rehabilitation
Date of diagnosis	Country of birth
Indigenous status	Postcode
Preferred language	Living arrangements
Labour force status	Carer availability

Risk factor indicators such as:

Alcohol consumption	Blood pressure
Total cholesterol	Physical activity sufficiency status
Diabetes status	Tobacco smoking status

For a full list of the CV data elements, see Appendix 7. For the complete details of definitions relating to these data elements and a guide to their use see National Health Data Committee – Data Set Specification Cardiovascular Disease, 2003.¹⁰ This is available online at www.aihw.gov.au.

3.4.3 Performance indicators for outpatient programs

It is recommended that evaluation of the program and patient outcomes be incorporated into the cardiac rehabilitation process. Comprehensive program evaluation requires assessment of process, impact and outcome. Process evaluation measures the program strategies/activities, impact evaluation measures the objectives and outcome evaluation measures the goal. Ideally both qualitative and quantitative approaches will be used.

Examples of process evaluation indicators include:

- program reach
- number of people attending
- number of people attending as proportion of those eligible
- number of eligible people referred
- proportion of people who complete the program
- participant satisfaction
- proportion of program discharge summaries sent to GP or other primary care provider.

Examples of impact evaluation indicators include:

- assessment of risk factors at the completion of the program, e.g. lipid levels, blood pressure and tobacco use
- physical activity status using objective clinical measures or self report tools
- assessment of quality of life, self-efficacy, physical and psychosocial functioning
- links established with follow-up services.

Examples of outcome evaluation indicators include:

- maintenance of behaviour change
- risk factor profiles in the longer term
- quality of life
- morbidity, i.e. occurrence of subsequent events
- mortality rates can also be measured, however, this would be beyond the means of most programs.

In addition to the methods described in the AIHW Data Set Specification, some other examples of relevant tools for assessing patient outcomes include:

- Symptom-limited Graded Exercise Test
- Six-minute Walk Test¹¹
- Specific Activity Questionnaire¹²
- Medical Outcomes Study Short Form 36 (MOS SF-36)^{13,14}
- Hare/Davis Cardiac Depression Scale¹⁵
- Minnesota Living with Heart Failure Questionnaire¹⁶
- Seattle Angina Questionnaire¹⁷
- Medication Adherence¹⁸
- Depression, Anxiety and Stress Scale (DASS)¹⁹
- Medical Outcomes Study Social Support Survey (SSS).²⁰

Companion documents

Australian Institute of Health & Welfare – Data Set Specification Cardiovascular disease, 2003.

North East Public Health Observatory Occasional Paper No. 4 – Coronary Heart Disease National Service Framework: Cardiac Rehabilitation – Meeting the Information Needs, April 2002.

4. Ongoing prevention for those with cardiovascular disease

Ongoing maintenance of behaviour change beyond the period of inpatient and outpatient rehabilitation is critical if long-term health benefits are to be realised. Services offered in this period have an emphasis on supporting behaviours that decrease the risk of future cardiovascular events. This involves sustained activities and behaviours to reduce cardiovascular disease risk factors. Healthy nutrition, an active lifestyle, measured alcohol intake and being a non-smoker are key lifestyle factors supported in ongoing prevention programs. The importance of continuing with prescribed medications is also reinforced during this time. This ongoing approach is not necessary, or required for all patients. However, some people may require regular, consistent, up-to-date information as well as further skills training for behaviour change, relapse prevention and self-management.

A range of structured ongoing prevention programs is now being offered to support the ongoing prevention and management that general practitioners and specialists provide. Where programs are provided, a community-based approach is preferable to promote re-adaptation to a normal lifestyle. The needs of the patient and the resources available will determine the type of program or services required. Consideration should be given to developing programs that cater for people with a range of presenting diagnoses, but with similar lifestyle goals, e.g. diabetes.

The need for appropriate medical clearance for the patient to participate in a structured physical activity program will be at the discretion of the program coordinator and the treating doctor. It will depend upon the patient's condition and the type of program offered. In general, if the level of physical activity offered does not exceed that already reached by the patient, and is consistent with Heart Foundation guidelines for moderation, medical clearance will not be necessary. Again, people with conditions that may require medical assessment include those with unstable angina, uncontrolled hypertension, severe aortic stenosis or uncontrolled diabetes, those within three months of a complicated acute myocardial infarction, untreated heart failure or cardiomyopathy and those with symptoms such as shortness of breath on low exertion or a resting heart rate over 100 beats/minute.

Similarly, the level of supervision of the physical activity component of ongoing programs will be at the discretion of the program coordinator and, again, depends upon the patient's condition, the type of program offered and the level of physical activity already reached by the patient.

4.1 Main elements of ongoing prevention

4.1.1 Ongoing assessment and management

- Smoking, nutrition, alcohol, physical activity and weight management including identification of individual goals.
- Biomedical risk factors (lipids, blood pressure, diabetes).
- Pharmacology (e.g. antiplatelets, ACE inhibitors, Beta-blockers, statins, anticoagulants).
- Psychosocial risk factors.

Companion documents

National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Reducing Risk in Heart Disease. Guidelines for prevention of cardiovascular events in people with coronary heart disease, 2003.

Royal Australian College of General Practitioners – SNAP Guide: a guide to behavioural risk factor management in general practice, Final Draft 2003.

4.1.2 Examples of ongoing prevention activities

- Home or community-based walking and/or other physical activity program (e.g. community or recreation centre aqua exercise, light circuit training).
- Linking with cardiac support groups and/or other community-based self-help groups (e.g. Heart Support Australia, Heartbeat).
- Linking with chronic disease self-management programs.
- Ongoing access to education and discussion sessions as required.
- Individual assessment and referral to appropriate health professionals as required.
- Ongoing care in general practice setting.

5. Conclusion

Despite the evidence for the benefits of cardiac rehabilitation and ongoing prevention, existing services are under utilised. This reflects both a lack of initial referral and a failure of patients to attend despite having been referred. Referrals should be offered to all patients and the individual needs of each patient, and their family and community, need to be considered. Patient preferences for different program models and methods of delivery should be investigated and services developed. This represents an area of work currently under consideration by the Heart Foundation in partnership with other key stakeholders.

Appendix 1: References, companion documents and resources

The practitioner is referred to the following resources for more detailed information.

Cited references

- 1 DeBusk RF et al. A new approach to risk factor modification. *Cardiology Clinics* 1996; 14:143-157.
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Companion documents and resources

All Heart Foundation documents referred to throughout this framework are available by phoning **Heartline** on **1300 36 27 87** (local call cost) and most are also available at www.heartfoundation.com.au (Go to Health & Lifestyle>Professional). A catalogue listing all professional and consumer Heart Foundation materials is available via Heartline.

General

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- Queensland Health Outpatient Cardiac Rehabilitation Best Practice Guidelines for Health Professionals. Available at www.health.qld.gov.au/Publications/best_practice/9115cardiac_doc.pdf
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Chronic disease self-management

- Australian Journal of Primary Health Special Issue – The Management of Chronic Disease in Primary Care Settings 2003. Vol 9, Nos 2&3.
- Flinders University Human Behaviour and Health Research website (contains links to self-management and information on models developed by Battersby M et al). Available at som.flinders.edu.au/FUSA/CCTU/home.html
- Stanford University website. Available at patienteducation.stanford.edu

Hypertension

- National Heart Foundation of Australia – Guide to Management of Hypertension for Doctors, 2004.

Monitoring and evaluation

- Australian Institute of Health and Welfare Data Set Specification – Cardiovascular disease (clinical). National Health Data dictionary 2003. Version 12. Available at www.aihw.gov.au
- Hawe P, Degeling D and Hall J. Evaluating health promotion: a health worker's guide 1990. MacLennan and Petty: Sydney.
- North East Public Health Observatory Occasional Paper No4 – Coronary Heart Disease National Service Framework: Cardiac Rehabilitation - Meeting the Information Needs, April 2002. Available at www.nepho.org.uk/files/reference/occ_paper/OC04.pdf

Nutrition

- National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Lipid Management Guidelines, 2001. Available at www.heartfoundation.com.au
- National Heart Foundation of Australia – Nutrition Recommendations for Cardiac Rehabilitation, 2002.

Physical activity

- AustRoads – Assessing Fitness to Drive, 2003. Available at www.austroads.com.au/aftd.html
- Guidelines for physical activity after heart attack and heart surgery, 2003.

Professional development

- Australian Cardiac Rehabilitation Association and affiliated state organisations provide a range of professional development opportunities. Membership enquiries ph: 1300 66 22 72, website www.acra.net.au
- The Heart Research Centre, Melbourne, offers a five-day training course in Cardiac Rehabilitation. For details contact 03 9347 5544.
- Masters in Cardiopulmonary Rehabilitation, University of Western Sydney. For details contact Dr Barry Ridge ph: 02 9772 6439, fax: 02 9772 6810, email: B.Ridge@uws.edu.au

Psychosocial issues

- Beyond Blue website – www.beyondblue.org.au
- Bunker SJ, Colquhoun DM et al. 'Stress' and coronary heart disease: psychosocial risk factors. National Heart Foundation of Australia position statement update. 2003 Medical Journal of Australia 178(6): 272-276.

Special populations

Aboriginal and Torres Strait Islander people

- Bartlett B and Boffa J. Aboriginal community controlled comprehensive primary health care: the Central Australian Aboriginal Congress. Australian Journal Of Primary Health 2001; 7:74-81.
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- National Heart Foundation of Australia Summary of Aboriginal and Torres Strait Islander Townsville Cardiovascular Disease Workshop October 1999. Accessed at www.heartfoundation.com.au. Follow links to Professional > Aboriginal and Torres Strait Islander > Townsville CVD workshop.

Angina

- National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Unstable Angina Guidelines, 2000.

Heart failure

- Victorian Government Department of Human Services, Hospital Admission Risk Program. Chronic Heart Failure Working Party Report. Available at: www.health.vic.gov.au/hdms/harp/index.htm
- National Heart Foundation of Australia/Cardiac Society of Australia and New Zealand – Guidelines for the Contemporary Management of Heart Failure, 2002. Available at www.heartfoundation.com.au
- National Institute of Clinical Studies www.nicsl.com.au/projects_projects_detail.aspx?view=15&subpage=19
- NSW Clinical Service Framework for Heart Failure, 2003. Available at www.health.nsw.gov.au

Consumer resources

The Heart Foundation has a wide range of consumer booklets about healthy lifestyle, general heart health, heart diseases and conditions, treatments and rehabilitation. Copies of these, as well as cookbooks and information sheets are available from **Heartline**, the Heart Foundation's national telephone information service, on **1300 36 27 87** (local call cost). A wide range of heart health information is also available at www.heartfoundation.com.au

Appendix 2: Definition of physical activity intensity

Classification of physical activity intensity

Endurance type exercise							Strength type exercise*	
		Relative intensity			Absolute intensity in healthy adults (age) METs ‡		Relative intensity	
Intensity	Respiratory descriptions	VO ₂ max, %	HR _{max} , % ^	Beats above HR _{rest} ^	RPE†	Middle aged (40-64)	Older (65- 79)	Max voluntary contraction, %
Low	↑ Breath rate	20 – 39	35 – 54	10 – 25	10 – 11	2.0 – 3.9	1.6 – 3.1	30 – 49
Moderate	Breathe harder	40 – 59	55 – 69	20 – 35	12 – 13	4.0 – 5.9	3.2 – 4.7	50 – 69
Hard	Puff and pant	60 – 84	70 – 89	30 – 55	14 – 16	6.0 – 8.4	4.8 – 6.7	70 – 84

* Based on 8 to 12 repetitions for persons <50-60 years old and 10 to 15 repetitions for persons ≥50-60 years

^ Absolute heart rate measures should not be used in the presence of beta-blockers

† Borg rating of Relative Perceived Exertion (RPE), 6-20 scale

‡ Maximum values are mean values achieved during maximum exercise by healthy adults. Absolute intensity values are approximate mean values for men. Mean values for women and patients with heart disease are likely to be lower than those for men

Adapted from Fletcher GT et al. Circulation 2001; 104:1694-1700.

Some participants find the category-ratio scale for rating of perceived exertion easier to understand than the category scale. The relationship between the two is presented below.

Category scale	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	very very light		very light	fairly light		somewhat hard		hard	very hard		very very hard				
Descriptors	just noticeable		light	moderate		heavy						almost max			
Category -ratio scale	0	0.5	1	2	3	4	5	6	7	8	9	10			

Adapted from Fardy PS et al. Training Techniques in Cardiac Rehabilitation 1998.

Appendix 3: Summary of program content

Inpatient	Outpatient	Ongoing prevention
<p>Mobilisation and resumption of activities of daily living</p> <p>(see Appendix 2)</p>	<p>Low or moderate intensity physical activity program</p> <ul style="list-style-type: none"> • Minimum of six sessions, weekly or twice weekly, including warm-up and cool-down period, and catering for the individual needs and capacities of each patient. • Written guidelines for resumption of daily activities, including home walking program, and aiming at an accumulation of 30 minutes or more of light to moderate physical activity on most, or all, days of the week. • Individual review of physical activity program at each contact. 	<p>Regular physical activity</p>
<p>Basic information, education and counselling</p> <ul style="list-style-type: none"> • Reassurance and explanation of cardiac condition, treatment and procedures. • Psychological issues e.g. mood (depression), emotions, sleep disturbance. • Social factors e.g. family and personal relationships, social support/isolation. • Explanation of the inpatient activity (mobilisation) program. • Management of symptoms e.g. chest pain, breathlessness, palpitations. • Medications. • Identification and modification of risk factors. • Wound care (if applicable). • Resumption of physical, sexual and daily living activities (including driving and return to work). • Discharge planning, including referral to outpatient program. 	<p>Education, discussion and counselling</p> <ul style="list-style-type: none"> • Basic anatomy and physiology of the heart. • Effects of heart disease, the healing process, recovery and prognosis. • Risk factors for heart disease and their modification for secondary prevention. • Skills for behaviour change and maintenance. • Resumption of physical, sexual and daily living activities including driving and return to work. • Psychological issues e.g. mood (depression), emotions, sleep disturbance. • Social factors e.g. family and personal relationships, social support/isolation. • Management of symptoms e.g. chest pain, breathlessness, palpitations. • Medications. • Investigations and procedures. • Cardiac health beliefs and misconceptions. 	<p>Supporting concordance with goals of medical therapy, including medications</p> <ul style="list-style-type: none"> • Coordinated chronic disease management including ongoing individual medical care. • Monitoring of risk factors (lipids, blood pressure, etc.). <p>Support for maintenance of behaviour change (remain smokefree, regular physical activity, healthy eating, etc.)</p> <ul style="list-style-type: none"> • Communicate with treating doctor and/or primary care provider. • Heart support and/or other community-based groups. • Ongoing access to education and discussion sessions as required. • Home or community-based walking and/or other physical activity program (e.g. community or recreation centre aqua exercise, light circuit training). • Individual assessment and referral to appropriate health professionals as required. • Telephone follow-up. • Ongoing care in general practice setting.
<p>Discharge planning Referral to outpatient program</p>	<p>Referral to ongoing prevention program</p>	

Appendix 4: Inpatient mobilisation program

The mobilisation program can usually be commenced when the patient is clinically stable.

Program for:..... Date commenced:...../...../.....

This mobilisation program is to help patients return to an activity level that allows them to be independent. Ward staff will regularly review and guide progress through stages 1-6. These stages do not necessarily correspond to days. In some situations, stages may be notional and mobilisation may be achieved in a single day. Individual assessment of progress should occur on a regular basis.

When doing any of these activities, symptoms such as chest pain, shortness of breath, fast heart rate and feeling dizzy or unwell should be reported to a nurse immediately.

Stage	Physical Activity	Date Achieved	Comment
1	To the shower in a wheelchair. The nurse will shower patient while they remain seated. Go out to the toilet in the wheelchair. Sit out in a chair for meals. Do arm and leg exercises as shown.		
2	To the shower in a wheelchair. The nurse will shower patient while patient remains seated. Go out to the toilet in the wheelchair. Sit out in a chair for meals. Do arm and leg exercises as shown. Walk slowly for 1-2 minutes twice a day.		
3	Patient to shower on their own while seated on the wheelchair. Walk to the toilet as necessary. Sit out in the chair as often as patient wishes. Walk slowly for 2-3 minutes twice a day.		
4	Shower. Walk at an easy pace for 3-4 minutes twice a day. In addition, patient may walk around room as much as they like.		
5	Shower. Walk for 4-5 minutes twice a day. Climb one flight of stairs with the supervision of the nurse or physiotherapist.		
6	Shower. Walk for up to ten minutes twice a day. Climb two flights of stairs with the supervision of the nurse or physiotherapist.		

Appendix 5: Inpatient education checklist

Program for:..... Date commenced:...../...../.....

Details of patient education should be documented in the patient's medical records. It is recommended that the health (medical) professional responsible for addressing a particular topic sign for that topic when completed. If a topic is not applicable this point should be recorded. For short stay patients (1-2 days) the emphasis will be on discharge planning and follow-up.

Topic	Discussed	Resources provided	Action/comment required	Sign/Date
Explanation of the cardiac condition, treatment, procedures and recovery Psychological and social implications of the illness including: return to work driving social support affect on mood, e.g. depression, anxiety Explanation of the Inpatient Mobilisation Program Management of symptoms in hospital				
Medications (stressing the importance of ongoing concordance with prescribed medications)				
Risk factor modification: smoking Nutrition goals: blood cholesterol weight management targets alcohol consumption guidelines Physical activity goals: establishing a pattern of regular activity resumption of lifestyle activities resumption of sexual activity Blood pressure goals				
Wound care (where applicable)				
Management of chest pain or discomfort post discharge Outpatient Cardiac Rehabilitation discussed and referral made				

Other comments:

On discharge the patient to sign:

I..... have participated in discussion of the topics as outlined above

Signature:.....Date:...../...../.....

Patient comments:

Appendix 6: Cardiac rehabilitation policy statements

National Heart Foundation of Australia and the World Health Organisation

1. Adequate rehabilitation means most cardiac patients can return to their normal activities, lead enjoyable and productive lives and have reduced risk of further cardiac events.

Cardiac rehabilitation provides patients and their families with a program of education, information, physical activity and support.

The World Health Organisation and the National Heart Foundation of Australia, recommend that, unless contraindicated, all patients who have had a heart attack, heart surgery, coronary angioplasty or other heart or blood vessel disease, are routinely offered the opportunity to be referred to, and participate in, a cardiac rehabilitation and prevention program that is appropriate to individual needs.

National Heart Foundation of Australia, 2000.

2. Cardiac rehabilitation should be an integral component of the long-term, comprehensive care of cardiac patients.

Cardiac rehabilitation programs or services should be available to all patients with cardiovascular disease.

Rehabilitation services should be provided by any trained health professional caring for cardiac patients, since no sophisticated equipment or facilities are required. Both patients and their families should participate.

World Health Organisation: Report of Expert Committee on Rehabilitation after Cardiovascular Disease. WHO Technical Report Series No. 831, Geneva, 1993.

Appendix 7: CV Data Set Specification

Data elements

Alcohol consumption frequency – self report
Alcohol consumption in standard drinks per day – self report
Australian postcode
Behaviour – related risk factor intervention
Behaviour – related risk factor intervention – purpose
Blood pressure – diastolic measured
Blood pressure – systolic measured
Carer availability
Cholesterol HDL – measured
Cholesterol LDL – measured
Cholesterol total – measured
Country of birth
Creatinine serum – measured
CVD drug therapy – measured
Date of birth
Date of diagnosis
Date of referral to rehabilitation
Diabetes status
Diabetes therapy type
Division of general practice number

Fasting status
Formal community support access status
Height – measured
Indigenous status
Labour force status
Living arrangement
Person identifier
Physical activity sufficiency status
Preferred language
Premature cardiovascular disease family history – status
Proteinuria – status
Renal disease therapy
Service contact date
Sex
Tobacco smoking – consumption/quantity (cigarettes)
Tobacco smoking status
Triglycerides – measured
Vascular history
Vascular procedures
Waist circumference – measured
Weight – measured

National Health Data Committee. Data Set Specification
Cardiovascular Disease 2003. National Health Data
Dictionary Version 12 AIHW: Canberra. Available at
www.aihw.gov.au

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About the Heart Foundation

The National Heart Foundation of Australia is a charity and the leading organisation in the fight against cardiovascular disease. As a charity we rely almost entirely on donations and gifts in wills from Australians to help us continue our lifesaving research and health promotion work. The production of these guidelines has been made possible thanks to the ongoing support of the Australian community. The input from the Australian Cardiac Rehabilitation Association in developing these guidelines is gratefully acknowledged. For a full listing of acknowledgements, please go to www.heartfoundation.com.au and follow the Health & Lifestyle/Health Professional/Rehabilitation links. For further copies of these guidelines and other professional resources please contact Heartline on 1300 36 27 87 or go to www.heartfoundation.com.au

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