

A Survey of Accessibility to Australia's Phase 2 Cardiac Rehabilitation Programs to Patient Barriers

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Abstract

Despite the evidence to support cardiac rehabilitation, existing services remain underutilised. Accessibility to those services is a major factor in the underutilisation of current programs. Available literature on barriers to the accessibility of out-patient cardiac rehabilitation services were reviewed. Using Penchansky and Thomas' (1981) five dimensions of accessibility as a structural framework, the information obtained from this review was then used to create a formal questionnaire which was sent to each of the Cardiac Rehabilitation Programs within Australia in 2007-2008 (n=401). The survey highlighted that the need for a referral, the disease the patient has, the distance required for travel, whether group and individual sessions are provided, flexibility in service delivery setting, hours of operation, cost, and the range of program components, significantly limit patient accessibility to Phase 2 Cardiac Rehabilitation Programs. Completion rates were low for most programs. The Survey revealed that patient accessibility to Phase 2 Cardiac Rehabilitation Programs includes various socio-economic and geographic impediments that can prevent or limit service use. While barriers to cardiac rehabilitation are well known, service providers need to ensure these patient barriers are taken into consideration when providing a Phase 2 Cardiac Rehabilitation Program to improve their accessibility.

Keywords

survey, health services, accessibility, cardiac, rehabilitation

1. Introduction

Cardiac rehabilitation programs are traditionally provided in three phases: beginning during hospital admission (commonly known as Phase 1); followed by a supervised ambulatory outpatient program lasting for six to eight weeks (commonly known as Phase 2); and continuing with an ongoing minimally supervised maintenance phase (commonly known as Phase 3; Haghshenas & Davidson, 2011). Usually people with cardiac disease are referred to outpatient cardiac rehabilitation from inpatient settings following a hospital admission for an acute event or revascularisation procedure. Attendance begins soon after discharge from hospital, ideally within the first few days (Goble & Worcester, 1999). However, referrals are increasingly being encouraged for people with coronary heart disease, and for those at high risk of developing coronary heart disease (National Heart Foundation and Australian Cardiac Rehabilitation Association, 2004). These referrals come from a wide variety of other sources including general practitioners, cardiologists, other medical specialists, community health centres, diabetes educators and other hospital outpatient clinics (National Heart Foundation and Australian Cardiac Rehabilitation Association, 2004).

The length, content and type of program vary according to the specific needs of the individual and the available resources. Formal outpatient cardiac rehabilitation programs vary widely in content (Goble & Worcester, 1999). However, there are a number of common elements to all phase 2 cardiac rehabilitation programs. The main components of phase 2 cardiac rehabilitation as recognised by the National Heart Foundation of Australia & Australian Cardiac Rehabilitation Association (2004) are as follows, regardless of the type of program being provided:

- 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.
- 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.
 - 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.
- 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 on-going 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.
- 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 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.

Services are provided for a period of between 4 and 12 weeks and are predominantly based in outpatient hospital settings (Dollard et al., 2004). However phase 2 cardiac rehabilitation may be also be provided in community health centres, general medical practices, or at the patients home or a combination of these. Home-based cardiac rehabilitation may include a combination of home visits, telephone support, telemedicine or specifically developed self-education materials. Sessions may be offered once, twice or occasionally three times per week in Australia (Goble & Worcester, 1999). Once patients have completed a Phase 2 cardiac rehabilitation program they may be offered a Phase 3 cardiac maintenance program, if one is available.

Despite the evidence to support the role of cardiac rehabilitation, existing services remain underutilised (National Heart Foundation and Australian Cardiac Rehabilitation Association, 2004). Bunker and Goble (2003) have identified that access to cardiac rehabilitation is one of the major factors affecting the utilization of Phase 2 Cardiac Rehabilitation programs, especially in rural and remote areas within Australia. Phase 2 Cardiac Rehabilitation is also known as outpatient cardiac rehabilitation. Clark et al. (2014) have demonstrated that the majority of Australians have excellent “geographic” access to secondary prevention services after discharge and this does not seem to have translated to attendance. Clark et al. (2014) highlight the need for more research on the socioeconomic, sociological or psychological aspects of attendance.

The main aim of cardiac rehabilitation is to maximise health and quality of life. However it is vital to consider other characteristics of CR, such as convenience, accessibility, flexibility, and personal beliefs and preferences (Watchel, 2011). Health consumer preferences are therefore an important consideration when designing future programs, to ensure interventions are individualised, and designed to increase

access and attendance while minimising barriers (Watchel, 2011). A range of factors interact to influence a patient's ability to access health care at any point in time. Penchansky and Thomas (1981) have defined the following 5 dimensions to describe accessibility:

- 1) Availability: the relationship between the volume and type of existing services (and resources) and the clients' volume and types of needs. Availability refers to the adequacy of the supply of physicians, dentists, and other providers or facilities, such as clinics and hospitals, and of specialized programs and services, such as mental health and emergency care.
- 2) Accessibility: the relationship between the location of supply and the location of clients, taking account of client transportation resources and travel time, distance and cost.
- 3) Accommodation: the relationship between the manner in which the supply resources are organized to accept clients (including appointment systems, hours of operation, walk-in facilities, telephone services) and the clients' ability to accommodate these factors.
- 4) Affordability: the relationship between the prices of services and providers' insurance or deposit requirements and the client's income, ability to pay, and existing health insurance. Client perception of worth relative to total cost may be a concern, as is clients' knowledge of prices, total cost, and possible credit arrangements.
- 5) Acceptability: the relationship, between clients' attitudes about personal and practice characteristics of existing providers including age, sex, location and type of facility or religious affiliation of the provider or facility, as well as provider attitudes about acceptable personal characteristics of clients, including ethnicity and source of payment.

Barriers to patients accessing cardiac rehabilitation generally fall into two categories: patient barriers and health service barriers. Cooper et al. (2002) for example found that patients that did not attend were likely to be older, have lower income/greater deprivation, downplay the seriousness of their illness, are less likely to believe they can influence the course and outcome of their illness and are less likely to perceive that their physician recommends cardiac rehabilitation. Stewart, Williams, Lowe and Candlish (2005) ran focus groups and identified the following issues which would improve the accessibility of cardiac rehabilitation services to patients: rescheduling more clinic visits in the last 12 weeks of the program; holding exercise classes with fewer participants; improving the venue for the education sessions; revisiting the clinical pathways to identify patients for referral to the program; actively recruiting subjects through specialists; ensuring all subjects received a home visit; providing a transportation service for subjects to attend the program; and providing accessible parking for those who preferred to use private transport.

2. Method

A literature review of published literature on barriers to the uptake of cardiac rehabilitation services within Australia was undertaken, using Academic Search Premier and the following keywords: cardiac rehabilitation and accessibility. Only journal articles that described Australian cardiac rehabilitation

programs were utilised.

2.1 Development of Questionnaire

Using Penchansky and Thomas' (1981) five dimensions of accessibility as a structural framework, the information obtained from the literature review was used to form a series of questions (refer to Table 1). The questions were both open-ended and closed. These questions were then organised into a formal questionnaire. The questionnaire was sent to each of the Cardiac Rehabilitation Programs within Australia (n=401).

Table 1. Methodology for Developing the Cardiac Rehabilitation Accessibility Survey

Penchansky and Thomas (1981)	References	Cardiac Rehabilitation Accessibility Survey Question
dimensions of access:		
Accessibility —Describes geographical barriers, including distance, transportation, travel time, and cost.	<p>Living an average of 27 km away compared to an average of 47 km (Schulz & McBurney, 2000).</p> <p>Compared with non-attendees, patients who attended CR had a significantly shorter travel time (mean difference, 5.31 min [95% CI, 0.81-9.81 min]; F1, 159=5.42; P=0.021), lived closer to the program venue (mean difference, 5.53 km [95% CI, -0.22 to 11.27 km] (Higgins et al., 2008).</p> <p>Patients were less likely to attend CR as travel time increased: 1 min of extra travel time was associated with a 14% reduction in the likelihood of attendance, and 10min of extra travel time corresponded to a 77% reduction (Higgins et al., 2008).</p> <p>"This is highlighted by the fact that attendees lived an average of 15.4 km from the facility providing the CR program whereas non-attenders lived an average of 40.4 km from the facility. Easy access to transport is a principal enabler to CR attendance" (DeAngelis et al., 2008).</p> <p>Aikman et al. (1996). Found the patient characteristics that influenced attendance were "wanting to attend", "partner wanting to attend" and "living less than 15 km from the program".</p>	<p>Program location (where do patients go to access your program): Street: Suburb: Town/city: Postcode:</p>
Availability —Defines the supply of services in relation to needs—are the types of services adequate to meet health care needs?	<p>Many CR programs have an age limit on attendance (Schulz & McBurney, 2000; Pell et al., 1996; McGee & Horgan, 1992).</p> <p>Exclusions were on the basis of age, a positive exercise tolerance test, postinfarct angina or heart failure, despite the fact they may have benefited the most from exercise cardiac rehabilitation (Tod et al., 2002).</p> <p>The most significant factor in the prediction of CR attendance was referral to the program (Schulz & McBurney, 2000).</p>	<p>Which of the following age groups do you allow to use your cardiac rehabilitation program? All ages, <15, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+</p> <p>According to discharge diagnosis, what type of patients do you allow into your cardiac rehabilitation program? (please tick all of those that apply).</p> <p>Do the people that utilise your cardiac rehabilitation program require a referral? (please circle) Yes/No If</p>

		“Yes” where do people usually get referred from?
Accommodation —Identifies the degree to which services are organised to meet clients’ needs, including hours of operation, application procedures, and waiting times.	<p>Some patients interpreted cardiac rehabilitation as exercise only. This was a barrier when people did not see exercise for them (Tod et al., 2002).</p> <p>The provision of home as well as hospital-based CR may be an important means of addressing the suboptimal uptake of CR after MI (Wingham et al., 2006).</p> <p>Some participants advocated the delivery of education and exercise in a group setting. Others found it inappropriate and unappealing (Tod et al., 2002).</p> <p>Home-based, CR models have the most substantive evidence base and, therefore the greatest potential to be developed and made accessible to eligible people living in rural and remote areas (Dollard et al., 2004).</p>	<p>Which of the following are included in your cardiac rehabilitation program (please tick all that apply)?</p> <p>Health education, physical activity, counselling, behaviour modification strategies, support for self-management, cultural understanding.</p> <p>Within what type of setting is the cardiac rehabilitation program run (tick all that apply): within an acute public hospital, within an acute private hospital, within an Aboriginal medical service, within a non-acute/community hospital, within a public community health centre/service, within a private outpatient service, as part of an outreach service to communities, telephone service, home visits, internet.</p> <p>What type of sessions do you provide? Group only, individual only, group and individual.</p> <p>When is your cardiac rehabilitation program available to patients (please indicate operating hours):</p>
Affordability —Refers to the price of services in regard to people’s ability to pay.	<p>Reasons for not participating include lack of time, lack of referral or physician support, financial reasons, lack of motivation, perceptions of the benefits, distance and transportation, family composition, nature of the program and work commitments (Shepherd et al., 2003).</p> <p>Patients on a low income or who are socially deprived are less likely to attend but as with the elderly or female patients, may have the most to gain from secondary prevention because there is a linear relationship between socioeconomic status and cardiac outcome (Cooper et al., 2002).</p>	<p>Is there a cost associated with attending your cardiac rehabilitation program that is not covered by medicare?</p> <p>yes/no If yes, what is the cost?</p>
Acceptability —Describes client’s views of health services and how service providers interact with clients.	<p>While the evidence underpinning cardiac rehabilitation suggests that it can be of benefit, poor attendance rates mean that services often fail to help those in need (Clark et al., 2004).</p>	<p>How many patients participated in your cardiac rehabilitation program in the last financial year (2007/2008)?</p> <p>How many patients completed your cardiac rehabilitation program in the last financial year (2007/2008)?</p>

The names and addresses of cardiac rehabilitation centres were obtained from the Australian Cardiovascular Health and Rehabilitation Association in March 2008 and the Australian Government National Health and Medical Research Council’s report “Geographic Information System of Cardiac

Rehabilitation Services for Aboriginal and Torres Strait Islander Peoples” (2007). The address lists were combined and duplicates were removed.

2.2 Pilot Survey

An initial pilot survey was undertaken in July 2008, using a subsample of 20 cardiac rehabilitation services from the total population (n=401). The cardiac rehabilitation services were chosen at random and were used to test the suitability of the Survey questionnaire and the method of its delivery. The questionnaires were sent to the rehabilitation coordinators for each cardiac rehabilitation service via email. Only 3 questionnaires were returned and 12 of the emails that were sent no longer had valid email addresses. As a result of the poor response rate from the pilot testing, traditional post was considered to be the preferred method of survey delivery.

2.3 Survey

In October 2008 a postal survey of all 401 cardiac rehabilitation services in Australia was undertaken to collect information on the accessibility of their Phase 2 Cardiac Rehabilitation Programs for the 2007/2008 financial year. Every Cardiac Rehabilitation Service was mailed a questionnaire and given 3 weeks to return it in a pre-paid envelope. Incentive for the return of the questionnaire was provided by “The Heart Shop” in the form of a Polar Heart Rate Monitor. This was given at random to one of the cardiac rehabilitation services that returned their questionnaire. A total of 39 cardiac rehabilitation services did not reply to the questionnaire. These services were given a follow-up phone call requesting information but they were still unable to provide information. Many of the Cardiac Rehabilitation Coordinators for these services stated that they did not have the time to fill out the questionnaire (n=28), that they did not run a Phase 2 Cardiac Rehabilitation Program (n=9), or could just not be contacted (n=2). The return rate for the questionnaire was 84% with 362 Cardiac Rehabilitation Services returning questionnaires, however 158 of the questionnaires that were returned stated that they did not run a formal Phase 2 Cardiac Rehabilitation Program. This resulted in a total of 204 Cardiac Rehabilitation Services completing questionnaires for analysis.

2.4 Analysis

Data was transcribed from the completed questionnaires into Microsoft Excel for analysis. A series of descriptive statistics were undertaken on each of the questions from the questionnaires.

3. Result

Of the 204 Cardiac Rehabilitation Services that completed the survey 35 of them ran multiple Phase 2 Cardiac Rehabilitation Programs from their service. A questionnaire was completed for each of the 228 Phase 2 Cardiac Rehabilitation Programs and these have been the basis for this study.

3.1 Accessibility

The Survey revealed that while other options of transportation were available such as a bus stop nearby (53%), or a taxi station (32%), or a community bus stop (19%) most patients take private transport to access their Phase 2 Cardiac Rehabilitation Program as 105 programs reported 91%-100% of their

patients travelling via private car (refer to Table 2). Other modes of patient transport reported in the survey included between 0-10% using taxis, train, bus, community bus or other which mainly included walking or the use of volunteer drivers. The Survey also revealed that 95% of Phase 2 Cardiac Rehabilitation Programs had a car park.

Table 2. The Percentage of Patients That Use Each Mode of Transport to Travel to Each of the Phase 2 Cardiac Rehabilitation Programs (n=228)

Percentage of Patients	No. of Phase 2 Cardiac Rehabilitation Programs					
	Private Car	Taxi	Train	Bus	Community Bus	Other
0-10%	22	216	227	221	221	210
11-20%	2	6	1	6	0	6
21-30%	4	3	0	1	3	5
31-40%	1	0	0	0	1	3
41-50%	8	2	0	0	0	1
51-60%	1	0	0	0	0	0
61-70%	7	0	0	0	1	0
71-80%	26	1	0	0	1	1
81-90%	52	0	0	0	0	1
91-100%	105	0	0	0	0	1

Source: Cardiac Rehabilitation Accessibility Survey.

3.2 Availability

A letter of referral from either a General Practitioner or Cardiologist is not a mandatory requirement to gain access to Phase 2 Cardiac Rehabilitation Programs in Australia (Bunker & Goble, 2003). We found that 73% of Phase 2 Cardiac Rehabilitation Programs in Australia needed a referral prior to patients accessing their program.

Results from the Survey also show that 68% of Phase 2 Cardiac Rehabilitation Programs in Australia accept all age groups into their programs. Of the 32% that did not accept all age groups into their programs almost all accepted patients from 35 to 85 years and older into their programs.

The National Heart Foundation (2004), state that 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. Figure 1 lists the coronary heart disease codes which were translated from The National Heart Foundations' 2004 guidelines into disease codes by Professor Andrew Tonkin, Head of Cardiovascular Research Unit, Department of Epidemiology and Preventative Medicine, Monash University, Melbourne, Australia. Results from the Survey reveal that patient accessibility to Phase 2 Cardiac

Rehabilitation Programs in Australia is restricted by the patient's type of cardiovascular disease. Figure 1 shows that less than half of the Phase 2 Cardiac Rehabilitation Programs in Australia accept patients with the following coronary heart disease conditions: Dressler's Syndrome, Atrial Thrombosis Auricle Append Ventricular with Acute Myocardial Infarction, Ruptured Papillary Muscle Complications following Acute Myocardial Infarction, Ruptured Chordae Tendineae Complications following Acute Myocardial Infarction, Ruptured Cardiac Wall without Hemopericardium following Acute Myocardial Infarction, and Haemopericardium Current Complications following Acute Myocardial Infarction. The survey results also reveal that heart failure patients are not accepted at all Phase 2 Cardiac Rehabilitation Programs.

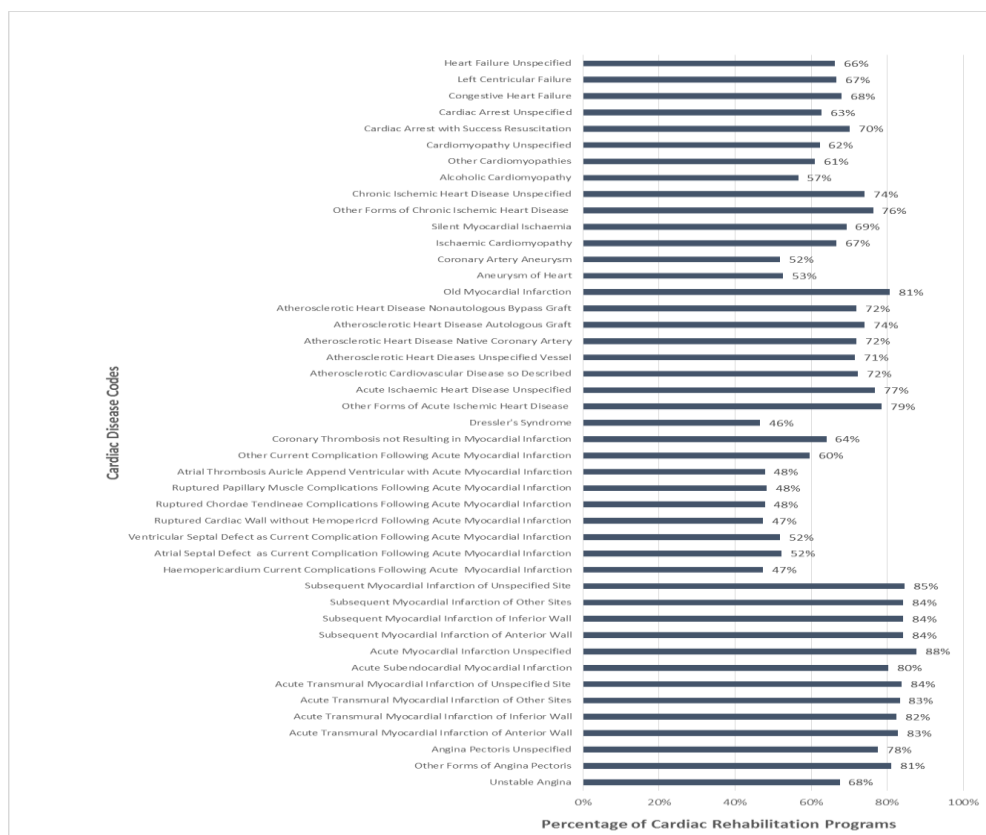


Figure 1. Discharge Diagnosis Accepted into Phase 2 Cardiac Rehabilitation Programs (n=228)

Source: Cardiac Rehabilitation Accessibility Survey.

3.3 Accommodation

The Survey found that all Phase 2 Cardiac Rehabilitation Programs in Australia were each run with very limited and specific hours of operation, with some programs operating as little as 2 hours a week. The survey also found that only 2% of the Phase 2 Cardiac Rehabilitation Programs ran out-of-hours sessions for patients. More than half (56%) of the Phase 2 Cardiac Rehabilitation Programs surveyed conducted both group and individual sessions. Group only sessions were conducted by 36.8% of the

total number of Phase 2 Cardiac Rehabilitation Programs in Australia. Individual only sessions were run by only 6.6% of the Phase 2 Cardiac Rehabilitation Programs surveyed.

Cardiac patients' accessibility to the Phase 2 Cardiac Rehabilitation Program may also be influenced by their perception of the quality of the program. The Survey used the National Heart Foundations' Recommended Framework (2004) to determine what components would be best practice to include in a Phase 2 Cardiac Rehabilitation Program. The National Heart Foundation recommended that health education, physical activity, self-management, behaviour modification strategies, counselling, and cultural understanding (understanding how a person's culture may inform their values, behaviour, beliefs and basic assumptions) were necessary components of a Phase 2 Cardiac Rehabilitation Program. We found that a large percentage of the Phase 2 Cardiac Rehabilitation Programs had each of these components recommended as best practice within their program (refer to Table 3). However the survey also found that only 49% of Phase 2 Cardiac Rehabilitation Programs had all 6 recommended components. Therefore most Phase 2 Cardiac Rehabilitation Programs within Australia failed to meet the National Heart Foundations' recommendation of what a Phase 2 Cardiac Rehabilitation Program should comprise.

Table 3. The Percentage of Phase 2 Cardiac Rehabilitation Programs with Components Recommended by the National Heart Foundation

Phase 2 Cardiac Rehabilitation Program Component	% of Phase 2 Cardiac Rehabilitation Programs	No. of Phase 2 Cardiac Rehabilitation Programs n= 228
Health education	96%	220
Physical activity	96%	220
Counselling	80%	183
Behaviour modification strategies	84%	190
Support for self-management	90%	207
Cultural understanding	62%	141

Source: National Heart Foundation, 2004, p. 1; Cardiac Rehabilitation Accessibility Survey.

The results from the Survey reveal that a majority of Phase 2 Cardiac Rehabilitation Programs operate out of an acute public hospital (51%). Figure 2 shows that Phase 2 Cardiac Rehabilitation Programs offering alternative modes of delivery such as: telephone service (27%), home visits (25%), postal (12%) and internet (2%), are limited. The survey also showed that only 2% of Phase 2 Cardiac Rehabilitation Programs ran an after-hours service. The Survey also revealed that 54% of Phase 2 Cardiac Rehabilitation only offer their service through one delivery setting. Only 3% of Phase 2 Cardiac Rehabilitation Programs were found through the survey to offer their service through 5 settings.

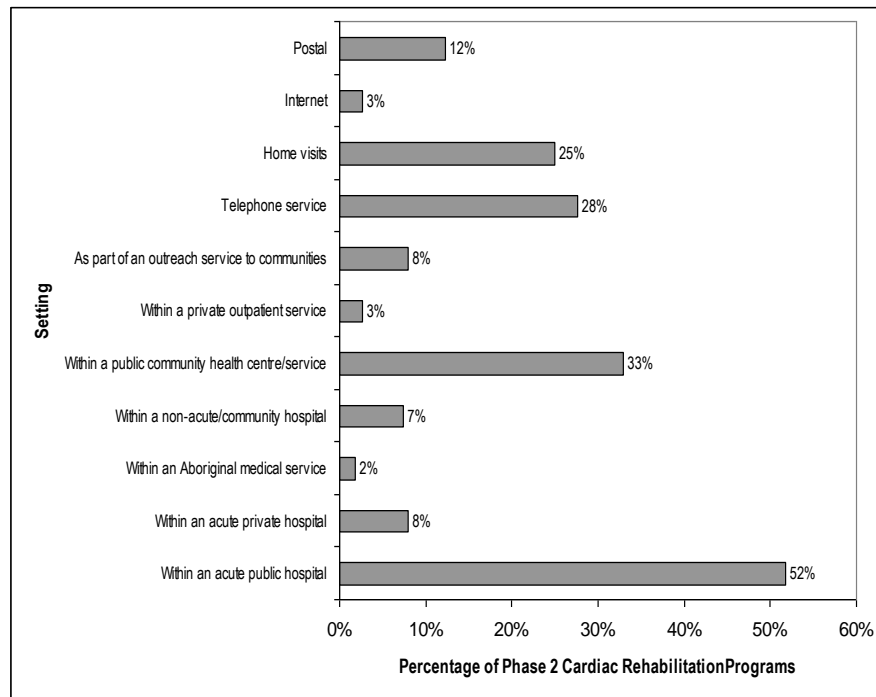


Figure 2. The Number of Phase 2 Cardiac Rehabilitation Programs for Each Setting (n=228)

Source: Cardiac Rehabilitation Survey.

3.4 Affordability

The cost of cardiac rehabilitation programs varies considerably across Australia. The Survey revealed that only 23% of Phase 2 Cardiac Rehabilitation Programs in Australia are provided to the patient as a free service. The survey also revealed that schemes to make the Phase 2 Cardiac Rehabilitation Programs accessible to poorer patients such as Medicare (59%), Centrelink (56%), Health Card (57%) and Department of Veteran Affairs Cards (70%) were not accepted at all programs. Extra costs were also identified through the survey which ranged from a gold coin donation per session to \$60 AUD (\$44.89 USD) per session.

3.5 Acceptability

Results from the Survey, reveal that completion rates of Phase 2 Cardiac Rehabilitation Programs are low. Figure 3 shows that only 14% of Phase 2 Cardiac Rehabilitation Programs had 100% of patients complete their program. The survey also revealed that 18% of Phase 2 Cardiac Programs had half or less of their patients complete the program.

Aboriginal Australians have low rates of participation in Cardiac Rehabilitation (CR), despite having high rates of cardiovascular disease (DiGiacomo, 2010). Possible barriers to Indigenous people seeking health care include cultural constructions of health and access (distance) to and acceptability of health services (especially staffing) (Shepherd et al., 2003). We found that 68% of Phase 2 Cardiac Rehabilitation Programs within Australia had reported cultural understanding as part of their program.

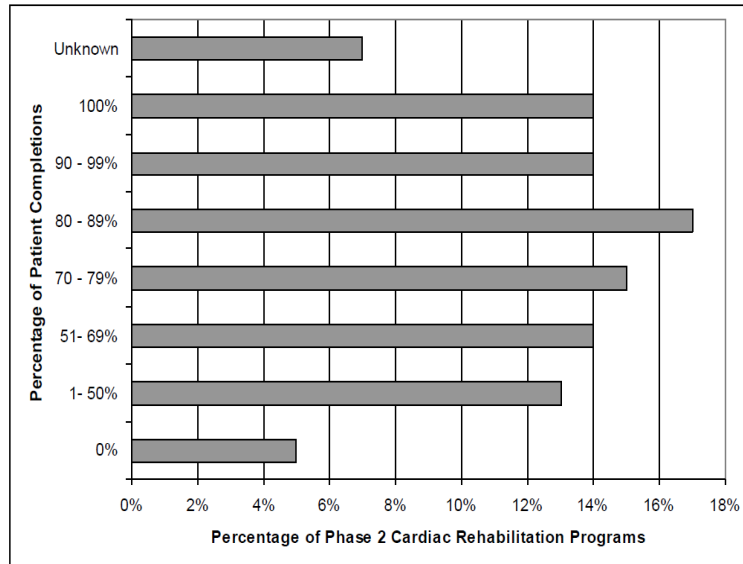


Figure 3. The Percentage of Patients Completing Phase 2 Cardiac Rehabilitation Programs
(n=228)

Source: Cardiac Rehabilitation Survey.

4. Discussion

A well-documented barrier to accessing cardiac rehabilitation programs is the distance patient's travel, with those who have further to travel not attending (Johnson et al., 2001). The distance required to travel is a deterrent for urban populations, and is even more problematic for rural and remote dwelling people (Dollard et al., 2004). While distance to the program is a barrier, other factors associated with travel are also real barriers faced by patients. The data from the Cardiac Rehabilitation Accessibility Survey highlights the reliance patients have to utilize transportation to access Phase 2 Cardiac Rehabilitation Programs and the socio-economic factors which affect a patient's ability to access the service.

Many people, especially caregivers (usually women) do not drive and people with a recent cardiac event have restrictions (Paquet et al., 2005). Patients following acute myocardial infarction are discouraged from driving for 6 weeks, therefore someone is required to drive them to cardiac rehabilitation (Thornbill & Stevens, 1998). Other transport barriers include, travelling during the winter and/or at night is more difficult, parking availability, walking distance and parking fees (Paquet et al., 2005). The Survey revealed that most Phase 2 Cardiac Rehabilitation Programs had a car park. However this may still be seen as a barrier to accessing cardiac rehabilitation, as some patient's beliefs such as the perceived safety of the local area or availability and cost of safe and reliable public or private transport could also affect attendance.

Due to patient preferences for different program models, offering a range of program deliver modes is important for improving access to cardiac rehabilitation. De Angelis et al. (2008) found that 38% of

patients were receptive to alternative cardiac rehabilitation methods such as programs in outlying communities, evening facility-based programs, home and general practitioner based programs, telephone support and a patient manual/workbook. Wingham et al. (2006) found that by giving patients the choice of cardiac rehabilitation, it increased the patient's feelings of control and increased their motivation to complete the program. The results from the Survey reveal that a majority of Phase 2 Cardiac Rehabilitation Programs operate out of acute public hospital settings with very few alternative delivery options.

Thornbill and Stevens (1998) found that of the patients that attended cardiac rehabilitation, all agreed that being given a choice about the time for attendance made a great difference to their commitment to the program. Dollard et al. (2004) found that, people are more likely to participate in cardiac rehabilitation when access is convenient. We found that all Phase 2 Cardiac Rehabilitation Programs in Australia were each run with very limited and specific hours of operation, with some programs operating as little as 2 hours a week. With very little choice in times available to attend programs patients would find this a major barrier to them accessing the service. The survey also found that very few Phase 2 Cardiac Rehabilitation Programs ran out-of-hours sessions for patients. The lack of out-of-hours sessions would greatly affect the accessibility of the service for those patients that have returned to work.

The Survey found that a large percentage of Phase 2 Cardiac Rehabilitation Programs in Australia needed a referral prior to patients accessing their program. Therefore without a referral from a General Practitioner or Cardiologist results from the Survey show that a large percentage of Australian Phase 2 Cardiac Rehabilitation Programs would not be available to patients. Failure of hospital referral procedures is of concern given that patients react more positively to specialist recommendations to attend outpatient cardiac rehabilitation than to recommendations by other health professionals (Scott et al., 2003).

Rehabilitation attendance rates peak in the 50-59-year age group at 29% and decline after the age of 70 years (Jackson et al., 2005). We found that patients from 35 to 85 years and older were accepted into Phase 2 Cardiac Rehabilitation programs. Therefore age is a barrier for the patient and not a barrier imposed by the Phase 2 Cardiac Rehabilitation Program.

Thornbill and Stevens (1998) found that spouses often provided motivation to attend cardiac rehabilitation programs. Compliance with cardiac rehabilitation attendance has been shown to increase from 67% to 90% when the spouse was included in the cardiac rehabilitation program (Oldridge et al., 1993). Phase 2 Cardiac Rehabilitation Programs within Australia accept social support for their patients and do not exclude patients on this basis. Therefore while social support acts as a driver for the patient to attend Phase 2 Cardiac Rehabilitation it is not viewed as a barrier imposed by the program to access cardiac rehabilitation.

The survey results also reveal that heart failure patients are not accepted at all Phase 2 Cardiac Rehabilitation Programs. However the National Heart Foundation and Australian Cardiac

Rehabilitation Association (2004) recommend that cardiac rehabilitation services should be available, and routinely offered, to everyone with cardiovascular disease.

Patients' perceptions of the program can act as a barrier to them accessing cardiac rehabilitation. Tod, Lacey and McNeill (2002) found that while some participants advocated the delivery of education and exercise in a group setting, others found it inappropriate and unappealing. They also found that, people were deterred from attending groups because they found them stressful socially, lacked privacy or were put off by dominant members in the group (Tod et al., 2002). Therefore having both group and individual settings available would improve the accessibility of the service. The Survey found that more than half of the Phase 2 Cardiac Rehabilitation Programs Surveyed conducted both group and individual sessions however very few programs offered group only session or individual only sessions and most failed to meet the National Heart Foundations' recommendation of what a Phase 2 Cardiac Rehabilitation Program should comprise.

The cost of cardiac rehabilitation can be seen as a barrier to many patients. Cooper et al. (2002) found that non-attendees had spent significantly less years in full-time education and experienced greater social deprivation. A lack of insurance coverage is also a strong predictor of non-participation (Jackson et al., 2005). Tod, Lacey and McNeill (2002) found that professional and more affluent patients were better able to negotiate their way around the system by seeking out advice or "going private". Patients on a low income or who are socially deprived are less likely to attend but as with the elderly or female patients, they may have the most to gain from secondary prevention because there is a linear relationship between socioeconomic status and cardiac outcome (Cooper et al., 2002).

Patients' reasons for not adhering to their cardiac rehabilitation program are multifactorial and very individualized (Jones et al., 2007). Cooper et al. (2007) found that patients' beliefs regarding the necessity of cardiac rehabilitation, concerns about attending the program as well as not understanding the benefits of cardiac rehabilitation were common reasons for patient non-attendance. Their concerns about cardiac rehabilitation include those about undertaking exercise or physical activity, and practical barriers-namely, availability and cost of transport and financial implications of taking time off work (Cooper et al., 2002). Patients are also concerned about the suitability of the cardiac rehabilitation program, as some feel, that cardiac rehabilitation is more suitable for younger, previously active people (Cooper et al., 2002). Jones et al. (2007) has grouped the reasons for non-attendance into four main categories: many patients were undertaking alternative exercise programmes or activities, some had other health problems which interfered with exercise, others had personal reasons making participation in cardiac rehabilitation difficult or undesirable and there were factors associated with the individual programs. Results from the Survey, reveal that completion rates of Phase 2 Cardiac Rehabilitation Programs are low. Figure 2 shows that only 14% of Phase 2 Cardiac Rehabilitation Programs had 100% of patients complete their program. The survey also revealed that 18% of Phase 2 Cardiac Programs had half or less of their patients complete the program.

We found that 68% of Phase 2 Cardiac Rehabilitation Programs within Australia had reported cultural

understanding as part of their program. The lack of cultural understanding poses a real barrier to indigenous patients in accessing Phase 2 Cardiac Rehabilitation Programs. Indigenous Health Workers form an essential link between Aboriginal communities and medical services. They link Western health beliefs to Aboriginal health and cultural practices. Shepard, Battye and Chalmers (2003) found that 37% of the patients in their study thought they would be more likely to participate in cardiac rehabilitation if an Indigenous Health Worker was involved.

5. Limitations

The only limitation of the survey was that it was not possible to distinguish between the different types of cardiac rehabilitation programs prior to the survey being posted, to target Phase 2 Programs only. However it has had no impact upon the survey results as the letter that accompanied the questionnaire clearly stated that it was targeting Phase 2 Cardiac Rehabilitation Programs only, and many of the Co-ordinators that were running other types of Cardiac Rehabilitation Programs returned the questionnaire with it clearly marked with the other type of program that they were running and no results from the surveys that were not Phase 2 were included in the results.

The survey results presented in this paper were based on data collected in 2007/2008 and it should be noted that the accessibility to Phase 2 Cardiac Rehabilitation Programs in Australia may have changed since this survey was undertaken.

6. Conclusion

The World Health Organisation (1993) and the National Heart Foundation of Australia and Australian Cardiac Rehabilitation Association (2004) recommend that cardiac rehabilitation, incorporating secondary prevention programs, should be available to all patients with cardiovascular disease. Accessibility to cardiac rehabilitation is one of the major factors affecting the utilization of Phase 2 Cardiac Rehabilitation Programs. Achieving fairness and justice in the distribution of health opportunities is necessary for equity in health (Williams et al., 2010). Better ways of informing health services policy and decision makers about inequalities and inequities in patient selection processes are clearly needed (Williams et al., 2010).

The Survey has highlighted that the need for a referral, the specific type of coronary heart disease the patient has, the provision of group and individual sessions, flexibility in service delivery setting, hours of operation, cost, and range of program components as significant barriers imposed by Phase 2 Cardiac Rehabilitation Programs that limit patient accessibility. Completion rates were low for most programs and this can be seen as a measure of acceptability by the patient of the service. The Survey has highlighted the significant use of transportation for patients to access to Phase 2 Cardiac Rehabilitation.

Improving access to Phase 2 Cardiac Rehabilitation will be necessary to cope with an ageing population and falling cardiovascular death rates. Currently Australia is under invested in infrastructure,

and infrastructure and services are unequally distributed so that some areas are significantly under provided-outer metropolitan and remote areas are of particular significance (Hugo, 2010). The results of a needs analysis that was undertaken by Allan et al. (2007) found a poorly resourced, limited service, patching up the health of their community as best they could. Complex policies and processes are differentially applied across the nation and there exists a lack of understanding of community context and culture (Allan et al., 2007). As stated by Hugo (2010) it is not simply a matter of a need to invest more in infrastructure but carefully targeting where it is most needed and where it will create improved access to services. Patient preferences are therefore an important consideration when designing future CR programs, to ensure interventions are individualised and designed to increase access and attendance and minimise barriers (Watchel, 2011).

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Appendix**Cardiac Rehabilitation Accessibility Survey**

Contact for Survey:

Name:

Title:

Phone:

Service name:

Postal Address:

Suburb:

Town/city:

Postcode:

Telephone:

Facsimile:

Email:

Website:

Please fill out the following questionnaire for each phase 2 cardiac rehabilitation program that your service provides.

1. Program Name:
2. Contact person:
3. Program location (where do people go to access your program):

Street:

Suburb:

Town/city:

Postcode:

4. Which of the following are included in your cardiac rehabilitation program (please tick all that apply)?

Health education	
Physical activity	
Counselling	
Behaviour modification strategies	
Support for self-management	
Cultural understanding	

5. Do the people that utilise your cardiac rehabilitation program require a referral to access your program? (please circle)

Yes/No

If “Yes” where do people usually get referred from?

6. Which of the following are located directly outside your cardiac rehabilitation programs location (please tick all that apply)?

Bus stop	
Taxi station	
Train station	
Community bus stop	
Car Park	

7. What percentage of your patients use the following forms of transport to travel to your program?

Mode of transport	Percentage
Private car	
Taxi	
Train	
Bus	
Community bus	
Other (please specify)	

8. Within what type of setting is the cardiac rehabilitation program run (tick all that apply):

Within an acute public hospital	
Within an acute private hospital	
Within an Aboriginal Medical Service	
Within a non-acute/community hospital	
Within a public community health centre/service	
Within a private outpatient service	
As part of an outreach service to communities	
Telephone service	
Home visits	
Internet	
Postal	
Other (please name)	

9. What type of sessions do you provide?

Group only	
Individual only	
Group and individual	
Women only	

10. Does your service accept the following (please circle)?

DVA	Yes	No
Medicare	Yes	No
Centrelink	Yes	No
Healthcard	Yes	No

Other concessions (please specify)

11. Is there a cost associated with attending your cardiac rehabilitation program that is not covered by medicare (please circle)?

Yes/No

If yes, what is the cost?

12. When is the cardiac rehabilitation program available to patients (please indicate operating hours):

Days	Times available
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

13. Which of the following age groups do you allow to use your cardiac rehabilitation program (please tick those that apply)?

Age	Accepted
All ages	
<15	
15-24	
25-34	
35-44	
45-54	
55-64	
65-74	
75-84	
85+	

14. According to discharge diagnosis, what type of patients do you allow into your cardiac rehabilitation program (Please tick all of those that apply)?

I200	Unstable angina	
I208	Other forms of angina pectoris	
I209	Angina pectoris unspecified	
I210	Acute transmural MI of anterior wall	
I211	Acute transmural MI of inferior wall	
I212	Acute transmural MI of other sites	
I213	Acute transmural MI of unspecified site	
I214	Acute subendocardial MI	
I219	Acute myocardial infarction unspecified	
I220	Subsequent MI of anterior wall	
I221	Subsequent MI of inferior wall	
I228	Subsequent MI of other sites	
I229	Subsequent MI of unspecified site	
I230	Haemopericardium current comp foll ac MI	
I231	ASD as current comp following acute MI	
I232	VSD as current comp following acute MI	
I233	Rupt card wall wo hemopericrd foll ac MI	
I234	Rupt chordae tendineae comp foll ac MI	
I235	Rupt papillary muscle comp foll ac MI	
I236	Atrl thromb auric append ventric w ac MI	
I238	Other current complication foll acute MI	
I240	Coronary thrombosis not resulting in MI	
I241	Dressler's syndrome	
I248	Other forms of acute IHD	
I249	Acute ischaemic heart disease unsp	
I250	Atherosclerotic C-V disease so described	
I2510	Atherosclerotic heart dis unsp vessel	
I2511	Atheroscl heart dis native coron artery	
I2512	Atheroscl heart dis autolgs graft	
I2513	Atheroscl heart dis nonautolgs byps gft	
I252	Old myocardial infarction	
I253	Aneurysm of heart	
I254	Coronary artery aneurysm	
I255	Ischaemic cardiomyopathy	
I256	Silent myocardial ischaemia	
I258	Other forms of chronic IHD	

I259	Chronic IHD unspecified	
I426	Alcoholic cardiomyopathy	
I428	Other cardiomyopathies	
I429	Cardiomyopathy unspecified	
I460	Cardiac arrest w success resuscitation	
I469	Cardiac arrest unspecified	
I500	Congestive heart failure	
I501	Left ventricular failure	
I509	Heart failure unspecified	

15. What is the maximum number of patients your cardiac rehabilitation program can service in a month?

16. How many patients participated in your cardiac rehabilitation program in the last financial year (2007/2008)?

17. How many patients completed your cardiac rehabilitation program in the last financial year (2007/2008)?

18. Please list the postcodes that your patients come from (please attach a separate sheet if necessary)?

19. Does your cardiac rehabilitation program adhere to the “Recommended Framework for Cardiac Rehabilitation ‘04” guidelines established by the National Heart Foundation of Australia & Australian Cardiac Rehabilitation Association (please circle)?

Yes/No

20. Do you have any comments that you would like to make about improving patient accessibility to cardiac rehabilitation programs?

21. Would you like to receive information on the results of this research project (please circle)?

Yes/No

*If yes please make sure you have provided your email address.

Thank you for your time.

Please return completed questionnaire to:

Deborah van Gaans

The Department of Geographical and Environmental Studies, Level 8, Napier Building, The University of Adelaide, S.A. 5005

Mobile: 0408 396057

E-mail: deborah.vangaans@adelaide.edu.au