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## Goal setting in cardiac rehabilitation: implications for clinical practice

Ritin Fernandez

*University of Wollongong*, [ritin@uow.edu.au](mailto:ritin@uow.edu.au)

Rohan Rajaratnam

*University of Western Sydney*


Kasey Evans

*University of Western Sydney*

Anau Speizer

*Camden Hospital*

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## Goal setting in cardiac rehabilitation: implications for clinical practice

### Abstract

**Background:** Effective goal setting is a vital component of cardiac rehabilitation (CR) programs. **Objective:** The objectives of this study were to investigate the types of goals set by patients attending a CR program in a tertiary teaching hospital and the compatibility of the goals set with the patient's risk factor profile. **Methods:** A descriptive, cross sectional, retrospective audit of the medical records of patients who attended the CR program in a tertiary teaching hospital in Sydney NSW between January 2007 and December 2009 was undertaken. The medical records of 355 patients who attended CR within the stipulated time frame were audited. **Results:** Short and long term goals were set by 104 and 50 patients, respectively. Four themes identified in the analysis of the goal data were reducing behavioural risk factors for further cardiovascular events, improvements in physical symptoms, enhancing mental well being and return to normal life. The majority of the goals related to physical activity (82%). **Conclusion:** Collaborative goal setting and the need to establish goals that are attainable and correspond with the patient's health behaviours and clinical measures that require modification is vital.

### Keywords

Goal-setting, cardiac rehabilitation, risk factors

### Disciplines

Medicine and Health Sciences | Social and Behavioral Sciences

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## **Goal setting in cardiac rehabilitation: implications for clinical practice**

Ritin Fernandez PhD, RN MN (Corresponding Author)  
Professor of Nursing  
*St George Hospital*  
*University of Wollongong*  
School of Nursing Midwifery and Indigenous Health

Email: [ritin.fernandez@sesiahs.health.nsw.gov.au](mailto:ritin.fernandez@sesiahs.health.nsw.gov.au)

Rohan Rajaratnam MBBS, FRACP  
Director of Cardiology  
Campbelltown Hospital  
University of Western Sydney, Locked Bag 1797, Penrith South DC NSW 1797  
Email: [rohan.rajaratnam@sawahs.nsw.gov.au](mailto:rohan.rajaratnam@sawahs.nsw.gov.au)

Kasey Evans  
Research Intern  
School of Nursing and Midwifery  
University of Western Sydney, Locked Bag 1797, Penrith South DC NSW 1797

Anau Speizer RN, MN  
Cardiac Rehabilitation Coordinator  
Camden Hospital

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### **Abstract**

**Background:** Effective goal setting is a vital component of cardiac rehabilitation programs.

**Objective:** The objectives of this study were to investigate the types of goals set by patients attending a cardiac rehabilitation program in a tertiary teaching hospital and the compatibility of the goals set with the patient's risk factor profile.

**Methods:** A descriptive, cross sectional, retrospective audit of the medical records of patients who attended the cardiac rehabilitation program in a tertiary teaching hospital in Sydney NSW between January 2007 and December 2009 was undertaken. The medical records of 355 patients who attended cardiac rehabilitation within the stipulated time frame were audited.

**Results:** Short and long term goals were set by 104 and 50 patients respectively. Four themes identified in the analysis of the goal data were reducing behavioural risk factors for further cardiovascular events, improvements in physical symptoms, enhancing mental well being and return to normal life. The majority of the goals related to physical activity (82%).

**Conclusion:** Collaborative goal setting and the need to establish goals that are attainable and correspond with the patient's health behaviours and clinical measures that require modification is vital.

**Key words:** goal –setting, cardiac rehabilitation, risk factors

## **Background**

Coronary heart disease (CHD) is a common and costly condition and is responsible for high rates of death and disability both in Australia and globally.(Australian Institute of Health and Welfare, 2010) National (National Heart Foundation of Australia & Cardiac Society of Australia and New Zealand, 2007) and international guidelines (Leon et al., 2005) recommend that all patients following an acute event of CHD are actively referred to cardiac rehabilitation (CR) for secondary prevention. Cardiac rehabilitation is an organised evidence-based approach that can reduce mortality (Sundararajan, Bunker, Begg, Marshall, & McBurney, 2004) and prevent the recurrence of further cardiac events by health behaviour change through improved self efficacy.(Australian Cardiovascular Health & Rehabilitation Association, 2008) Contemporary CR programs are multi-factorial and include patient education and advice relating to lifestyle modification and medication adherence to reduce risk factors and prevent the occurrence of further cardiac events. (Braverman, 2011; National Heart Foundation of Australia & Cardiac Society of Australia and New Zealand, 2007)

An established practice in cardiac rehabilitation programs is goal setting. (Stone & King, 2007; Varnfield et al., 2011) Goal-setting is a strategy used both explicitly and implicitly in behaviour modification programs where the patients set optimistic yet realistic goals that facilitate health behaviour change and maintenance.(Oldridge, Guyatt, Crowe, Feeny, & Jones, 1999) The main aim of setting goals is to empower patients to take responsibility for their own health and health related behaviours.(Stone & King, 2007) Setting individualised goals provide motivation for patients to achieve improvement in health related behaviours thus reducing the risk for further cardiac events.(Hurn, Kneebone, & Cropley, 2006)

Various methods have been used in rehabilitation and behaviour modification programs to set goals. These include physician directed, (Farin, Frey, Glattacker, & Jackel, 2007; Hurn, et al., 2006), computer generated (Levetan et al., 2005; Levetan, Dawn, Robbins, & Ratner, 2002), patient formulated, (Rosewilliam, Roskell, & Pandyan, 2011) and collaborative goal setting which involves both the patient and the health care practitioner. (Bodenheimer & Handley, 2009) The studies reviewed for this paper indicate that goals have been generally set by the patient's referring physician prior to commencing the CR program. These physician directed goals have focussed largely on reducing clinical risk factors such as blood pressure (Okpechi et al., 2011; Weinberger, Glazer, Crikelair, & Chiang, 2010; Yokokawa et al., 2011) and cholesterol levels (Foger & Patsch, 2011; Friedman, Rajagopalan, Barnes, & Roseman, 2011; Olsson et al., 2011; Rallidis et al., 2011) using pharmacotherapy. Similar to physician generated goals, computer generated personalised goal setting has been reported to lower glycated haemoglobin (HbA1c) levels among diabetic patients (Levetan, et al., 2002) and achieve equivalence with lipid lowering agents in managing cholesterol (Levetan, et al., 2005) levels in patients with cardiovascular disease. These goals relating to clinical risk factor reduction generally have an increased emphasis on implementing evidence based clinical practice guidelines relating to pharmacotherapy for secondary prevention. (De Backer, 2002)

Patient centered care is becoming increasingly common in the health environment (Luxford, Safran, & Delbanco, 2011) hence collaborative goal-setting involving both the patient and the multidisciplinary health team is widely recommended. (Puczynski et al., 2005) Collaborative goal-setting has been reported to encourage healthy behaviours compared to traditional clinician-directed goals. (MacGregor et al., 2006) One study that reviewed the types of goals self selected by patients attending a CR program reported increased well-being, weight loss, and smoking cessation as the most common goals. (Holtrop et al., 2006)

Goal setting approaches have revealed achievement of mutually set goals. There is limited literature on the types of goals selected by patients participating in a cardiac rehabilitation program which will enable the development of an evidence based approach to goal setting. Goal setting is of practical relevance to cardiac nursing in terms of secondary prevention, the significance being a reduction in cardiac morbidity and mortality. The purpose of this paper therefore is to identify the type of goals set by patients participating in a CR program provided at a tertiary teaching hospital and the compatibility of the goals set with the patient's risk factor profile.

## **METHODS**

The study was approved by the Area Health Service Ethics Committee. All data of patients who attended the Phase II outpatient CR program provided at the hospital between January 2007 and December 2009 were collected through an audit of the cardiac rehabilitation records. The Phase II outpatient CR program was chosen to be audited as the majority of the patient education and goal setting occurred in this phase due to the short hospital stay following a coronary event. The outpatient CR program is conducted twice a week for 6-8 weeks. The program comprises of individual assessments, weekly group education sessions, and a tailored exercise plan. Patients who attended the home-based or General Practitioner (GP) based CR program also provided by the study hospital were excluded from this study. Patients were identified from the CR database which is maintained at the hospital for all CR participants. Each patient record was audited for the following data recorded on enrolment into the CR program (1) demographic details including age, gender, marital and employment status (2) medical and cardiac history including types of coronary interventions (coronary artery bypass surgery or percutaneous coronary angioplasty with or without stents) (3) cardiac medications (4) cardiac risk factors including smoking and physical activity status,

diabetes, physical function, blood pressure, and cholesterol levels and 5) short and long term goals. At enrolment smoking, physical activity status, diabetes and cholesterol levels were obtained through self reports. Physical function was assessed using the 6 minute walk test using a standardised protocol (American Thoracic Society, 2002) and blood pressure level was measured by the CR staff. Short and long term goals were general and not disease specific goals reported by the patient. No established guidelines were used for goal setting. Short term goals were defined as goals the patient would like to have achieved in six weeks which was the length of the CR program and long term goals were those the patient wanted to achieve in one year.



## **Data analysis**

As this was a clinical audit, sample size was not calculated. A general inductive, qualitative (Thomas, 2006) approach was used to analyse responses to the long and short term goals. Two authors independently reviewed all the goals several times and grouped them into categories that were predetermined based on an initial evaluation of the short and long term goals that were set. From this coding scheme, the categories were inductively developed to identify common themes that reflected the long and short terms set by the CR participants. Quantitative data of participants who set goals were analysed using SPSS V17. The descriptive statistics and results are presented as frequencies, means, range, percentages and standard deviations. Differences between patients who set goals and those who did not were analysed using the chi-squared test for categorical data and the t-test for continuous data. As patients set more than one goal, the number of goals rather than number of patients have been analysed.

## **RESULTS**

Over the three year period 355 patients (male: 259 [73%]; female: 95 [27%] gender unknown [1]) attended the outpatient cardiac rehabilitation program. Of these only a third of the participants (n=103) set either a short term or long term goal. The mean age of the patients who set goals was 62.3 years. (Table 1) There were no statistically significant demographic or clinical differences among those who set a short term goal (n=104) and those who did not (n=251).

### **Goal setting**

A total of 172 short term goals and 67 long term goals were set by 104 and 50 patients respectively. All goals were organised into 27 categories and these were further classified into four themes. The four themes included goals relating to (1) reducing behavioural risk factors for further cardiovascular events (2) improving physical symptoms (3) enhancing

mental well being and (4) returning to normal life. Both short and long term goals related to the 27 categories and hence they have been collectively analysed.

#### *Reducing behavioural risk factors for further cardiovascular events (n=85)*

The majority of the goals under this theme related to physical activity (n=86). Patients identified 'improved walking' (n=25) and 'getting fitter' (n=33) as their major short term goals. Only 26 goals related to reduction in other behavioural risk factors. These included weight loss (n=9), smoking cessation (n=7), changing lifestyle (n=6) and attending the cardiac rehabilitation program (n=4). (Table 2)

#### *Improvements in physical symptoms*

Fourteen short term goals were set relating to improvements in physical symptoms. The most common goal under this theme was decreasing pain (n=7). This goal was set mainly by patients who had coronary artery bypass grafts. (Table 2)

#### *Enhancing mental well being*

Seven short term and three long term goals related to enhancing mental well being of which eight involved 'developing a better mind set'. (Table 2)

#### *Return to normal life*

Nearly half the patients set short term goals associated with return to normal life. The most common goal under this theme related to 'return to work' (n=42). Being able to continue with their hobbies such as travel, gardening, fishing and playing golf was also identified as short and long term goals by nine patients. (Table 2)

### **Compatibility between risk factors for CHD and actual goals set**

#### *Behavioural risk factors*

Thirty patients who set goals identified themselves as smokers, however, only four of them indicated smoking cessation as a short term goal and three as a long term goal. A third of the participants (n=38) indicated that they were physically inactive and data from the six-minute walk test demonstrated that nearly ninety percent of the patients (n=75) walked less than 486m. The cut off value of 486 m was used as this has been reported to be the average distance walked by patients similar in age and clinical characteristics to those in this study.(Roberts, Li, & Sykes, 2006) However, goals relating to physical activity were identified by 86 patients. Nearly half the participants (n=42) were identified as being obese yet only nine indicated weight loss as goal of participating in cardiac rehabilitation. (Figure 1)

#### *Biochemical risk factors*

More than half the participants who set either a short or long term goal were identified as having high cholesterol (n=64) and high blood pressure (n=62) and more than a third (n=38) has diabetes. However, none of the patients set goals relating to lowering cholesterol, blood pressure and blood glucose levels. (Figure 1)

#### *Psychosocial risk factors*

The presence of stress was identified in 44 participants, yet only one patient identified reduction in stress as a goal of cardiac rehabilitation. (Figure 1)

## **DISCUSSION**

This study was undertaken to investigate the types of goals set by patients attending the cardiac rehabilitation program and has provided significant implications for cardiac rehabilitation service delivery. The strengths of the study include the random checks undertaken to ensure the rigour of the data entry. In addition, the development of the

categories and themes for grouping the goals was undertaken independently by two authors who were not involved in the initial data collection. The clinical characteristics of participants who set goals were similar to those who did not set any goals and there were no gender differences in the types of goals that were identified enabling the generalisability of the findings.

The majority of the patients identified improvements in physical activity as a short term goal which is in contrast with those identified by other authors. Various reasons could be postulated for this result. Firstly, there is extensive media coverage relating to the benefits of exercise in reducing cardiac risk factors including blood pressure, cholesterol and blood glucose levels.(Giverhaug, Bruland, & Trovik, 2005) It could be postulated that patients were aware of this correlation and therefore set goals relating to physical activity. On the other hand, for many patients cardiac rehabilitation is synonymous with exercise (Hird, Upton, & Chesson, 2004) given that there was an increased focus on exercise in the CR programs in the past. (Cooper, Weinman, Hankins, Jackson, & Horne, 2007) Secondly there is evidence to indicate that many people do not have an accurate understanding of what to expect in CR programs.(Dolansky, Moore, & Visovsky, 2006) This misconception about cardiac rehabilitation being solely about exercise needs to be amended. Health professionals including nurses referring patients to cardiac rehabilitation programs should advise patients of its benefits relating to modification of other risk factors. Similarly, cardiac rehabilitation information brochures and websites should contain all the relevant services available and the benefits of attendance at a cardiac rehabilitation program.

The results of this study highlight some important issues relating to goal setting in cardiac rehabilitation programs. Firstly, patients with risk factors for CHD did not select appropriate

goals relating to their risk factors. For example, although half the participants were identified as being obese, only nine indicated weight loss as goal. Similarly, although more than half the patients had high cholesterol and blood pressure levels, none set goals to lower these risk factors. This finding is in contrast with other research which demonstrated that patients selected goals that were congruent with the most important targets for their health behaviour change. (Levenkron & Greenland, 1988) It could be possible that in this study, patients assumed that goal setting related to behavioural and personal goals rather than disease specific goals. It could also be likely that patients did not set goals relating to their risk factors because they were not aware of the risk factors for cardiovascular disease or they were not aware that they had a particular risk factor. This could also be a reason why two-thirds of the patients did not set any short or long term goals.

Secondly, the goals set were too broad and it is unclear whether the CR nurses discussed the goals with the patients. Currently, there are no clear guidelines on the staff patient ratio for cardiac rehabilitation and therefore one of the reasons for setting broad goals could be due to time constraints and limited staff. Nevertheless, CR nurses should empower patients to set goals that are realistic and measurable which is integral for subsequent goal attainment.

(Oldridge, et al., 1999) Research has demonstrated the importance of helping patients identify specific behaviour as well as prioritizing goals in order to modify their risk factors and improve cardiac outcomes.(Ertzgaard, Ward, Wissel, & Borg, 2011; Virani et al., 2011) In contemporary health care, resource allocation is generally based on effectiveness in providing patient care, and cardiac rehabilitation is no exception.(Sanderson, Southard, & Oldridge, 2004) It is well know that cardiac rehabilitation coordinators provide high quality service, (Sanderson, et al., 2004) however without documented outcomes the evidence to support resource allocation is limited. Hence quantifying and improving the quality of cardiac rehabilitation services should be a priority for cardiac rehabilitation coordinators. (Sanderson,

et al., 2004) Setting specific, measurable and realistic goals upon entry into cardiac rehabilitation and evaluating attainment of the goals on discharge from the program is one method of quantifying services that can be implemented by coordinators.

This result has important implications for cardiac rehabilitation programs. The health care team should be aware that at times patients are unable to recognise their own goals for CR, (Gohlke et al., 2000) and therefore should assist the patient by providing guidance and then supporting the patient's health behaviour goals by affirming appropriate health behaviour goal selection. Goal setting should be collaborative and align with the risk factor status of the patient (NSW Department of Health, 2006) as well as the objectives of cardiac rehabilitation program. Research has demonstrated that people who set specific, measurable goals were most successful in attaining their goals. For example, participants who were randomised to an intervention which included a goal to consume either six or eight servings daily of foods with low glycemic index had significant decreases in mean HbA1c ( $p = 0.01$ ), weight ( $p = 0.01$ ), BMI ( $p = 0.01$ ) and waist circumference ( $p = 0.01$ ) compared to the those who did not set specific goals.(Miller, Headings, Peyrot, & Nagaraja, 2011)

Another interesting finding in this study was that there was no documentation in the patients' records if the goals that were set were achieved. Although this study has provided implications for clinical practice, the methodological issues inherent with this study should be considered. Firstly, data were collected on self-reported goals therefore participants may have responded in a socially desirable manner. (Fisher, 1993) In addition the majority of the cardiac risk factors including smoking and physical activity were collected using self reports, these could have been overestimated. It was unclear from the medical notes how obesity and stress were measured, therefore these outcomes could have been over or under estimated.

Another issue with this study is that, it is not clear as to whether the patient, CR staff or the referring health professional ultimately determined the patient goals. What also remains unclear is whether there was any collaborative goal setting between the patient and the health professional and the extent of the collaboration in defining the patient goals. This finding has implications for resource allocation and consequently on service delivery. Therefore, regular reviews and alterations if necessary should be undertaken to ensure goal attainment which is a measure of service delivery.

Our study was conducted in a single hospital hence there may be limitations to the generalisability of these results to other populations. The mean age of our study participants was 62 years and nearly half were retired, therefore, the results of this study might not be applicable to younger working populations. Further research is urgently needed on the existing goal setting practices employed by CR coordinators. There is also an urgent need to develop strategies that CR coordinators can utilise to set collaborative goals that are specific, reasonable and achievable. Future research should also focus on degree of goal attainment and barriers to and facilitators of goal attainment in a cardiac rehabilitation population.

## **Conclusions**

Goal setting is an important aspect in risk factor modification. Collaborative goal setting and the need to establish goals that are attainable and correspond with the patient's health behaviours and clinical measures that require modification is vital.

## **What's new**

- Majority of patients identify 'improved walking' and 'getting fitter' as short term goals.
- Weight loss was not considered by patients as a goal of participating in cardiac rehabilitation.

- For patients who had coronary artery bypass grafts decreasing pain was a major short term goal.
- Collaboratively setting goal that are attainable and correspond with the patient's health behaviours and clinical measures that require modification is vital.

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**Whats new**

- Collaborative goal setting with health care professionals is vital
- Goals that are attainable and correspond with the patient's health behaviours and clinical measures that require modification need to be established.
- CR staff should empower patients to set goals that are realistic and measurable which is integral for subsequent goal attainment

**Table 1 Patient demographics**

	<b>Patients who set goals (n=104)</b>	<b>Patients who did not set goals (n=251)</b>
	<b>Mean ±SD</b>	<b>Mean ±SD</b>
<b>Age</b>		
Male	62.0 ±11.1	62.6±10.4
Female	62.8 ±14.4	64.2±12.1
	<b>Frequency n (%)</b>	<b>Frequency n (%)</b>
<b>Gender</b>		
Male	78 (76%)	181 (72%)
Female	25 (24%)	70 (28%)
<b>Marital Status</b>		
Not living with a partner	19 (18%)	51 (20%)
Living with a partner	85 (82%)	180 (72%)
<b>Employment Status</b>		
Employed	44 (42%)	
Unemployed	5 (5%)	
Home duties/Carer	3 (3%)	
Retired/Pensioner	46 (44%)	
<b>Treatment Procedures</b>		
Angiogram	3 (3%)	11 (4%)
PCI	41 (39%)	101 (40%)
CABG	42 (40%)	84 (34%)
Medical Management Only	7 (7%)	23(9%)
Other	15 (14%)	36 (14%)
<b>Referred by</b>		
Cardiologist	2 (2%)	8 (3%)
GP	4 (4%)	6 (2%)
Family	2 (2%)	2 (1%)
Self	29 (28%)	81 (32.3%)
Hospital	52 (50%)	96 (38%)

*PCI*: percutaneous coronary Intervention; *CABG*: coronary artery bypass graft; *GP*: general practitioner

**Table 2** Number of short and long term goals set by patients

<b>Themes</b>	<b>Goal Categories</b>	<b>Short term goals</b>	<b>Long term goals</b>
Reducing behavioural risk factors	Improve walking	25	4
	Get fitter	33	9
	Improve exercise	11	
	Return to physical activity	1	3
	Attend CRP	3	1
	Change lifestyle	1	5
	Quit smoking	4	3
	Weight loss	7	2
	<i>Subtotal</i>	85	27
Improvements in physical symptoms	Decrease pain	7	
	Have more energy	5	
	Wound healing	1	
	Reduce physical symptoms	1	
	<i>Subtotal</i>	14	0
Enhancing mental well being	Improve concentration	1	
	Have less stress	1	
	Have better mindset	5	3
	<i>Subtotal</i>	7	3
Return to normal life	Return to work	22	20
	Feel 100% better	2	2
	Do more house work	5	7
	Return to driving	7	1
	Increase independence	3	1
	Have a normal life	10	3
	Sleep better	3	
	Improve health	6	
	Do gardening	4	2
	Go fishing	1	
	Play golf	3	
	Travel		1
	<i>Subtotal</i>	66	37
	<b>Total</b>	<b>172</b>	<b>67</b>

**Figure 1** Compatibility between risk factors for CHD and actual goals set

