

A national survey of cardiac rehabilitation services in New Zealand: 2015

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ABSTRACT

AIMS: Guidelines for cardiac rehabilitation (CR) programmes inform best practice. In Aotearoa New Zealand, little information exists about the structure and services provided by CR programmes and there is a poor understanding of how existing CR programmes are delivered with respect to evidence-based national guidelines.

METHODS: All 46 CR providers in New Zealand were invited to participate in a national survey in 2015. The survey sought information on the following: unit structure; referral processes; patient assessment; audit (including quality assurance activity); Phase 2 CR content; and support for special populations. Simple descriptive analysis of the responses was conducted, involving forming counts and percentages.

RESULTS: Thirty-six distinct units completed the survey and 94% provided Phase 2. Assessment tools, Phase 2 educational components, and the methods of providing the exercise component varied. Most units audited their services, 25% audited their programme six-monthly or more frequently. Just over half of the units (56%) reported key performance indicators.

CONCLUSIONS: The survey identified variations in delivery and content of CR in New Zealand, with poor understanding of the impact on patient outcomes. This is likely due to the absence of standardised audit practices and routine collection of key performance indicators on a national basis.

Cardiac rehabilitation (CR) has the aim of improving and maintaining patient's wellbeing following a cardiac event. The effectiveness of CR to improve patients' health outcomes is well studied and documented.^{1,2} This evidence base has been used to inform multiple international CR guidelines.³⁻⁶ In Aotearoa New Zealand, there is little knowledge about whether CR services are providing programmes as recommended by evidence based guidelines.⁴ This article establishes the current state of CR services with reference to the CR guidelines of New Zealand.⁴

Typically there are three phases of CR in New Zealand: inpatient rehabilitation (Phase 1); outpatient rehabilitation (Phase 2); and long-term maintenance (Phase 3).⁴ Phase 1 includes early mobilisation and education, with inclusion of the family. Phase 2 consists of an exercise component and education sessions, which may be conducted as a group, one-on-one or with family, and is delivered by a multi-disciplinary team. Phase 3 is hosted by

independent community cardiac clubs, with the assistance of the Heart Foundation of New Zealand (HFNZ).⁷

The New Zealand CR guidelines primarily focus on Phase 2, and are consistent with evidence-based CR guidelines from Australia, the UK, and the US.³⁻⁶ The guidelines⁴ recommend that ongoing follow-up and support is provided, and that programmes are tailored to meet the individual needs of the patient and their family. A comprehensive Phase 2 CR programme in New Zealand should provide the following components: exercise programmes; nutrition management; smoking cessation; pharmacotherapy; weight management; management of risk factors including blood pressure, lipids and diabetes; enhancement of self-management skills; and management of psychosocial issues.

All guidelines draw attention to disadvantaged groups, which may include those living rurally or with socioeconomic hardship, who may need alternative provision to accrue the benefits of CR. In

New Zealand, specific emphasis is placed on ensuring acceptability and appropriateness for Māori and Pacific Peoples, in an effort to reduce disparities in cardiovascular outcomes.⁸ The New Zealand and Australian CR guidelines explicitly recommend that Phase 1 and 2 programmes collect and analyse data to inform quality improvement activities.⁴ The UK CR standards go further by recommending units should register and submit programme data to the national audit database hosted by the University of York.³

In recent times, it has become more widely accepted that different service models of Phase 2 CR are needed, such as home-based CR, case management approaches, nurse coordinated prevention programmes, and telephone based programmes.^{9,10} For example, the HFNZ developed an alternative model of Phase 2 CR, the Heart Guide Aotearoa (HGA). The HGA was based on the successful Heart Manual which enables those who are unable to attend centre-based CR to complete their CR at home.^{11,12} The HGA has been successfully implemented and used in the very northern region of New Zealand, where uptake is high and patient response excellent.^{11,13} Approaches similar to the HGA have been found to be comparable in effectiveness to traditional centre-based CR programmes.^{10,14}

Evidence-based guidelines provide a template to inform best practice. In New Zealand, existing information about the structure of CR programmes and services is more than 10 years old. Obtaining an updated overview of current CR programmes and services offers the opportunity to observe the direction and diversity of CR services. Furthermore, our understanding of the alignment of existing CR programmes with evidence-based guidelines is poor. In order to understand how New Zealand CR services are performing in relation to the New Zealand CR guidelines, a survey was commissioned by the committee of the New Zealand Cardiovascular Prevention and Rehabilitation Group (NZCPRG), an affiliate of the Cardiac Society of Australia and New Zealand. The intent of this survey was to address these issues.

Method

The survey was developed by the CR survey team, and based on international

survey tools, as well as including questions from a previous New Zealand survey of CR units conducted early in 2000s.¹⁵⁻¹⁷ Pre-testing of the tool took place via the Executive of the NZCPRG. The survey topic areas corresponded with NZCR guideline recommendations regarding the provision of CR, with the survey divided into the following areas:

- Structure of the units, including services provided, available resources and employees; referral process; inclusion and exclusion criteria; how services meet the needs of under-represented groups; heart failure (HF) and transcatheter aortic valve implantation (TAVI) services were also noted, but are not the focus of this survey
- Phase 2 including sessions provided; their format and content; session frequency, locations, and assessments used
- Phase 3 referral
- Quality assurance activity including recording of attendance, DNAs and drop-outs; monitoring of outcomes of CR.

The survey was analysed using simple descriptive statistics. Percentages were calculated based on number of units who were eligible to answer the question. For example, for unit characteristics the total number (n=36) was used to calculate percentage, but for questions relating to Phase 2, percentage was based on the number of units (n=34) who offered Phase 2. Each question listed pre-determined responses for selection by respondents with the option for a free-text 'other' option, which were analysed and grouped.

A list of all CR units in New Zealand was obtained from HFNZ on 19 December 2014. No region was excluded and all providers were invited to respond.

Two weeks prior to the survey being distributed, on 5 February 2015, a pre-survey email was issued and respondents were asked to update their contact details and provide details of any other units that were not represented on HFNZ records. If no response was received after one week, the CR units were contacted by telephone and details updated. The survey went live on 19 February 2015 and survey

Table 1: CR unit structure.

	Count	%	Total	%
One phase or service only			8	22%
Phase 2 only	6	17%		
Phase 3 only	1	3%		
HF only	1	3%		
Two phases or services			8	22%
Phase 1 & Phase 2	7	19%		
Phase 2 & Phase 3	1	3%		
Three phases or services			14	39%
Phase 1 & Phase 2 & Phase 3	1	3%		
Phase 1 & Phase 2 & HF	11	31%		
Phase 2 & HF & TAVI	2	6%		
Four phases or services			6	17%
Phase 1 & Phase 2 & Phase 3 & HF	4	11%		
Phase 1 & Phase 2 & HF & TAVI	2	6%		

Table 2: Source of patient referrals.

Source	Response n=36	%
Other Hospital	34	94%
Medical team	31	86%
Ward nurse	31	86%
CR nurse	31	86%
General Practitioner	29	81%
Self-referred	24	67%
Practice Nurse	24	67%
Community based nurse	6	15%
Physiotherapist	5	12%
Other sources	4	10%
Psychologist	2	5%

questions and responses were populated directly to the Qualtrics survey system (<http://www.qualtrics.com/>).

Results

Forty-six units were approached, with 42 agreeing to participate. Three respondents identified that they operated five CR programmes, in multiple locations, and data was amalgamated to their overseeing unit. One respondent completed the first six questions only

and was excluded from further analysis, resulting in a total of 36 distinct units. The majority (n=34, 97%) stated that they use the *New Zealand Evidence-Based Best Practice Guidelines*⁴ for cardiac rehabilitation to inform their programmes.

Participating units' demographics

Two-thirds (n=25) of respondents provided Phase 1 and 94% (n=34) offered Phase 2 CR. Phase 3 programmes were available in seven units. As described in Table 1, the majority of units offered more than one service.

Table 3: Type of assessments by cardiac rehabilitation units.

Assessment	Response n=36	%
Patient goals	25	69%
Psychological status	24	67%
Cultural background	21	58%
BMI and Waist circumference	19	53%
Exercise capacity	17	47%
Health literacy	15	42%
Health assessment	4	11%
Informal assessment	2	6%
Social factors	2	6%
None	2	6%
Missing	2	6%

Patient referrals

The majority of programmes accepted either paper (n=33, 92%) or electronic referrals (n=33, 92%), with a lesser number accepting telephone referrals (n=22, 61%). Referrals into the programme came from a variety of sources, such as, hospitals, CR nurses, ward nurses, medical teams and general practitioners (Table 2). Sixty-seven percent of the units accepted self-referred patients.

Patients who did not attend or dropped out were followed up by 78% (n=28) of units. Of these, 88% (n=23) offered patients alternatives which included individual sessions at a clinic (32%, n=9), home visits (21%, n=6) or phone calls (17%, n=5). Units also referred patients to other programmes, such as Māori providers or programmes held in the evenings (28%, n=8). Two units offered HGA or similar to patients who dropped out.

Sixty-seven percent (n=24) of units stated that there were Phase 3 programmes in their area, of which 96% (n=23) made patients aware of those programmes. Three units maintained Phase 3 referral records.

Assessment

Table 3 provides an overview of the various patient assessments undertaken prior to commencing CR.¹⁸⁻²⁴ Patient goals and psychological status were assessed by two-thirds of CR units. Other indicators included BMI and waist circumference, cultural background and exercise capacity (Table 3). The six-minute walk test was

utilised by 59% (n=22) of units that assessed exercise capacity.²⁵ Four units (11%) reported no assessment.

The Hospital Anxiety and Depression Score (HADS) was the most commonly used psychological test.²³ Other tools included the PHQ-2, COOP, Holmes & Rahe, SF36, IPQ, individual discussion, DASS and K10.^{18-22,24} Following assessment, 72% (n=26) of units develop a personalised rehabilitation plan with the patient. Thirty-three percent (n=12) conduct a formal re-assessment of patients post discharge from Phase 2.

Audit of CR

Thirty-one percent (n =11) reported that their unit was audited 6-monthly or more frequently, and a further 11 units (31%) were audited less frequently. The remaining respondents either stated they were not audited formally (n=10, 28%), that auditing was restricted to participant feedback (n=2, 6%), or that only part of the team were audited (n=1, 3%). Just over half of the units (n=20, 56%) employed key performance indicators (KPIs), with the most frequently reported KPIs being smoking cessation, back to work, and assessment for depression. Other KPIs included wait times (for first contact and from referral to attendance) (25%) and medication adherence (35%, n=7). One unit reported uptake or attendance as a KPI.

The majority of CR units collected information on patient satisfaction (n=31, 86%). Ninety-two percent invited all attendees to complete patient satisfaction surveys

Table 5: Phase 2 components.

Education component	In-house		External providers*		Not provided	
	Count n=34	%	Count n=34	%	Count n=34	%
Recommended in the CR guidelines						
Physical activity and exercise	33	97%	9	26%	0	0%
Pharmacotherapy	32	94%	5	15%	1	3%
Nutritional advice	31	91%	3	9%	0	0%
Smoking cessation	27	79%	8	24%	1	3%
Weight management	19	56%	15	44%	3	9%
Psychosocial management						
Stress management	32	94%	6	18%	2	6%
Resumption of intimate and sexual activity	29	85%	5	15%	5	15%
Psychological aspects	28	82%	8	24%	5	15%
Returning to work	28	82%	2	6%	4	12%
Relaxation training	27	79%	8	24%	5	15%
Support group for spouse, whanau	18	53%	9	26%	9	26%
General						
Modifiable and non-modifiable risk factors	34	100%	3	9%	0	0%
Coronary disease management	30	88%	17	50%	1	3%
Health literacy	16	47%	3	9%	7	21%
Cardio Pulmonary Resuscitation	13	38%	11	32%	10	29%

* External providers (EP), those agencies and individuals not employed as CR unit staff

and 32% sought feedback from patients' spouse/partner.

Phase 2 programme

The majority of units involved in Phase 2 provided this either in a community-only (n=17, 50%) or hospital-only location (n=13, 38%), and 12% (n=4) provided it in both settings. A minority (n=4, 12%) provided home-based support. The mean length of programmes was 6 weeks, with a maximum duration of 12 weeks. Fifty-three percent (n=18) held one session per week.

The HGA was used by a quarter of the units, however five offered it to all patients. Reasons for low utilisation included a lack of funding and low patient uptake. Four units which utilise HGA provide formal guidance through the programme prior to discharge.

Ninety-one percent (n=30) of respondents stated that they recorded attendance at Phase 2 programmes, with 50% (n=17) documenting reasons for non-attendance and programme discontinuation.

Fifteen different education components were recorded from the survey responses

(Table 5). Most CR units (85%) provided all of the minimum components outlined in the New Zealand CR guidelines. Psychosocial components were generally divided into specific topics, such as psychological aspects, stress management, resumption of sexual activity, and returning to work.

The majority of CR units provided advice for physical activity (n=33; 97%) and nutrition (n=31; 91%) using in-house staff. External providers (EP), those agencies and individuals not employed as CR unit staff, provided a wide range of education services such as weight management (n=15; 44%), smoking cessation (n=8; 24%) and coronary disease management (50%). Several units worked in collaboration with EPs to address a variety of education components. For example, six of 32 units delivered stress management modules in conjunction with EPs.

Exercise support was commonly offered, with the majority of units offering group exercise sessions and Green Prescription (GRx). Green Prescription (GRx) is an initiative funded through the Ministry of

Table 6: Exercise programme.

Programme	Response n=34	%
Group sessions	30	88%
Green Prescription	27	79%
One-on one with a physiotherapist/exercise professional	13	38%
Offered through external group other than Green Prescription	5	15%
Other	1	3%
Missing	1	3%

Table 7: Methods for supporting under-served groups.

Methods for re-orienting programmes	Response n=18	%
Language (eg, pamphlets in the patients language)	15	83%
Setting (eg, marae, greater home-based visits)	14	78%
Greater consideration of family	12	67%
Cultural competency training of staff	12	67%
Awareness of spiritual needs	8	44%
Interpreters	3	17%

Health and contracted via district health board regions for general practitioner prescription to nutrition and physical activity patient support (Table 6). Many units (n=24, 65%) offered patients a structured exercise programme. A structured exercise programme is exercise which has a specific plan and purpose. Usually time to exercise is organised and the programme is monitored or supervised in some way. Three quarters of the units offered more than one type of exercise programme (n=31, 76%).

Support for special groups

Respondents reported that the needs of rural patients and socioeconomically deprived were most often met by phone contact, home visits or internet communication. Fifty-six percent (n=20) offered a specific cultural provider or liaison, with 95% (n=19) of those providing support for Māori and 22% (n=5) for Pacific people. Fifty percent (n=18) of the units were able to re-orient their mainstream programme for specific cultural needs. Common ways for re-orienting were providing resources in the language of the patient, or support in a location that was culturally appropriate and/or acceptable (Table 7). Ten units neither offered a cultural liaison nor re-oriented their programme.

Discussion

In this survey, large variations between units were observed in delivery and content of CR. There was also no clear standardised process guiding the assessment of patients. This is despite the guidelines encouraging specific formal assessments and re-assessments in areas of nutrition (dietetic support), social support and anxiety or depression (such as the HADS scale), and pre-exercise risk.⁴ It is uncertain whether the diversity is due to patient need or an effect of environmental influences, for example policy and funding. If the former, CR services would appear to be appropriately variable, but if the latter, patients may not be receiving appropriate service or all the components needed to rehabilitate optimally.^{4,5} Variation in types of, and number of, assessments significantly affect the reporting of outcomes, which poses challenges to audit processes and evaluation of effectiveness. Regular auditing of CR practice is crucial to provide critical performance data of programmes.²⁵

Performance guidelines also encourage standardised self-assessment for continuous quality improvement.^{26,27} The New Zealand CR guidelines specifically

recommend a regular 6-monthly audit.⁴ Significantly, almost 1 in 4 CR surveyed units did not regularly audit their service. Furthermore, the survey results suggest that there may be some misunderstanding of what comprises an audit in some units. This is a critical area for quality improvement in order to identify areas of strength and weakness. Audits should be complemented by the use of KPIs, particularly meaningful patient-specific indicators. Only half of the CR programmes in New Zealand reported any outcome indicators.

A key finding from this survey was the scarcity of nationally co-ordinated CR data collection, highlighting the importance of developing a core minimum national data set. Given that international research^{16,28} has found that attending CR improves health outcomes, uptake and attendance data should be deemed essential. Standardising and centralising CR unit and patient data would enable a profile of regional differences in service provision and support understanding of how these might be linked to patient outcomes. A national database of CR uptake and attendance would have obvious utility in audit and evaluation of CR.

The All New Zealand Acute Coronary Syndrome Quality Improvement (ANZACS QI) register is one avenue where this information could be co-ordinated.²⁹ Establishing a new and independent database for CR would require substantial resources to be implemented. This survey has identified that data currently collected is almost exclusively held locally, and as such a national profile of CR referrals, uptake, attendance, and performance is incomplete and a significant gap for CR services.³⁰

Support for special groups was incorporated by the majority of CR units. Half of programmes were able to re-orient their programmes for cultural needs, and this was reflected in the cultural competency training levels of staff (33% of all CR units). The HGA provides a useful resource for units that have patients who are unable to participate in centre-based CR programmes. These patients can include those that are located rurally, transport-limited, or unable to attend for cultural reasons. Despite the potential utility of the HGA, it was

infrequently used throughout the units and this survey was unable to identify reasons for this low use. Given that the HGA was specifically developed for home-based rehabilitation, there is a need to further investigate the reasons for the low use of this evidence based model of CR.^{12,13}

Strengths and limitations

A key strength of this survey was the high rate of responses received from CR units nationwide (86%). Consequently, there is now a greater understanding of the services, their structure, processes, content and use of quality improvement strategies. However, while this survey had been pre-tested by 10 health professionals, comprising mostly of cardiac rehabilitation or cardiac specialist nurses, the question syntax and meaning were queried by several respondents. Consequently some respondent answers may not be reflective of the question. The survey tool will undergo additional testing prior to the next survey.

The collected data indicated a wide use of resources and flexibility in delivering CR services. Importantly, the survey did not collect data on the rationale and frequency for the use of these multiple resources, which is the role of an audit. For example, the survey reports that 79% of units include GRx, however, frequency of patient utilisation of GRx was not collected. As such the proportion of enrolments referred to GRx and whether GRx is being used in place of CR exercise intervention or post-CR cannot be confirmed.

Conclusion

A national survey of New Zealand cardiac rehabilitation services was conducted and respondent participation was high. This survey identified that variation in services and resources exists, and the variation in data collection makes determining the efficacy of current services challenging. The establishment of a national database for the collection of an agreed set of patient specific quality indicators would provide performance feedback and patient outcome efficacy data and as such would strengthen quality improvement strategies.

Competing interests:

Nil

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