

ORIGINAL RESEARCH

Cardiac rehabilitation in rural and remote areas of North Queensland: How well are we doing?

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Abstract

Objective: To address access to cardiac rehabilitation (CR) for people in R&R areas, this research aimed to investigate: (1) post discharge systems and support for people returning home from hospital following treatment for heart disease (HD). (2) propose changes to improve access to CR in R&R areas of NQ.

Setting: Four focus communities in R&R areas of NQ.

Participants: Focus communities' health staff (resident/visiting) (57), community leaders (10) and community residents (44), discharged from hospital in past 5 years following treatment for heart disease (purposeful sampling).

Design: A qualitative descriptive case study, with data collection via semi-structured interviews. Inductive/deductive thematic analysis was used to identify primary and secondary themes. Health service audit of selected communities.

Results: Health services in the focus communities included multipurpose health services, and primary health care centres staffed by resident and visiting staff that included nurses, Aboriginal and Torres Strait Islander Health Workers, medical officers, and allied health professionals. Post-discharge health care for people with HD was predominantly clinical. Barriers to CR included low referrals to community-based health professions by discharging hospitals; poorly defined referral pathways; lack of guidelines; inadequate understanding of holistic, multidisciplinary CR by health staff, community participants and leaders; limited centre-based CR services; lack of awareness, or acceptance of telephone support services.

Conclusion: To address barriers identified for CR in R&R areas, health care systems' revision, including development of referral pathways to local health professionals, CR guidelines and in-service education, is required to developing a model of care that focuses on self-management and education: Heart: Road to Health.

KEYWORDS

Aboriginal and Torres Strait Islanders people, cardiac rehabilitation, holistic, multidisciplinary, remote, rural, secondary prevention

1 | INTRODUCTION

Cardiac rehabilitation (CR) is evidence based best practice for people with heart disease (HD),¹⁻³ which continues to be the largest single cause of death in Australia and contributes to significant illness, disability, poor quality of life and higher health care costs.⁴ CR is important in improving health and quality of life for people with HD, especially for people in rural and remote (R&R) areas, where rates of HD were higher than the national average, and highest for Aboriginal and Torres Strait Islander peoples.⁵ Despite high rates of HD, and demonstrated benefits of CR, referrals in Australia were only 45%,⁶ with less attending (10%–30%), and R&R populations underrepresented.⁷ Aboriginal and Torres Strait Islander peoples were least likely to attend, which may be due, in part, to cultural inappropriateness of many programs.⁸

Cardiac rehabilitation is defined by The World Health Organisation as a range of co-ordinated activities to address risk factors for cardiovascular disease, including physical, mental and social conditions, that enable patients to achieve optimal functioning.⁹ Three phases of CR are recommended for people with a broad range of stable HD including acute coronary syndrome, stents, stable heart failure, cardiomyopathy, valvular surgery, implantable devices, heart transplant, risk factors, arrhythmias and stable heart failure.^{1,2} CR is a component of secondary prevention (SP) that includes medical care, risk factors management, psychosocial care, education and support for self-management, delivered in a variety of settings, through a holistic (health and lifestyle), multidisciplinary team approach.¹⁰ Phase-1-CR provides in hospital education on disease, risk factors, discharge planning and referral to out-patient, centre-based or home-based CR (Phase-2-CR). Phase-2-CR provides continuing education, risk factor management, psychosocial support and medical care. Phase-3-CR involves community-based ongoing health care and risk factor maintenance, which includes linkages to community programs.^{1,2}

Health services in Australia are provided through network or government and private health care organisations and health professionals, who deliver a wide range of services throughout Australia.¹¹ It is well documented that services in R&R areas are sparse and difficult to access, in part due to low populations living in vast geographic areas.¹² Further disadvantages in R&R areas is noted due to poor social determinants of health,¹³ including limited health, education, recreational and social services; fewer healthy food choices, higher living costs, greater distances to major centres and unreliable internet.⁵ A major barrier to CR is distance to centre-based CR in R&R areas of NQ, with Mt Isa providing the only centre-based service west of Townsville (904 km), Mossman, the furthest service

What is known about the subject:

- There is a scarcity of health care services, including cardiac rehabilitation (CR), in rural and remote (R&R) areas of Australia
- There is inadequate discharge planning and referrals to CR for people treated in tertiary hospitals in North Queensland for heart disease
- There are few centre-based outpatients Phase-2-CR services in R&R areas, and few referrals to home-based telephone support service services
- Barriers to CR in R&R areas include, geographic distance from centre-based services, a perception that CR is not necessary, programs only available in working hours, lack of culturally appropriate services and flexibility to reach out to people at home
- A perception that CR is provided through centre-based services

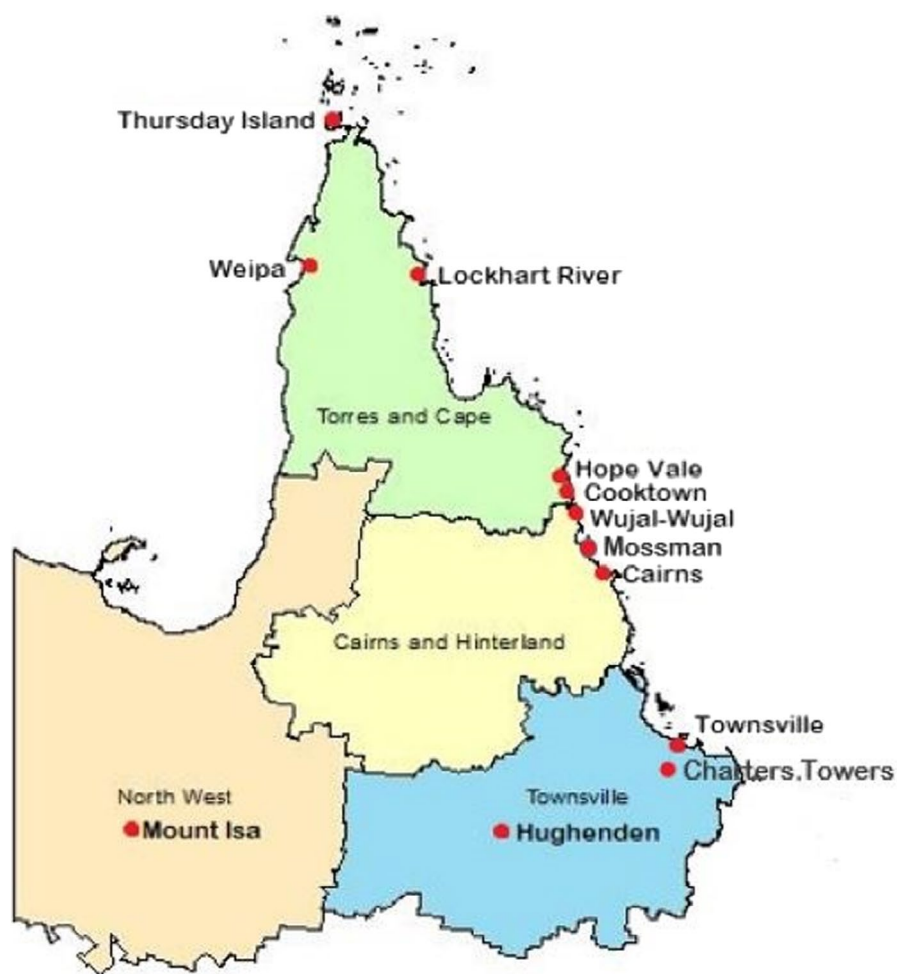
What the paper adds:

- Overview of available health services in R&R areas of NQ
- Improved understanding of barriers to CR in R&R areas of NQ, including poor understanding of CR, no referrals to locally based health care providers in absence of centre based CR and lack of a holistic multidisciplinary team approach
- Suggests a way forward to locally based services through a model of education and self-management: Heart: Road to Health

north of Cairns (76 km) (Figure 1), resulting in no centre-based services in Cape York and Torres Strait.¹⁴

Queensland Health (QH) home-based telephone CR program, Coaching patients on Achieving Cardiovascular Health (COACH) is available throughout Queensland to cover this shortfall, as well as offering an alternative program for people who prefer a home-based service.¹⁵ However, COACH referral rates in NQ are low (range 4%–20%),¹⁶ with fewer people participating (64%).¹⁷ The Heart Foundation (HF) of Australia also offers a home-based telephone support program, My Heart, My Life (MHML), that focusses on SP for people with acute coronary syndrome.¹⁸ As well as MHML, the HF offers a smartphone App that includes generic information on HD, SP and risk factor management.¹⁹ COACH, MHML and HF Apps are available at no charge to the consumer. Both programs have been evaluated and demonstrated to be beneficial.^{18,20} MHML continues to be rolled out, but due to low

FIGURE 1 Map of research focus areas in North Queensland



numbers, a full assessment is not available. Cardihab[®] is a commercial CR smartphone App that has been demonstrated to be effective,²¹ but no information is published on access by people in R&R areas.

To address the issues around access to CR for people in R&R areas, this research aimed to investigate:

1. post-discharge systems and support for people returning home from hospital following treatment for HD,
2. propose changes to improve access to CR in R&R areas of NQ.

2 | METHODS

Descriptive case study methodology²² was used, with a qualitative interpretive framework.²³ This approach was suitable for multiple sites²⁴ and allowed for the description of ‘an intervention or phenomenon in a real-life context’ (the case), in order to ‘develop theory, evaluate programs and develop interventions.’²² The initial direction and framework of the study were guided by the findings of (i) an integrative literature review on barriers,

enablers and pathways to CR in R&R areas²⁵; (ii) a demographic study of hospitalisations for HD and referrals to COACH in NQ²⁶ and (iii) a case study on implementation of Phase-1-CR in tertiary hospitals in NQ and impact in R&R areas.²⁷ Drawing on this research, deductive analysis was used to identify primary themes/areas of interest, together with the development of semi-structured interview guidelines (Appendix S2 and S3) for data collection via purposeful information rich samples.²⁸

Participants were defined by:

2.1 | Inclusion criteria

- *Community participants*: Adults ≥ 18 years: males and females, discharged from hospital following treatment for HD in the past five years, who lived independently, and were eligible for CR, according to HF and Australian Cardiovascular Health and Rehabilitation Association (ACRA) recommendations.^{1,2}
- *Community leaders*: Long-term residents of the community who held leadership positions or were recognised by the local community as leaders.

- *Health staff:* Local and visiting health professionals potentially involved in Phase-2-CR, and their managers.

2.2 | Exclusion criteria

People with a medical diagnosis of mental impairment, or who despite assistance of a support person/interpreter, were unable to comprehend the process and thereby did not fulfil the requirements of informed consent as per NHMRC guidelines.²⁹

Major steps of thematic analysis as identified by Braun and Clarke³⁰ (Figure 2) were used to guide the inductive data analysis and identification of secondary themes. The initial analysis and review of the secondary themes was undertaken by the coordinating primary investigator (CPI) and checked by the primary investigator (PI) against interview text and field notes to ensure that the themes were reasonable, logical and obvious.³¹ Finally, the results were reviewed by the research advisory team.

All processes were conducted according to consolidative criteria for reporting qualitative research (Hyperlink; COREQ)³² <https://cloudstor.aarnet.edu.au/plus/s/vPzk3RuIpwv3yQJ>

To investigate factors that impacted on access to CR in R&R areas, the environment and context (settings), in which people lived, and availability of health services were explored. This was achieved through meetings with a local, regional and state health professionals/managers, bureaucrats, community leaders and members of community organisations. This process continued throughout the study and included accessing reports and websites from each organisation providing services in the focus areas, thereby, ensuring accuracy of information gathered (member checking).²⁸

2.3 | Settings

The four focus communities were Hughenden, Cooktown, Wujal Wujal and Hope Vale, located in R&R areas of NQ Australia (Figure 1). These communities were selected as they provided differing demographic profiles (Table 1) and employment opportunities including farming, tourism, small industry, mining, commercial and government services, and they were geographically accessible but remote

(at least four hours from a major centre), with higher proportion of Aboriginal and Torres Strait Islander peoples compared to Queensland overall. To confirm participation by the community and local health services, pre-research planning visits were carried out, during which commitment to be involved was established.

All focus communities had higher proportions of Aboriginal and Torres Strait Islander peoples, lower rates of year twelve education, more low income households (<\$650/week) and were less likely to have internet access at home, compared with Queensland overall.¹³ Rates of hospitalisation for HD in Cooktown, Wujal Wujal and Hope Vale were also higher, except Hughenden that had lower rates (Table 1), with no explanation identified.

2.4 | Data collection and recruitment

Recruitment of community participants, health staff and community leaders, and data collection, were undertaken over 6 weeks in Hughenden and Cooktown, and 2 weeks in smaller communities of Hope Vale and Wujal Wujal, in line with advice of the Department of Prime Minister and Cabinet, best practice for community consultations.³³ Community participants were recruited through health staff or community groups, with whom the CPI discussed the project and provided simple English language brochures that described the project, and provided research team contact details (Appendix S1). Potential participants either contacted the CPI or consented for the CPI to contact them. The recruitment of health staff was via routine staff meetings, with community leaders identified through local councils and community groups. Prior to interviews, the CPI provided each community or health staff participant, comprehensive verbal and written information about the project purpose, confidentiality and withdrawal at any time. Participant information sheets: Staff; community participants and leaders) <https://cloudstor.aarnet.edu.au/plus/s/9k7wDYQuINtYCYr>

One locum GP and one community participant, declined to be interviewed because they perceived that the research was not relevant for them. Two pilot interviews were conducted for each category, with no changes made, and these interviews were included as data in the study.

In line with NHMRC ethical research guidelines for Aboriginal and Torres Strait Islander peoples, an Aboriginal

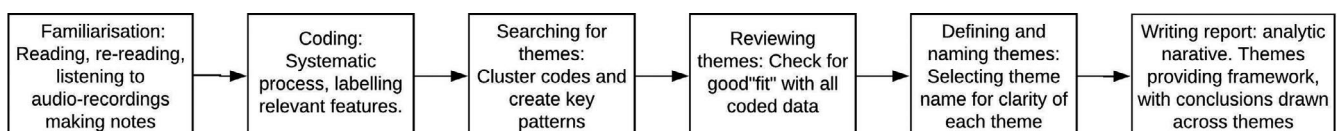


FIGURE 2 Summary: six steps of thematic analysis³⁰

and Torres Strait Islander Health Worker (ATSIHW) or Liaison Officer, or family member, was invited to assist with communication and language interpretation.³ Every effort was made to ensure proportional representation of males and females, as well as a higher proportion of Aboriginal and Torres Strait Islander peoples due to their higher rates of HD.¹¹ (Table 2) Community participants were given a \$50.00 voucher for the local store in recognition of their expertise and contribution.

2.5 | Interviews

Data about how well people understood the disease and need for CR, together with support received on discharge from hospital following treatment for HD, was collected by the CPI through individual semi-structured interviews (Appendix S2 and S3). Interviewees included community participants (Table 2), health staff, and community leaders from Hughenden, Cooktown, Wujal Wujal and Hope Vale, and depending on the participant's preference, were conducted in a private area of the participants' workplace, home or public facility such as the local library. Data were collected via audio recorded interviews or 'collaborative yarning'.³⁴ Yarning is considered by Aboriginal and Torres Strait Islander peoples as their description of

living memories, and as 'a holistic approach that allows Aboriginal [and Torres Strait Islander] researchers to take into account the past, present and future implications for all involved'.³⁴

Across all communities, health staff interviewees included general and mental health nurses (22); allied health professionals (AHP) (12); ATSIHW (10); ancillary health staff such as sport and recreation trainers (10); medical practitioners (3) and community leaders (10).

2.6 | Reflexivity and rigour

The analysis was undertaken by the CPI, reviewed by the PI and discussed with the research team to ensure reflexivity, rigour, clarification and verification.^{35,36} The CPI had experience as a remote area nurse, which was considered to be of benefit because of her understanding of R&R health services and the need for community consultation.

Possible bias and preconceived ideas were minimised by developing a framework for data collection and analysis,³¹ categorised against HF/ACRA guidelines^{1,2} and related research.^{16,25} QH Community Advisory Network meetings in Cooktown and Hughenden provided a reference group for development of ideas, member checking and clarification.²⁸ Community participant interviews

TABLE 1 Demography profile and sample social determinants of focus communities¹³

Community	Hughenden, Flinders Shire	Cooktown, Cook Shire	Wujal Wujal, Cook Shire ^a	Hope Vale, Cook Shire ^a	Queensland
Population	1136	2631	282	891	5.17 × 10 ⁶
% Aboriginal and/or Torres Strait Islanders	8.2	14.5	91.5	98.7	4.0
Heart related hospital admissions per 1000/year	7.5	12.3	12.8	12.7	11.7
Age (medium, years)	44	44	30	25	37
Year 12 education (%)	14.9	10.5	12.3	8.9	16.5
Low income households <\$650/week (%)	25.6	29	41.7	37.6	19.5
Internet access to dwelling (%)	68.7	70.8	66.2	70.3	83.7

^aDesignated indigenous locations.

TABLE 2 Community participants

Community	Number	Aboriginal and/or Torres Strait Islanders	General population	Male	Female	Median age (range)
A	16	5	11	10	6	68.5 (41–85)
B	10	3	7	6	4	62.5 (51–80)
C	8 ^a	7	1	4	4	66 (53–83)
D	10 ^a	10	0	6	4	59 (20–76)
Total	44	25	19	26	18	64 (20–85)

^aDesignated indigenous locations.

were not checked with participants, due to a previous research study that demonstrated interviewees may have concerns about how they sounded or what they said in their interviews due to feeling uncomfortable, rather than inaccuracy.³⁷ At times, member checking and clarification was also required on matters identified during interviews (e.g., referral systems and electronic medical records). Queries were discussed with staff, community leaders and regional managers of Torres Cape Hospital and Health Service (TCHHS), Townsville Hospital and Health Service (THHS), QH Central Office, Brisbane, Apunipima and Royal Flying Doctor Service (RFDS). Responses were recorded in field notes and coded as clarification notes (CN).

2.7 | Analysis

Data from each focus community was analysed separately with findings interpreted against the research objectives and integrated to form one case.³⁸ Audio interviews were professionally transcribed verbatim. All transcriptions and field notes were analysed thematically, through a process that identified headings (nodes), and subheadings, through reflective induction.³⁰ To ensure confidentiality, coding was used for community participants (CP), community leaders (CL) and health staff (S), with numbers used for focus communities (1–4). This inductive analysis took a flexible approach in which researcher interpretation and judgement was used to identify ‘underlying ideas, assumptions, conceptualisations and ideologies.’³⁰ This process was facilitated by NVivo-12,³⁹ and enabled confirmation and clarification of the primary themes/areas of interest and development of secondary themes that capture ‘levels of patterned responses of meaning.’³⁰

Triangulation²⁸ occurred by collecting data from three different participant groups (CP, CL and S) in four separate communities. This data was augmented by web pages, emails, and field notes taken at follow-up and clarification meetings. This process was systematic, rigorous, and resulted in data that was illustrative of the objectives of the case under study.⁴⁰

The following section presents findings from the integrated case to identify factors that impacted on access to CR in R&R areas of NQ.

3 | RESULTS

In line with case study methodology, the results of the analysis are presented as a summary of synthesised data in order to ‘build towards a more integrated understanding of events, processes and interactions’²² as follows:

1. Overview of health services in focus communities.
2. Factors which impacted on access to CR (post-discharge care).
3. The way forward.

3.1 | Overview of health services in focus communities

Hughenden, and Cooktown Multi-Purpose Health Services (MPHS), together with Hope Vale and Wujal Wujal Primary Health Care Centres (PHCC), provided health services for people in their local community and surrounding areas. Both of them provided accident and emergency, in-patient acute, chronic disease, and long-term aged, outpatient mental health, allied health and community health services and health care support for Aboriginal and Torres Strait Islander peoples.

Onsite health care at Hughenden MPHS is predominantly provided by nurses, supported by visiting AHP, GP and an Aboriginal or Torres Strait Islander Liaison Officer. AHP provides services predominantly through contracts with NQ Primary Health Network (NQPHN) and QH. The local GP is also the MPHS medical director and provides on-call emergency care.[S1/1] The majority of specialist medical, and occasionally AHP consultations, are provided by telehealth.[THHSCN7/1] The Heart of Australia truck visits Hughenden four-to-six weekly for one-to-three days and provides cardiac diagnostic and monitoring services on referral from a medical officer. Bulk billing is available for people with a health care card.[S14/1]

Onsite health professionals in Cooktown include a medical director, staff doctors (number depending on availability due to recruitment difficulties), a number of ATSIHW, AHP and nurses. Cooktown MPHS is a hub that provides outreach services in the southern Torres and Cape region, extending to the Lockhart River and Weipa (Figure 1). Wujal Wujal and Hope Vale are provided visiting services by Cooktown. Medical care for HD is provided by cardiologists who visit Cooktown approximately five times a year, and a general physician who provides specialist medical care for people with chronic diseases in Cooktown, Wujal Wujal and Hopevale through four-six weekly visits.[S6/3] People also travel to Cooktown or Cairns for consultations or attended by telehealth in their local PHCC.[TCCN 23/2]

Wujal Wujal and Hope Vale PHCC, provide primary clinical, men’s, women’s, children’s health, chronic disease management and emergency services. Staff included community-based nurses and ATSIHW, supported by administrative and operational service officers. Medical officers and AHP from Cooktown provide visiting services one-to-three days a week. Primary health care, alcohol,

tobacco, other drugs interventions and social wellbeing services were provided onsite by resident staff, or by one-to-two weekly visits by Apunipima Cape York Community Controlled Health Service (Apunipima). Royal Flying Doctor Service provided similar visiting services, often in areas not serviced by QH or Apunipima. [S9/4, S11/3, TCCN3/2]

PHCC are open Monday to Friday (apart from public holidays), business hours, with nurses and ATSIHW providing on call after hours emergency care, that included triage, stabilisation and if necessary transport to Cooktown by ambulance.[CL1/2]

Overall health service provision in R&R areas is predominantly funded by a mix of Australian Government (federal) and QH (state) funding arrangements:

- Federal: GP, Medicare, NQPHN, Apunipima, RFDS,
- State: MPHS, PHCC, Apunipima, RFDS, Heart of Australia (commercial organisation subsidised by QH [S14/1]).¹¹

All services provided by MPHS, PHCC, RFDS, Apunipima, QH and NQPHN contractors had no direct cost for consumers. Both Hughenden and Cooktown GP services bulk billed people with a health care card, and Aboriginal and Torres Strait Islander people through the Federal Government 'Closing the Gap' scheme.[CN1/1, S14/4]

3.2 | Factors that impact on access to CR (Primary and secondary themes)

Factors that impact on access to CR are presented according to primary and secondary themes, (Table 3) with

verbatim responses of community participants, community leaders and health staff, to illustrate CR access, understanding, post-discharge referrals, and if holistic health care for people with HD was provided and finally, a way forward.

3.2.1 | Theme 1: Post-discharge plan understanding, referrals and support

Overall, this study found that community participants and health care staff demonstrated poor understanding of post-discharge care. Discharge plans from the treating hospital were often delayed, and staff lacked the knowledge to provide holistic care. Subsequently, post-discharge care provided was predominantly clinical:

...our information and focus is clinical. We get the people in clinically and it might not trigger in the nurse when we're taking the blood pressure or talking about the medications in heading further down the track and sending a referral onto physios or dietitians and any of those type of things...and I do think a lot of that probably gets missed[S2/2]; and...clinic provides Webster pack medication, does medical check, people advised to go home and rest[CP4/2]; ...my GP generally only prescribed medication[CP 6/4].

Community participants were not referred to AHP for risk factor management for HD:

...[if] patients with heart disease are referred to physiotherapist, mostly it's back pain foot pain

TABLE 3 Primary themes/areas of interest and secondary themes (community participants, community leaders and health staff)

Primary themes/area of interest (community participants, community leaders and staff)	Secondary themes
Post-discharge understanding, referrals, and support for cardiac rehabilitation in rural and remote areas of North Queensland	<ul style="list-style-type: none"> • Access to services and systems of health care. • Allied/ancillary health role and holistic care. • Communication, co-ordination and referrals. • Home-based and alternative care. • The way forward.
CR understanding and access in rural and remote areas of North Queensland	<ul style="list-style-type: none"> • Access to health services, CR/secondary prevention (SP) and systems of health care. • Allied/ancillary health role and holistic care. • Communication, co-ordination and referrals. • Home-based and alternative CR. • The way forward.
The way forward to improving access to CR in rural and remote areas of North Queensland	<ul style="list-style-type: none"> • What can be done to improve access to CR in R&R areas of NQ?

and knee pain[S1/2]; and ...so in the time that I've been here in this position [AHP], which is 10 months, I haven't had any referrals for cardiac patients;[S23/1]; ...you were speaking about cardiac rehab and it's tricky,... we're [AHP] not getting the referrals. It doesn't mean they're not out there. Obviously, the stats say that they[people with HD] are but we're literally just not getting them.[S23/1]

Staff lacked information and guidance from the discharging hospital about ongoing care:

... a lot of the time the patient comes home from a cardiac intervention and the discharge summary is not completed,[S2/2]

...so, I think there's a lack of knowledge and from our perspective of knowing what is expected when a patient has a stent or has open by-pass surgery or things like that. So what is expected in that rehabilitation phase? [S2/2]

3.2.2 | Theme 2: CR understanding and access

There were no centre-based Phase-2-CR programs in the focus communities, and community participants were generally referred to the GP who provided clinical care:

When I left hospital, all I basically knew was, that I had another visit in, I think was three months. And that was it. There was no follow up out here whatsoever. No physio. Nothing. So, I was groping in the dark. And, it was really quite scary for me, mentally. I ended up asking the doctor for some tablets...Antidepressants. [partner added] ... and he's still doing it. He goes every two weeks [to GP] for bloods, nothing else suggested. No referrals. [CP13/1]

CR was available via COACH or MHML, but only one community participant was referred to COACH:

...the only thing I had was a phone call from COACH, they call themselves, and the girl, she was very nice. Yeah, we probably spoke for an hour on the phone. Other than that, I had to make an appointment to see the local GP here, who did blood tests, and that was about it.[CP10/1] [no further follow-up from COACH after 3 months]

COACH was rarely mentioned by health staff, community participants or leaders, and when prompted, doubt was expressed about its suitability for people in R&R areas especially for Aboriginal and Torres Strait Islander peoples:

...COACH I think out here, especially with Indigenous people, face-to-face is better. And the more that I see of one person, the ease of access or talking to them and building that sort of rapport with them[improves].[S6/1]

... face-to-face is always better in Indigenous health and people do pretty good with Telehealth these days[S1/2], and...it doesn't work for lots of people in remote areas, with poor mobile phone coverage, no reception, don't want to talk to a stranger on a phone. So, some of the Indigenous communities, this wouldn't work at all. But they need a person there to talk to. S9/4

AHP and nurses who had previous experience in CR demonstrated sound understanding, and potential for participation in CR. One nurse with previous experience in CR explained:

So physiotherapy would be the main one, but you'd also look at the factors that put them into that situation in the first place. So if they were a big drinker, a big smoker, a big drug user, you'd start to get some counselling around that. There's also a bit of a syndrome, I believe, after people have had major heart surgery where they have a depression afterwards. Very high risk for depression. So, I'd be looking at a mental health report, if the patient wanted it, of course, and also review. [S4/2]

AHP also demonstrated a holistic approach:

Health promotion is a real passion of mine as well, but we don't really do anything with heart disease[S11/4]...but our plan, myself and [another AHP], is to actually do a separate cardiac rehab exercise group at the club[S4/4].

3.2.3 | Theme 3—The way forward

Suggestions by community participants, community leaders and health staff on improving access to CR in R&R areas, included improved co-ordination of services,

utilisation of telehealth, appropriate referrals, guidelines and information from the discharging hospital to local staff, and linking people with local groups and programs:

Discharge plans and notification of discharge: *There's no automatic system to tell us [that someone has returned to the community post-discharge] except for a letter showing up in the mail many, many weeks later.*[S2/2]

It's finding them pathways for that. [referral from the discharging hospital, linking people into services post-discharge] and then if they've consented for [a community nurse or local health service provider] to contact them, I ring them and say, I've just got your discharge paper consent form. Would you like an appointment? How are you going?[S3/1]

Or even if they just—a bit like when you come home after a baby. ...They used to come and visit you maybe once or twice. Then from then on you just used to go to the clinic. [CP5/1]

Reaching out and providing holistic care supported by guidelines to ensure that staff have the knowledge to provide holistic post discharge care was proposed:

Yeah, just someone, or a program,...You need someone there to still monitor them, and know the steps, [guidelines for post discharge care and CR], and something that people can go to. Because it helps people get out of the house,[CP3/1] and to support locally provided holistic care a...framework [or]guidelines for standard care—e.g., what everyone with heart disease needs: Physical activity; dietary advice; psychosocial support—needs to be provided in conjunction with Apunipima who focus on a wellness model.[S2/2]

Staff and community leaders advocated for better coordination of services and use of telehealth:

If we can get all the service providers to link into the community and provide some outcomes as a joint community session, then we'd probably come up with better things... to link people into different, groups and programs:[CL2/4] and...We thought that if we could have the service providers working together and linking in to each other, it would probably provide overall a much better

service, and there would be transitions from one to the other.[CL2/4]

Telehealth could help with group discussions to discuss risk factors, diet, walking and smoking. This would be better than COACH because people prefer visual, 'seeing is better.'[S3/3]

...I think moving forward, when we were designing our model of care, I really think that COVID has changed how we do care with technology, and I think that will be a big part of care moving forward...Videoconferencing technology isn't for everyone, but we've had some really good responses. It just depends on how good the technology is.[S9/4]

The insights of community participants, staff and community leaders on understanding and access to CR rehabilitation, provided direction for improving access to CR in R&R areas of NQ.

4 | DISCUSSION

Effective healthcare systems are required to ensure that people in R&R areas have access to CR. Health staff, community leaders and community participants with HD identified the need for more information about CR, improvements in referral services and local holistic, multidisciplinary care. AHP and health staff who had previously been involved in CR programs demonstrated a sound understanding of CR.[S4/4, S3/4, S6/4, S16/1, S19/1, S23/1] Otherwise, community participants, leaders and health staff had low understanding, and discharge plans failed to provide adequate guidance.[S4/2, 3/1, 2/2] Despite AHP understanding and willingness to provide CR, their opportunity to deliver these services was limited, due to a lack of referrals for people with HD, together with an absence of pathways or guidelines.[S4/4, S3/4, S19/1] AHP reduced ability to be utilised to their full potential, which is also reflected previous research that described AHP's diminished role in holistic health care, and SP.^{41,42} Further, post-discharge care for people with HD was found to be predominantly clinical,[2/2] with medical discharge summaries often delayed and rarely mentioning CR or risk factor management,[S2/2] confirming findings of a previous Phase-1-CR implementation study.²⁷

Access to CR was impeded due to limited availability of centre-based CR services in R&R areas of NQ,¹⁴ combined with a perception that centre-based facilities were

necessary for provision of CR[CL1/1]. This was compounded by home-based telephone support programs, such as COACH and MHML being seldom used. A range of factors impacted on utilisation of these programs, including low referrals,¹⁶ unreliable internet and mobile phone services, and Aboriginal and Torres Strait Islander peoples' preference for face to face communication. [CN1/2&2/2]

Health systems' weaknesses further impacted on Phase-2-CR attendance, including inadequate implementation of Phase-1-CR, in tertiary hospitals in NQ.²⁷ This shortfall resulted in patients' poor understanding of their disease, post-discharge care and low referrals to Phase-2-CR.²⁷ QH Chronic Disease Manual recommends referral to CR or local health services to ensure continuity of care for all people with stable HD,⁴³ but no evidence of implementation of this recommendation, including guidelines or pathways, were found.[QHCHN4/1]

To improve access to CR in R&R areas, a multifaceted systems approach that includes pathways and guidelines is required. Such an approach needs to commence prior to discharge from hospital and link patients to local health care providers to ensure CR is provided in their local community. There are examples of effective community based programs that provide holistic patient-centred care. These include the diabetes model of education and self-management,⁴⁴ and community-based post-natal care,[CP5/1,S3/1] in which referrals, patient consent for follow-up, and guidance for post discharge holistic care are sent by the discharging hospital to locally based community nurses, ATSIHW, AHP, diabetes educators and/or GP. It is proposed that CR services could be implemented through a similar community-based system. Such a system would include initial assessment, coordination and referral of community-based/visiting health care providers for ongoing health care, risk factor management and psycho-social support, augmented by telehealth and telephone CR. To ensure successful system changes, pathways, guidelines and ongoing staff education, are essential particularly in R&R areas due to high staff turnover.⁴⁵ An example of a tool that addresses these issues is the Western Australia Department of Health's guidelines and pathways for CR⁴⁶ that could be adapted for Queensland.

As part of the development and implementation of revised CR services in R&R areas that are accessible to all, it is important that terminology reflects a common understanding and clear purpose of CR, and dispels the perception that CR programs are centre-based and often linked to hospitals.¹⁴ Thereby, the term Heart: Road to Health (HRH) proposed. Heart: Road to Health aims for post hospitalisation improved health and quality of life

for people with HD, through a process that includes flexible, holistic multidisciplinary health care and risk management in all settings.⁹

Given the generally poor understanding of CR, it is unsurprising that there are deficiencies in holistic multidisciplinary CR or SP provided in a range of environments.¹⁰ This study found that the majority of populated areas of NQ had access to community-based or visiting health care services that included ATSIHW, nurses, AHP and medical staff.⁴⁷ Therefore, it is proposed that it is possible to develop a HRH, that utilises local health resources, supported by pathways and guidelines. This model of care needs to be further developed and implemented to ensure that HRH is available for all.

4.1 | Strengths and limitations

The environment of this study is prone to rapid changes due to high staff turnover and occurred during a time of rapid change associated with the COVID-19 pandemic. Hence, information provided is as accurate as possible at the time of data collection. To mitigate this, follow-up has been undertaken to check for any significant changes prior to submission of this paper. Qualitative research was used for this study, and while a large number of interviews were carried out that demonstrated consistent findings, this does not necessarily account for the views of all health staff, and caution should be taken with applying the findings more broadly. However, it is also possible that findings may have broader applicability beyond NQ, and given the potential for CR to have a significant impact on HD mortality and morbidity, it would be desirable to replicate the study in other parts of Australia and beyond. When discussing health services, we did not include organisations that provide social support such as woman's and child care groups, or sport and recreation. These groups are considered highly important for the health and well-being of the community and were only omitted due to constraints on the length of the paper.

5 | CONCLUSION

Systems for CR in R&R areas were inadequate, resulting in limited understanding and access to CR, demonstrated by an absence of holistic, multidisciplinary, coordinated post-discharge care for people with HD. To counteract the common perception that centre-based facilities are required for CR, a change of terminology to *Heart: Road to Health (HRH)* to indicate a pathway for

improved health outcomes and quality of life is recommended. To implement HRH, a systems approach that includes guidelines and in-service education would be required. Healthcare system changes would also be a pre-requisite to develop a model of care that focus on self-management and education. To achieve this, post-discharge referrals to a case-coordinator to manage a process that includes co-ordinated holistic, multidisciplinary health care that utilises local/visiting health professionals would be required.

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CONFLICTS OF INTEREST

There are no conflicts of interest to declare.

AUTHOR CONTRIBUTION

PEF: conceptualization; data curation; formal analysis; funding acquisition; investigation; methodology; project administration; validation; visualization; writing – original draft; writing – review & editing. RCF: conceptualization; data curation; formal analysis; funding acquisition; investigation; methodology; supervision; validation; visualization; writing – review & editing. RB: conceptualization; formal analysis; supervision; validation; visualization; writing – review & editing. IR: conceptualization; supervision; validation; writing – review & editing. PAL: supervision; validation; writing – review & editing.

ETHICAL APPROVAL

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