Te Whatu Ora
Health New Zealand

Counting the Value Added by Cardiac Rehab Nurses.

Dr T.V Liew, Cardiologist, Te Whatu Ora Waikato

Thanks

Cardiac Rehab Nurses Waikato

Katherine Coombes

Background

Cardiac Rehab in New Zealand is traditionally split into 3 Phases

- Phase 1 Ward based initiation and engagement
- Phase 2 Hospital based combined education and exercise programme
- Phase 3 Primary care and community based long term reinforcement of secondary prevention

Historically hospital based combined education and exercise class were recognised as ‘gold standard’

Background

Problems with Traditional Approach at Waikato

1. Reduced hospital stay minimises patient contact potential for Phase1
2. Large, widespread, rural population with long travelling times to hospital
3. Large proportion of patients still working
4. Diverse patient cohort with differing understanding and needs
5. No dedicated Allied health, Gym, or hospital space
6. Lack of connection with primary care
7. 1500 patients/yr

Waikato Catchment

1/3 of patients live in Hamilton

Rural Waikato is Huge

Rural Waikato has few primary care services

What we Provide

- **Ward staff refer patients to service once a diagnosis of IHD has been made**
- **Patients are case managed by individual nurses**
- **Following discharge, we contact patients with a telephone contact within 2 days to ascertain**
  1. Symptomatic state
  2. Discover any initial problems post discharge
  3. Check medications
  4. Initiate engagement
- **A follow-up telephone contact is made within a week to:**
  1. Assess patient's needs and goals
  2. Work out a rehab plan with patient and invite the patient to participate in a programme

Programmes 1

Telephone Education

- We can provide education and support for patients who cannot attend education or exercise classes
- The number of telephone contacts are dependent on patient needs and goals
- We can provide exercise advice for patients

Home Visits

- We can undertake occasional home visits for patients with significant concerns who cannot attend clinic visits or classes and where Telephone assessment may not be adequate alone.

Programmes 2

Education Classes

- We undertake structured group education classes both in Hamilton and in the wider Waikato: Cambridge, Tokoroa, Morrinsville, Te Aroha, Te Awamutu, Te Kuiti, Taumaranui, Matamata, Thames, and Huntly.
- Classes possible in other places dependent on need.
- These cover a wide variety of topics including depression, medication, risk factor control, diet and exercise as well as return to work.

Programmes 3

Exercise Classes

- Group exercise package in conjunction with Sport Waikato is at local church hall
- Education and assessment of exercise capacity is performed at the same time
- Exercise classes are limited to Hamilton patients only and there is room for a maximum of 15 patients per programme (8wk programme)
- Ideally future de-centralising Exercise Programme into smaller towns

Cardiac Secondary Prevention

NHI	UHW3140	**Name**	Liew, Tze Vun
Patient Phone no	021 801488	**Cell phone:**	
Age:	47y	**Address:**	2 Gordon Street, Hillcrest, Hamilton 3216
DOB:	01-Nov-1974	**Gender:**	M
GP:	Dr Stephen John French	**GP phone no:**	078565087
Ethnicity	Chinese	**Email:**	
Name of Assessor			
Date of Referral:			
Ward:		**Admission:**	**Discharge:**
Specialist			

Social Profile

Next of kin:	Mrs Kimberley Jackson	**Relationship:**	Spouse/Partner	**NOK Phone No:**	021 801488
Home situation:		**Occupation:**		**HTV Licence:**	

Diagnosis

Diagnosis		**Treatment**	
Peak troponin			

Cardiac Catheter

LMS:		**LAD**		**LCX**	
RCA		**EF**			
PAMI:		**DATE**			
Thrombolysis				**Date**	

Bloods

HBA1C					
Total Chol		**LDL**		**HDL**	
Triglycerides		**Ratio**		**Other**	

Coronary risk factors

Current smoker?	☐	**Previous smoker?**	☐	**Hypertension?**	☐
Lack of activity?	☐	**Elevated cholesterol?**	☐	**Overweight?**	☐
Family History?	☐	**Diabetes?**	☐	**Stress?**	☐
Other: eg alcohol					

Outpatient

OPC:		**DATE:**		**ETT:**		**DATE:**	
ECHO:		**DATE:**		**MPS:**			
OP Angio		**Other:**					
Patient goals:				**Medical History:**			

Is ETT booked?

Administration

Last Update:	*27 Oct 2022 10:21*		
Updated by:	*LiewT*	**By:**	*Dr Tze Vun Liew*
Contributors:	*Dr Tze Vun Liew*		

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Patient 1

PC to Merv
Feeling well
Denies any symptoms of angina
No dizziness, SOB, palps
Compliant with meds and same explained
No SE described
AAP and GTN spray
Happy with progress
Returning to work after Anzac day to Work
Intentional exercise and pleased with abilities
Strives to have healthy outlook for heart
Coming to terms with new diabetes
Has appt with PN and diabetes clinic
Encouraged
Focus on nutritious foods- plant based, Low Fat
Related to cholesterol and LDL
Aware to FU in future to monitor with myself for lab form.
Invite to Info sessions next round
Has Mu MOB
FU planned

Combined Forms (inc. selected MH)

Additional Notes:

Additional Note:

Intro to service and expectations
Discussed hospital course and CAD
Related to angio report and PCI
Talked about pre event and symptoms
Explained angina and heart muscle
Related to current risk factors identified- FHx, diabetes, HBP
Explained echo results, EF and heart muscle
Aware driving stand down 2/52- doesn't hold any other licence
Off work for 2/52
? to GP for systems check-discussed secondary prevention for future heart health
Collected meds- same explained
SE discussed
Talked about rest and recovery
Sick leave for another 2/52
father has passed away while in hospit
Has info folder- resources sent out to encourage introduction of more healthier diet options
Highlighted office no for input and point of care
Good relationship with GP/PN - to have diabetes input
BGLs <10mmols
Aware to continue good health habits
OPA 3/12
FU planned

PC to Merv
Out and about so conversation short
RTW after Anzac
Has RTW programme
Supportive employer
Doing great with walks- 7kms other day
ASymptomatic
BGLs controlled
Has PN diabetes clinic appt
FU with GP
Planned lipids repeat June- has form
Encouraged LDL <1.8mmols

Advised to continue taking meds, do some intentional exercise, bi annual FU with GP with diabetes, BP and cholesterol monitoring
Encouraged low SAT fat eating nutrition
To ring service with any change of symptoms
Ensured has office/my MOB number
FU 3-4/52
Encouraged attendance to community class June

Patient 2

Initial Phone Call

PC to Dale; introduced role of team and self as nurse for tokoroa area.
currently staying in Rotorua with ex-wife, until he has recovered

Diagnosis and treatment discussed; Dale ?'d why only had 3 grafts when told needed four so this explained using available information.

According to Dale has had symptoms since Christmas - seen in local ED on 27/12/21 and told it was his back. Talks about having had 3 heart attacks since Christmas - this discussed with information available

Wounds - chest, leg and arm - reportedly look good. no TEDs or tubigrip insitu.
Elevates legs when resting.

Meds reportedly has these and taking, all new to pt, using all analgesia regularly - has paracetamol, codeine and tramadol.
seeing GP next week for review and ROS.

Dale's main complaint is being SOB most of the time, rest and OE. also c/o being unable to lie down in bed at night as feels like he is drowning, has to sit up and lean forward to make this feel better.
denies any ankle or leg swelling but does c/o feeling bloated; hasn't weighed self. ? needs frusemide. email sent to surgeon to ? this

follow up tomorrow

Patient 2

2nd Call

Reply received from surgeon this am - saying for pt to go and get assessed at ED
PC to Dale -sounding much better today, calmer,…

Reportedly had a rough night; still some SOB - exploring this again, hasn't laid down flat since home due to feeling like he is drowning. Additionally c/o SOB on minimal exertion i.e. getting up to go to bathroom.
all these explored further….

Explained recovery post MI and surgery and SOB when exerting self as heart working harder especially if goes from resting to standing and moving. Discussed standing slowly if possible to allow body to get used to the movement.
Discussed continuing to do DBE, elevate legs or do passive exercises is legs down when sitting like he was at time of call when sitting on the outside steps…. talk test explained.
However equally advised if breathing worsens then to go to local ED for assessment….

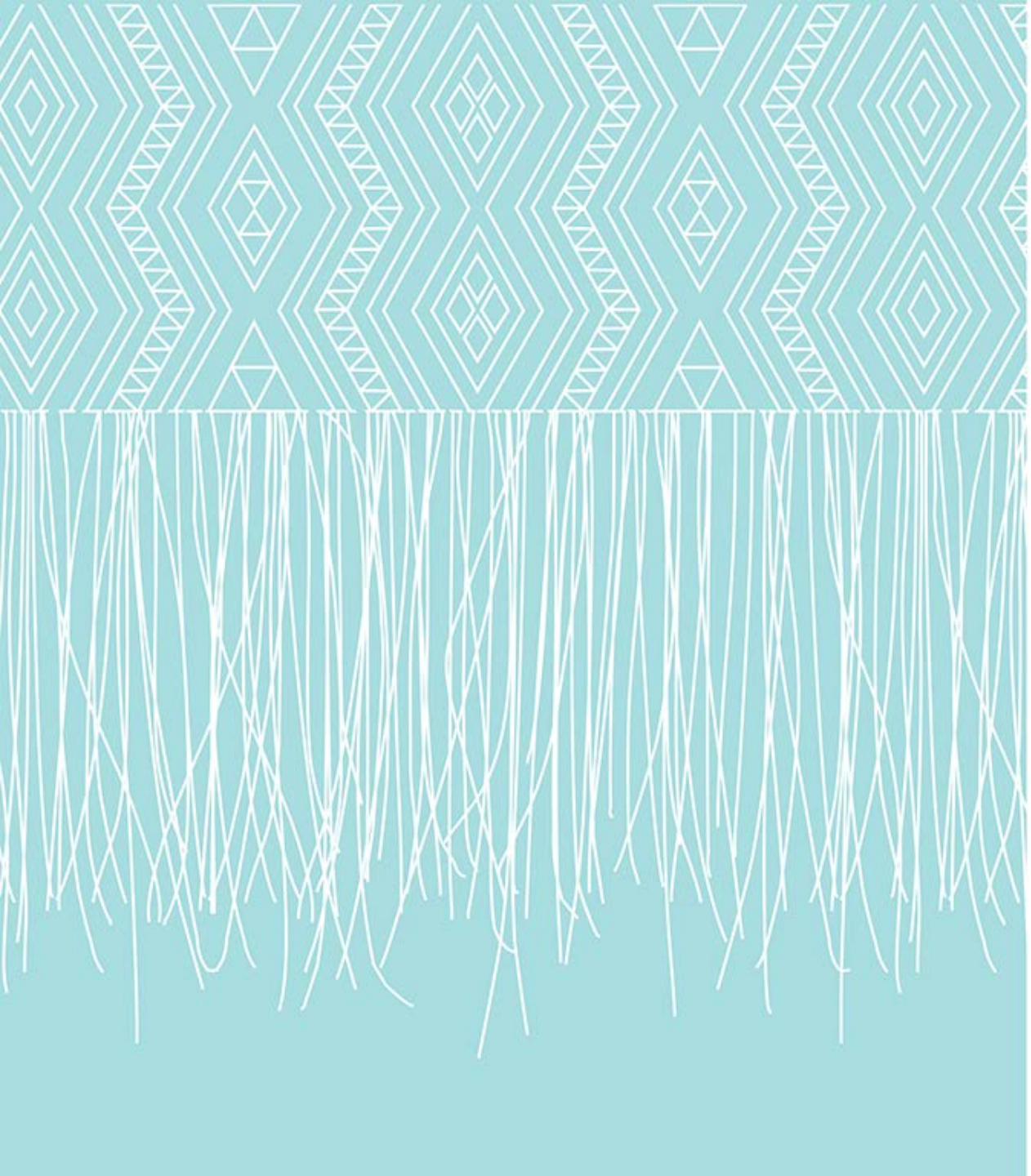
Smoking - reportedly stopped but did have two as felt quite anxious once home and thought might be due to wanting cigarette but had no effect when smoked.
Pt. queried tablet he was given prior to surgery to help him quit smoking but wasn't given post op - not champix as that apparently made him sick when used in the past.

Ward 14 pharmacist contacted and will look into this for me. Seeing GP next Wednesday

Follow up again next week - has info folder from ward and advised our contact numbers in there if he has queries

Take Homes

- Patients are diverse
- They can have complex clinical needs
- They may not come out of hospital well optimised
- They may have complex social needs
- Or Not
- We need to be able to respond



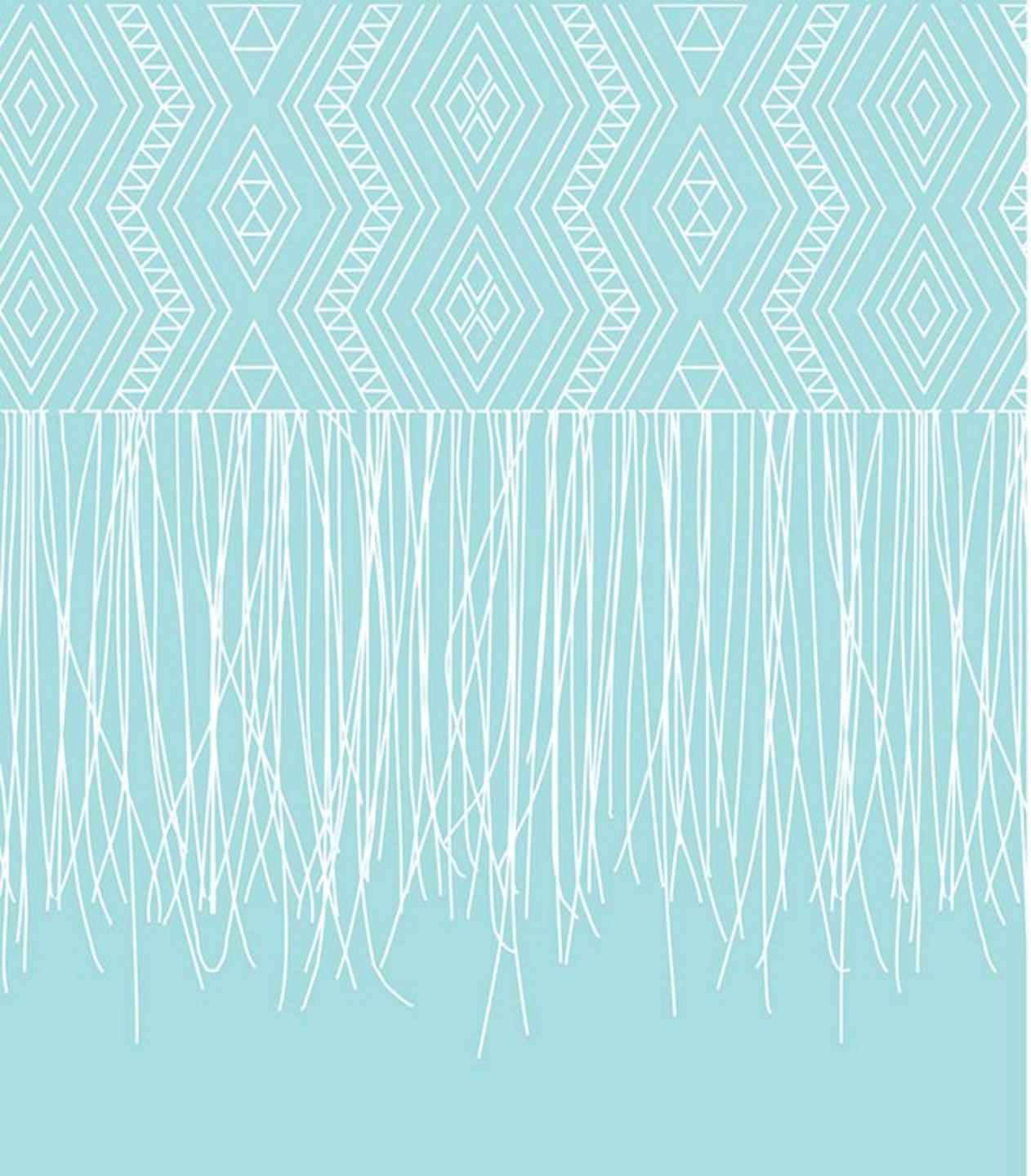
Cardiac Rehabilitation Coding Project

Research Questions

- How many of our interactions fall outside the remit of traditional cardiac rehabilitation?
- Are there any significant differences between Waikato Urban (Greater Hamilton) and Rural (Rest of Waikato) patients?

Methods

- We developed short codes to describe the various patient interactions.
- We analysed the Cardiac Rehab notes of 276 patients from 2021 (149 Rural, 127 Urban) using codes.
- We asked 6 patients to describe their experience in the Cardiac Rehab service. Analysed responses for common themes.



Interaction Codes

Codes: General Cardiac Rehab

Category	Code	Description
General Cardiac Rehab	Risk Factor Management	Identification, education or support with management of risk factors associated with CAD.
	Recovery Expectations	Explanation to patient of the realistic prognosis and recovery timeline following the specified cardiac event
	Return To Normal Activity	Assessment of patient's recovery and their return to normal activity prior to the specified cardiac event/onset of symptoms.
	CAD Pathophysiology	Explanation of the cause and the role of management in CAD (medication mechanisms)
	Written Information	Provided written information pack to patient
	Procedure Explanation	Explanation of medical procedures performed following the patients cardiac event
	Surgical Recovery	Discussion of importance/discussion of concordance with post-surgery exercises and treatment e.g. TEDS
	Clinical/Education Classes	Explanation, invitation or attendance of patient at community education class or clinic
	Exercise Class Offered	Explanation or invitation to attend community exercise class
	Exercise Class Attended	Attendance of patient at community exercise class
	Angina/Patients Action Plan (AAP)	Explanation and reiteration of AAP / Patient specific plan
	Driving Restrictions	Clarification that the patient is aware of/compliant with relevant driving restriction for the specified cardiac event
	Medication Concordance	Discussion of collection and self-administration of all medications prescribed
	Co-morbidity Management	Discussion and management of interaction between co-existing medical conditions

Codes: Recovery/ Social Support

Social Support	Back To Work Support	Discussion of plan/contacts made to facilitate patients return to work
	Allied Health	Contact made with/suggested contact other health services regarding management and recovery for the patient
	Family Education/Support	Education of patient's family members surrounding CAD and ways they can support the patient/themselves
	Financial Support	Advice to patient of potential access and requirements for financial support/contact made to facilitate access
	Treatment Access	Contact made to facilitate transport or delivery of services/medications required for the patient's recovery
	Home Help	Contact made/advice given to facilitate patient access to home help services
	Licensing Advice	Discussion with patient of requirements for reinstatement of their vocational license
	Contact Availability	Indicating to the patient contact availability if any uncertainty arises surrounding their CAD

Recovery support	Wound Healing	Patient report or physical assessment of wound healing
	Medication Side Effects	Discussion of potential or experienced side effects of prescribed medications
	Symptomatic State Analysis	Identification/discussion of cause of symptoms (medication, anxiety, CAD, activity, other) and explanation to the patient
	Cardiology/CTS Escalation	Contact made with cardiology department/CTS regarding patient e.g. medication, further testing
	GP Escalation	Contact made with GP practice regarding patient
	Diabetes Team Escalation	Contact made with diabetes team regarding patient's diabetes control
	General Escalation	Contact made with other medical department
	Medication Adjustment	Adjustment of medication regimen (or discussion of patient self-adjustment) following side effects or advice from escalation (cardiologist, general practitioner)
	Drug Interactions	Identification of potential drug interaction/follow up, if removal of medication or supplements is required

Codes: Further Testing/ Psych Support

Further Testing	Diagnostic Testing	Facilitation/follow up for further diagnostic testing (Perfusion, Holter monitors, 24h bp monitor, event monitors, lung function test)
	ETT	Contact made to book or facilitate processing of ETT
	Echo	Contact made to book or facilitate processing of Echo
	Blood Testing	Contact made to book or facilitate processing of blood tests
	Elective OPA	Contact made to book or facilitate processing of elective OPA
	Medical Certificates	Contact made to facilitate processing of medical certificate
Psychological Support	Psychological Support	Listening to and advising the patient around CAD related anxiety and other impacts on daily life
	Psychological Validation	Discussion of the patient's psychological response to the cardiac event and explanation of the emotional nature of recovery
	Decision Making	Discussion with the patient regarding reasoning of (important) decision making in early recovery
	Activity (psychological)	Expression of importance of activity in recovery and CAD control and explanation of risks and anxiety surrounding symptoms and over exertion
	Patient Advocacy	Attendance with patient to clinic, cardiac catheter lab, ward visit or other appointment to facilitate patient advocacy and understanding
Other	Other	Other

Terminology

Episode of Care

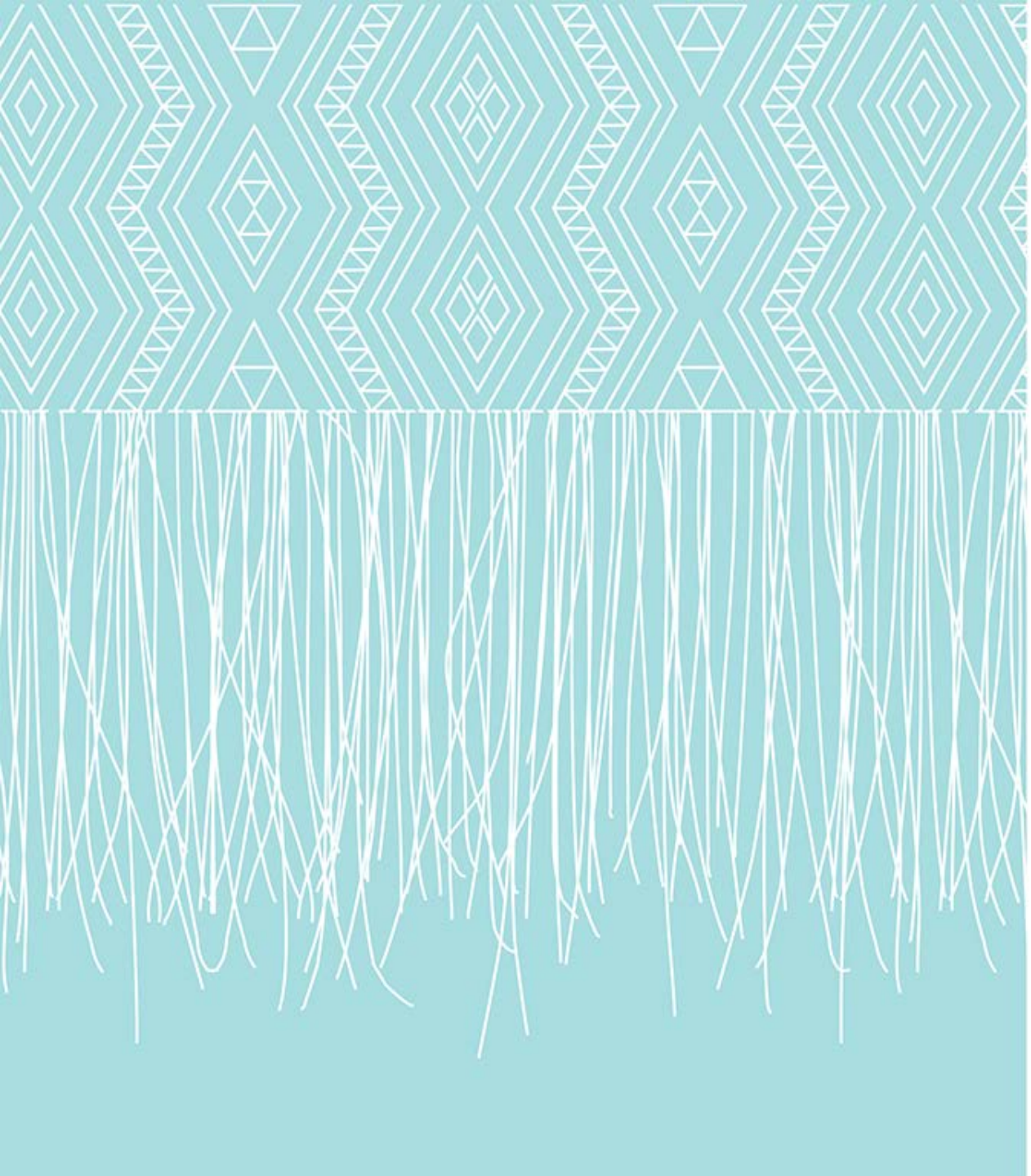
- Phone call / home visit / class

Interaction

- Topic discussed during episode of care or action taken as a result of discussion

Category of Interaction (Categories)

- Groupings of topically similar interactions



Results

Patient Demographics

	Rural	**Urban**	*P*
Number of patients	149	127	
Average age	67.10	65.76	0.31
Percentage male	69.80%	72.44%	0.68
Percentage Māori	12.75%	13.39%	0.89
Total Contacts	932	663	
Average Contacts/patient	6.26	5.22	0.15
Total Interactions	3423	2845	
Average Interactions/patient	22.97	22.4	0.65

No Difference between Rural and Urban Populations

Interaction Categories

	Rural		Urban		*P*
Code Categories	Average[a]	Percentage of interactions[b]	Average[a]	Percentage of interactions[b]	
General CR	13.09	59.34%	13.20	59.29%	0.88
Recovery Support	4.79	17.58%	4.09	18.36%	0.078
Social Support	2.67	12.10%	2.72	12.20%	0.93
Further Testing	0.11	0.52%	0.12	0.53%	0.94
Psychological Support	2.19	9.95%	1.88	8.45%	0.20
Other	0.11	0.52%	0.26	1.17%	0.014

- **>40% of interactions are NOT General Cardiac Rehab**
- **No Overall difference between Urban and Rural patients**

Rural vs Urban

Interaction Category	Interaction Code	Rural		Urban		*P-values*
		Average[a]	Percentage of interactions[b]	Average[a]	Percentage of interactions[b]	
Recovery Support	Cardiology/CTS Escalation	0.71	14.87%	0.36	8.86%	0.0047
		Contact made with cardiology department/CTS regarding patient e.g. symptoms, medication, further testing				
	Medication Adjustment	0.24	5.05%	0.12	2.89%	0.042
		Adjustment of medication regimen following side effects or advice from escalation (cardiologist, general practitioner)				
	GP Escalation	0.20	4.21%	0.03	0.77%	0.0016
		Contact made with GP practice regarding patient				
Social Support	Licensing Advice	0.26	9.80%	0.13	4.93%	0.044
		Discussion with patient of requirements for reinstatement of their vocational license				
	Back To Work Support	0.24	9.05%	0.09	3.19%	0.0094
		Discussion of plan/contacts made to facilitate patients return to work				
Psychological Support	Psychological Support	1.11	50.46%	0.76	40.59%	0.026
		Listening to and advising the patient around CAD related anxiety and other impacts on daily life				
	Patient Advocacy	0.03	1.53%	0	0.00%	0.025
		Attendance with patient to clinic or other appointment to facilitate patient advocacy and understanding				
Social Support	Contact Availability	0.93	34.92%	1.29	47.54%	0.00097
		Indicating to the patient contact availability if any uncertainty arises surrounding their CAD				

Rural patients need more support in areas suggestive of poorer primary care support and higher socioeconomic need

Patient Responses:

Satisfaction and Expertise

Theme:	Quote
Satisfaction	1. "I was unbelievably impressed with the service. It was an essential part of my recovery." 2. A rural patient described their experience as "absolutely brilliant! I would be dead if it wasn't for them."
Gain of knowledge	1. It was important "talking to someone who had multiple levels of experience and connections to others" within the healthcare system. 2. It was important "having support and knowledge available"

High level of satisfaction and appreciation of expertise

Patient Responses:

Clinical Troubleshooting

Theme:	Quote
Access to specialist/GP	1. The most beneficial aspect of the service was "having the ability to contact someone when you needed and knowing your questions would be followed up on and answered". 2. "She got straight onto it and started contacting the specialist". 3. "It is almost impossible to book a GP appointment in our town."
Trouble shooting	1. "They were very good! I rang them up as I took some dizzy turns and they knew exactly what I was talking about and changed my medications to help with this". 2. The patient rang up with some "unsettling pains" or when he was "anxious about exercising". He was reassured that everything was going to be okay and the angina action plan was re-iterated to him so that if he was feeling uneasy at all he knew how to respond.

Patients appreciate rapid responsiveness, ability to facilitate access and expertise

Patient Responses:

Psychological support

Theme:	Quote
Contact availability	1. "They are very caring people and truly take the time to listen to you." 2. Described as "a lifeline".
Reassurance	1. "If I hadn't been able to get in contact with the nurse I would have been worrying about it all weekend." 2. "It gave me incredible peace of mind".

Availability for support and general ability to provide reassurance is important.

Conclusions

- **Patients find Cardiac Rehabilitation a valuable service.**
  - Responsive, provides expertise and facilitates access.
  - Reassuring (psychological benefit)
- **Significant patient need falls outside the traditional cardiac rehab role.**
  - Mainly Recovery, Social and Psychological Support
- **Needs of Rural population is different to Urban**
  - May reflect access to services and socioeconomic factors