

FLINDERS UNIVERSITY

Country Heart Attack Prevention Project Report

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Table of Contents

Introduction	4
Background	5
Methodology	6
Advisors	6
Documents, Research Papers & Publications.....	6
Cardiac Rehabilitation Programs	7
GP Service Delivery Model.....	8
CR Option Flow Chart.....	9
Priority 1 – Support for iCCnet Remote Cardiac Rehabilitation (CR) Program	11
Value Proposition to Rural and Remote General Practice	11
Priority 2 – Support for the iCCnet CHAP GP / Hybrid Cardiac Rehabilitation Program	11
Value Proposition to Rural and Remote General Practice	11
Referral to GP as the principle provider	13
Operational Practicalities	13
Adaptation of CHAP IT Platforms in Rural & Remote General Practices.....	13
Business Case – CHAP - Country General Practice	16
Analysis of Financial Modelling	16
Priority 3 - Support for ‘Heart Health for Life’ – Phase 3 Cardiac Rehabilitation	21
Service Delivery Model.....	21
Financial Modelling	23
Marketing & stakeholder engagement	25
Conclusion	26
References	28
Glossary	29
Appendices	32
<i>Appendix 1</i>	32
Endorsement of Medicare Items within Business Case Model	32
<i>Appendix 2</i>	33
Summary of clinical research data - Home Medication Reviews	33
Appendix 3	34
Feedback from Rural GP Practice Nurses.....	34
Appendix 4	36
Letter of Introduction of CHAP Project to Country GPs & Practice Managers	36
Appendix 5	38
Assessment Forms.....	38
Assessment Questionnaires	53

Introduction

Flinders University's College of Nursing and Health Sciences in partnership with iCCnet (SA Health) have commissioned Brentnalls Health to provide analysis of the business case to support the implementation of the 'Country Heart Attack Prevention' Project (CHAP) into rural and remote general practice within South Australia. Additionally, the scalability to all general practice across Australia is also included in the scope of this project.

The CHAP Project is a NHMRC Partnership funded project. NHMRC supports the translation of research evidence into health policies and practice to improve health services.¹ Building a Healthy Australia is the key purpose of NHMRC. We are excited to work with Professor Robyn A Clark and her team at Flinders University and for the opportunity to contribute to the improved health of Country South Australians.

Our report will present business models that will support the delivery of cardiac rehabilitation and secondary cardiac episode prevention to patients within Country areas of South Australia.

Included in our business models will be key elements of the CHAP project:

- Engagement of patients in Cardiac Rehabilitation living in country South Australia
- The critical role of the GP
- Access to public health services
- Additional value of local allied health service
- Engagement of practice nurses in coordination of care
- Opportunity for GP practices to be involved in leading research

Business models embedded within the GP context will show that the CHAP project achieves all four objectives of the Quadruple Aim detailed in the diagram below.



Improved patient experience of care

- Care tailored to the needs of an individual
- Coordinated and comprehensive care
- Safe and effective care
- Timely and equitable access
- Increased skills and confidence to manage one's own care



Improved health outcomes & populations management

- Reduced disease burden
- Increased focus on prevention
- Improved quality of care
- Improvement in individual behavioural and physical health



Improved cost efficiency and sustainability in healthcare

- More efficient and effective service delivery
- Increased resourcing to primary care
- Improved access to primary care, reducing demand on hospitals



Improved health care provider experience

- Increased clinician and staff satisfaction
- Increased flexibility and scope for innovation
- Evidence of leadership and team-based approach
- Quality improvement culture in practice

¹ Clark, R. (n.d.). Grant Proposal - Partnership Projects 2018 APP 1169893

Background

To provide context for this report, some startling statistics on the general heart health of our population and the link between the benefits of cardiac rehabilitation and improved heart health were evident.

- Cardiovascular disease (CVD) kills one Australian every 12 minutes
- CVD was a major cause of mortality in 2017, accounting for 43,477 deaths
- People living in rural and remote areas; 4 x risk factors, 90% higher rates of CVD hospitalisation, 60% higher deaths
- Cardiac rehabilitation is only attended by 20-50% of eligible patients despite high level evidence that supports its benefit and cost effectiveness.
- Research on the reasons for non-attendance have cited cost, access to rural & remote, cultural, and linguistic barriers.
- Five Core Components for quality delivery and outcome of CR services recommended are:
 - Access to services
 - Assessment and monitoring
 - Recovery and longer-term maintenance
 - Lifestyle and behavioural changes
 - Medication adherence
 - Evaluation and quality improvement (Clark)

The 'why' for this project lies in the improved clinical and behavioural outcomes, fewer hospital re-admissions and better quality of life² for rural and remote patients with heart disease. To achieve this, higher rates of attendance and completion of an evidence based cardiac rehabilitation program are required.

The 'how' is to provide improved access and compliance with a cardiac rehabilitation program incorporating allied health services for rural and remote patients. At the heart of this project is the desire to involve general practitioners in country practice to undertake the cardiovascular assessments.

The CHAP project suggests 3 modes in the delivery of cardiac rehabilitation and secondary prevention with 3 priorities. We will interrogate each priority to provide business models that deliver on these priorities within a primary care general practice setting.

Priority 1 – Support for the iCCnet Remote Cardiac Rehabilitation Program

Priority 2 – Support for the iCCnet CHAP GP / Hybrid Cardiac Rehabilitation Program

Priority 3 – Support for (Phase 3 Rehabilitation) "Heart Health for Life" long term follow-up in GP care.

² SA Health. (2011). *Statewide Service Strategy Division. Cardiac Rehabilitation: a Model of Care for South Australia - Stage One.*

Methodology

As part of our background research and desktop analysis for this report the following documents were provided by the CHAP project team for review. Additionally, there was the opportunity and privilege to meet and interview the following people who ably assisted in broadening our perspective when considering, analysing and building the business case models.

Advisors

- The CHAP project team; Prof Robyn A Clark, Dr Susie Cartledge, Kay Govin
- Rosy Tirimacco and Claudine Clark – iCCnet
- Deb Bruhn – Clare Medical Centre RN
- Judy Sparrow – Waikerie Medical Centre EN
- Ali Krollig – Director Health Policy – Country SA PHN
- Kirstyn Schmidt – Clinical Advisor – Health Partners
- Dr Robert Menz – former Senior Medical Advisor, Department of Human Services, Medicare
- Prof Debra Rowett - Discipline Leader Pharmacy, School of Pharmacy and Medical Sciences at the University of South Australia

Documents, Research Papers & Publications

- Grant Proposal – Partnership Projects 2018 (Clark)
- Cardiac Rehabilitation: A Model of Care for South Australia – Stage 1 (SA Health, 2011)
- Cardiac Rehabilitation: A Model of Care for South Australia – Stage 2 (SA Health, 2011)
- Country Access to Cardiac Health (CATCH) Final Report (Tirimacco, Cowley, Berry, Clark, & Tideman, 2015)

This review investigated previous business models for similar intervention programs run in a primary care setting, specifically our PoCT business case review.

Other information gathered during this investigation included the following:

- Access to cardiac rehabilitation programs for rural and remote patients
- Availability of community and privately run allied health services in rural and remote areas
- CR programs currently delivered locally to rural and remote patients

The important role general practitioners play in the service model along with the support and motivation of a patient to complete a CR program, also forms an important part of our analysis and the construction of a business model.

So does analysis of the service model process flow commencing with the discharge of the patient from hospital, the referral to their GP to commence a CR program through to the patient's completion of a CR program.

Delivery and capture of objective data is an essential project goal. Investigation on how patient data is currently captured, managed and shared by CATCH was undertaken. This assisted us in exploring alternate methods of collection and transfer of patient data into the CATCH data base.

The ease of data collection and transfer with as little as possible manual input is an important supporting factor in the successful marketing of the CHAP program to general practice. Further interviews and investigation were conducted to understand how patient data is currently captured, managed and shared by iCCnet/CATCH in the general practice setting.

In formulation of this report all the methods outlined above assisted in providing the commentary and recommendations contained herein.

Cardiac Rehabilitation Programs

From research and experience, giving patients a choice in the way cardiac rehabilitation is delivered to them is important to their motivation to successfully complete a program of cardiac rehabilitation. Numerous service delivery issues have been identified and discussed³ in reports we have researched for this project as well as in the interviews we conducted with practice staff.

The following three CR programs⁴ place the GP at the centre of the model of care by coordinating, monitoring, and assessing the patient's progress.

- **CHAP web-based program** – patient managed
This will be a new modality as part of the CHAP project with physical assessments conducted by the patient's GP. The web-based program will cover 10 modules of cardiac rehabilitation which the patient can complete at their own pace. Education will be provided in several different formats (written, videos, podcasts) and exercise will be tracked objectively using the patient's phone or own wearable activity device. This program can also be accessed by all patients to complement what they are already receiving.
- **iCCnet CATCH** – telehealth based & case managed
This mode of cardiac rehabilitation is delivered over the phone by specialist cardiac nurses along with an allied health team. This cardiac rehabilitation program is case managed and is available out-of-hours for patients who work or cannot participate during business hours. This program runs for 7 weeks.
- **iCCnet GP / Hybrid Program** – telehealth & case managed – CATCH and GP Practice.
This program combines both GP practice involvement and the CATCH telephone program. Patients receive a GP Management Plan in which they are able to receive 5 allied health services locally. Additionally, patients also commence the CATCH telephone program and can also access CATCH allied health practitioners.

The fourth CR program choice is led by a cardiac rehabilitation nurse who coordinates, monitors and assesses that patients progress through a community centre based CR program.

- **Face-to-Face CR Program** - community centre or local hospital-based CR program
These programs are run within each local health network either through a hospital or community health centre. These cardiac rehabilitation programs are typically led by a nurse, specialising in cardiovascular care and rehabilitation, together with a multi-disciplinary team. Programs in South Australia run from 4 – 10 weeks.

Below in *Figure 1* the Cardiac Rehabilitation delivery option flow chart demonstrates the decision point where the patient has the option to choose their mode of cardiac rehabilitation delivery.

³ SA Health. (2011). *Statewide Service Strategy Division. Cardiac Rehabilitation: a Model of Care for South Australia - Stage One.*

⁴ *Dr Susie Cartledge – Senior Research Fellow, NHMRC Partnership CHAP Project*

GP Service Delivery Model

The service model of care delivers the provision of face to face comprehensive cardiovascular assessments performed by the rural or remote general practice at 4 milestones throughout the patients iCCnet Remote Cardiac Rehabilitation program. These milestones are:

- Pre-cardiac rehabilitation program assessment
- Post-cardiac rehabilitation program re-assessment
- 6mth follow up
- 12mth follow up

Early intervention post discharge was an important contributing factor in the patient's commitment and motivation to complete a program of CR. The service model below in *Figure 1* includes suggested timelines from hospital discharge, completion of a formal CR program and the GP assessments required on the patients journey to Phase 3 CR 'Heart Health for Life'.

The assumption is made that patients who embark on a Face-to-Face CR pathway may not feel it necessary to attend the CHAP assessment reviews with their GP. Patients attending this mode of CR will be assessed and monitored by the cardiac rehabilitation nurse who is running the program. This does not exclude the patients from attending their GP and choosing to initiate a GPMP, however, there will not be an expectation for the GP or practice nurse to record the CHAP assessment data. For completeness, we have indicated by a dotted line in the service model in *Figure 1* for patients completing Face-to-Face CR who may initiate return to the cardiac care of their GP at the 6 month post event mark.

To connect the service delivery model with a financial and cost benefit analysis, it was necessary to evaluate the maximum 4 milestone assessments delivered by the GP and the practice nurse within the CHAP model of care. This involved the analysis of this service delivery model utilising the relevant Medicare items that maximise the revenue for the practice. The analysis also includes an estimation of costs to the practice needed to calculate the net value to the practice. To note, these costs may vary between individual practices and would be dependent on the practice's financial structures, as well as considering the practical application of supplementary services available for both indigenous and non-indigenous patients throughout the patient's episode of care.

The flow-chart diagram below in *Figure 2* provides a deeper analysis of the service delivery model and the MBS items available to the GP and to the practice at all points in the service life cycle. It is noted that these items may vary from time to time as they are dependent on the GP's assessment of each individual patient and their individual needs.

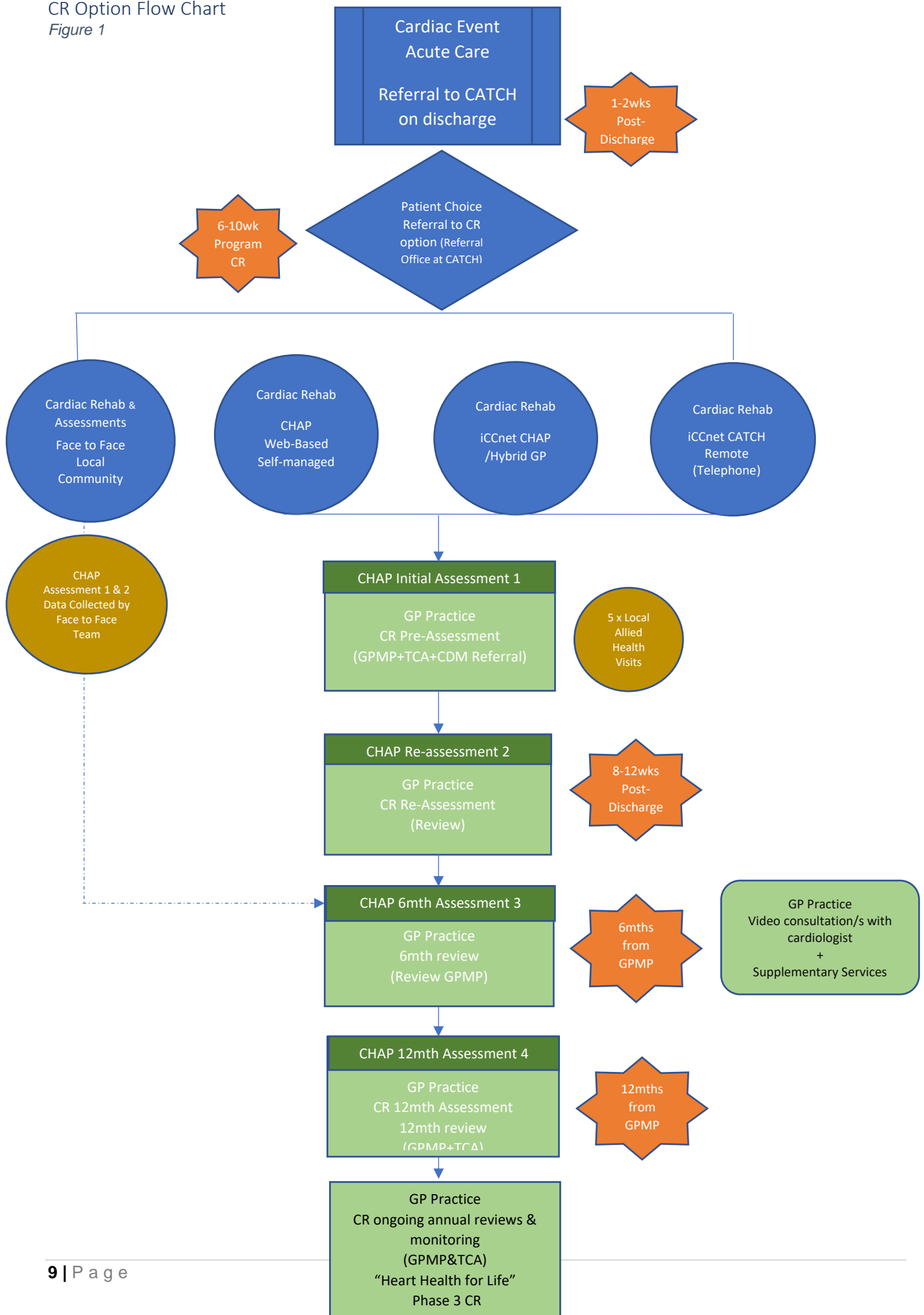
A full financial assessment and analysis of this service model, including the Medicare items and rebates available at the time of writing this report, can be found in the Business Case section of this report. For your reference, a full glossary of relevant Medicare item descriptors can be found at the end of our report.

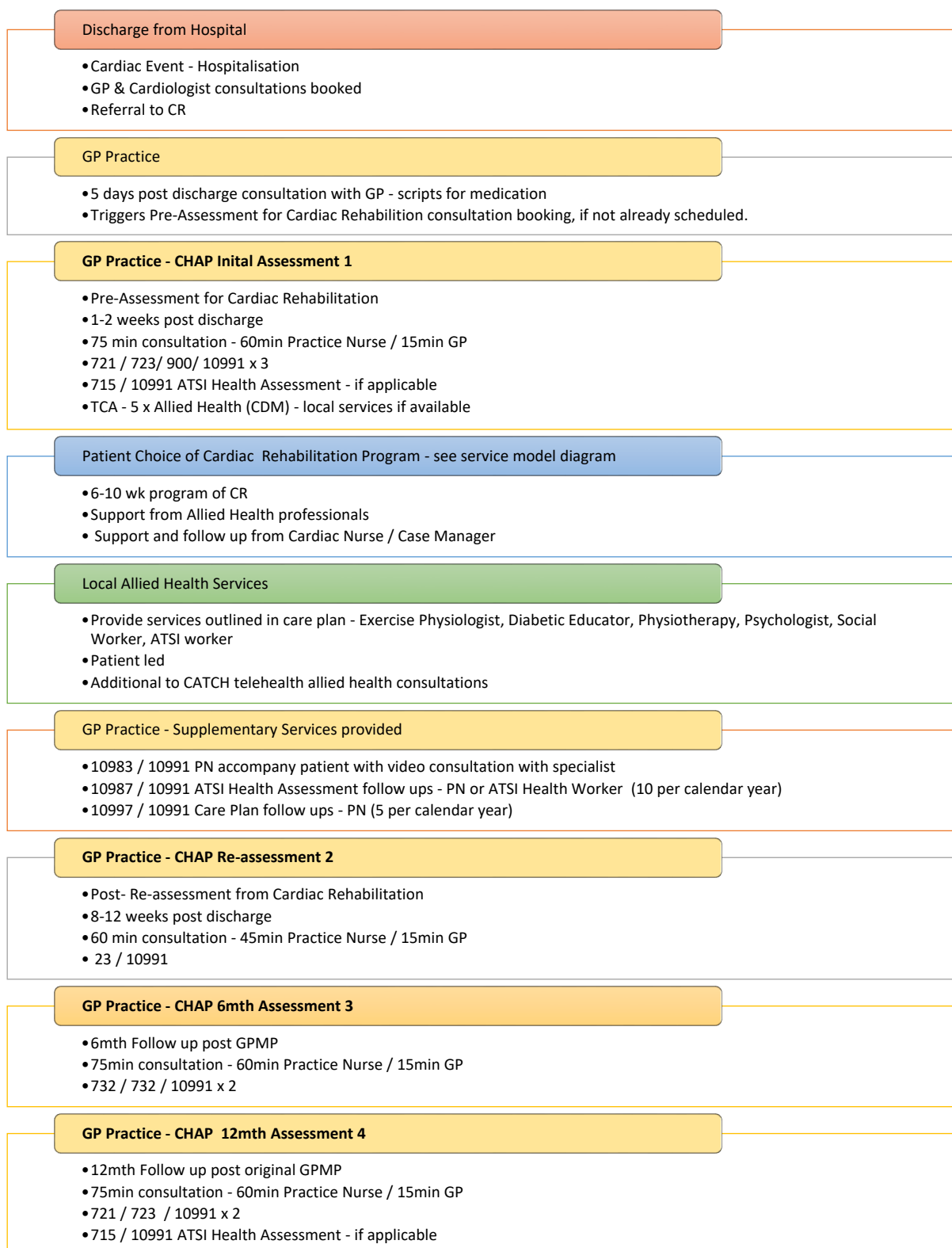
[Glossary Link.](#)

There is a distinct and feasible pathway to the successful implementation of this service model into rural and remote general practice. This report will interrogate and offer insight into the:

- Value proposition of this model for general practice of involvement in the CHAP model.
- Information and data management requirements to support seamless integration.
- Marketing and stakeholder engagement strategies.

CR Option Flow Chart
Figure 1





Priority 1 – Support for iCCnet Remote Cardiac Rehabilitation (CR) Program

To provide context, the iCCnet Country Access To Cardiac Health (CATCH) program provides patients access to a committed cardiac nurse case manager and allied health professionals via telehealth in a well-established model (Tirimacco, Cowley, Berry, Clark, & Tideman, 2015). CATCH also collects and holds a substantial amount of data within its database on metrics and outcomes of the cardiac rehabilitation journey of cardiac patients in South Australia.

The iCCnet Remote CR program is currently accessed by South Australians post hospital discharge after a cardiac event. The program delivers case managed CR via telehealth.

Through the general practice-based service model proposed in the CHAP project, Country GPs will be encouraged to conduct the 4 CR assessments for patients participating in the iCCnet Remote CR program, and in the process, collecting and transferring the patient assessment data from the GP practice and the patient to CHAP/CATCH.

Value Proposition to Rural and Remote General Practice

The involvement of the general practice in completing the 4 CR assessments encourages the practice to initiate the structured approach to chronic disease care planning that is recommended in the business case modelling. While undertaking the CR assessments, collecting, and providing the data to CHAP/CATCH adds additional time to the process at a cost to the practice. Overall, the practice is still better off managing the patient in this way, rather than delivering a range of standard consultations.

The referral from CATCH initiates the opportunity for the general practice to proactively respond to the patient's cardiac event and instigate a new chronic disease care planning process as a result of the significant changes to the patient's health status and/or a recent discharge from hospital. The referral places the GP at the centre of the patient's care, whereby the patient can be assessed and treated holistically.

Priority 2 – Support for the iCCnet CHAP GP / Hybrid Cardiac Rehabilitation Program

The iCCnet CHAP GP / Hybrid CR program provides access to a publicly funded cardiac rehabilitation model of care accessible to all Country South Australians.

Value Proposition to Rural and Remote General Practice

The roll out of a GP hybrid version of the CATCH program (iCCnet GP / Hybrid CR Program) incorporates the general practice, redirecting the responsibility for CR from a tertiary setting into the primary care setting. It allows the GP to have a pivotal role in the coordination of patient care by facilitating local access to the range of cardiac rehabilitation services working in partnership with CATCH.

To note, there are currently 14 general practices who have successfully implemented this Hybrid program into their rural or remote practice settings.

The successful implementation of the iCCnet CHAP/Hybrid CR program service model into a general practice setting is dependent on presenting a solid business case to the general practice business owners.

The value proposition for the rural or remote general practice is based on the following factors:

- Business case and financial considerations
- Reputational factors for the practice and the GPs
- Positive health outcomes for the cardiac patients of the practice

Financial considerations addressed in the Analysis of Financial Modelling (pages 15-18), provides a business case in support of the program. We confidently see the implementation of the iCCnet CHAP GP / Hybrid CR program as being a financially viable proposition for rural and remote general practice

Reputational factors are also key considerations for the motivation of the GPs and the practice staff and engaging them to deliver the iCCnet CHAP / Hybrid program. The practice nurses interviewed expressed an appetite for general feedback on patient outcomes, the sharing of success stories and research activities of the program. The prestige associated with participation in important health research may be viewed as a motivating factor in enrolling GPs and practices to deliver the program or in the continued participation in the program.

Positive health outcomes promoted within the ethos of the CHAP project, requires a whole of practice approach to achieve 'Heart Health for Life' for the cardiac patients of the practice. The general practice team will accompany the patient on their journey through CR and observe the outcomes they achieve. They will also benefit from being part of a program seeking to demonstrate positive health outcomes for a cohort of the population.

To achieve this, the practice team will undertake the following activities:

- Educating patients about the benefits of cardiac rehabilitation
- Encouraging patients to make lifestyle and health behavioural changes
- Coordination of care by GP's and practice nurses.
- Recording of patient data by CATCH and making outcome data available to general practice
- Engagement with local allied health providers and services

Effective implementation will require a whole of practice approach to education, training and development of practice systems that reinforce the benefits of the iCCnet CHAP GP / Hybrid CR program for the patient as well as the practice.

This whole of practice approach would reduce the reliance on the practice nurse for the responsibility of the patient's successful completion of the program. The sharing of the responsibility across the whole practice for the follow-up and embedding of the processes would provide program continuity.

Anecdotal information suggests a patient's ongoing compliance to a CR program, beyond an initial 6-week program, is directly related to the availability of local, easily accessible allied health providers and services. The promotion of these services and engagement with the local allied health practitioners by the GP and the practice we see as critical to the patients on-going care and would be valued by the allied health professionals.



Referral to GP as the principle provider

The importance of a timely referral being received by the GP is a catalyst to engage the patient in the early stages of their recovery after their cardiac event. As the principle provider and coordinator of patient care, the GP is integral to the patient successful completion of a program of cardiac rehabilitation.

Currently, referrals flow from the public and private hospitals to iCCnet/CATCH and are received after a patient is discharged following a cardiac procedure or intervention.

Anecdotal information provided shows that some private and public hospital patients were unaware of CR or the program delivery options and were not referred for CR through the CATCH system. Reliance on the vigilance of the GP practice nurse or GP to engage the patient in a CR program is not ideal.

Implementing a fully automated system of CR referral imbedded in both tertiary and private hospitals is essential to capture and refer all patients post cardiac event to offer a choice of CR program. Using a secure messaging platform commonly in use across the GP sector (e.g. Healthlink) is likely to be the most successful avenue for sending GP referrals.

Operational Practicalities

A whole of practice approach relies on the Practice Manager to work with practice staff to document procedures, educate and train administrative support staff and practice nurses, engage and support with GPs and listen to feedback from patients. The Practice Manager's operational role in the practice is vital to bringing practice staff together in a collaborative way.

Operational factors to be addressed to support implementation include:

- Procedures for the IT systems workflow once referrals are received and when results and patient data are received
- Systems for communication both in and out of the practice – patients, practice staff, CATCH, hospitals, cardiologists, GPs.
- Procedures for re-calls
- Procedures for booking of assessment appointment with GP and practice nurse.
- Review and improvement of current procedures and tasks.
- Training of staff on the service model of care and the appropriate billing and appointment booking procedures.
- Amendments to the practice software to update booking and billing information

Practices that have adopted a Point of Care Testing system can also offer a local and timely way to provide long term monitoring of their patients supporting them through each phase of their cardiac rehabilitation including Phase 3 'Heart Health for Life'.

Adaptation of CHAP IT Platforms in Rural & Remote General Practices

General practices utilise several different software programs and associated 'add-ons' that provide them with the ability to store and use their patient data. Currently, the most popular 'off the shelf' practice management systems (PMS) are Best Practice, Medical Director and ZedMed.

The proposed new CHAP IT web-based platforms will be best used if integrated into the practices already established software systems. This avoids duplication in the entering of patient data and acts as a source of patient data that can be retrieved by CHAP.

CHAP cardiac rehabilitation assessment and reassessment data will be collected electronically via iPad or computer. Assessment data uses validated tools and ensures collection of new national cardiac rehabilitation quality indicators. Data is then transferred directly to the CHAP database where it then gets transferred to GP

practices via secure messaging, so that data is seamlessly imported into the patients' electronic record (see *Figure 4*).⁵

However, practically it is unlikely that CHAP will be able to deliver a fully integrated IT solution in the short term. If that is the case, the minimum requirement for the IT interface between the CHAP IT Platform and the GP practices, is that the summary information from the CR Assessments is automatically sent to the GP via secure messaging.

The expectation is that the CHAP web interface will be used by the practice nurse in the GP practice setting. It is possible that some self-assessment data could be entered by the patient on a tablet or similar device either at home or at the GP practice. To engage the practice nurse in a busy practice setting, the platform will need to be user friendly and with the web interface having the following non-negotiable attributes:

- Ease of use (survey type design, multiple choice, little to no comment style entering required)
- Pre-populated with already known patient data from practice software or referral data.
- Available on a number of device types; PC, laptop, smart phone, tablet.
- Use of uploadable/downloadable templates for use in the practice management software
- Simple 'submit' or 'enter' to record and send data electronically.
- The sending and receiving of data ideally from the practice software via secure messaging options such as Argus.

A system is required that minimises duplication of already known patient data within the practices software program combining it with the CHAP assessment data gathered by the practice nurse.

To this end, it is envisaged that a move away from paper based clinical records and paper surveys used in the collection of patient data, is embraced by all stakeholders.

A fully electronic collection process is dependent on the development of the CHAP web-based data collection platform. A proposed data transfer process at the GP practice level is outlined below. (

Figure 3)

1. Practice nurse inputs data into PMS where there are relevant data fields
2. Export patient demographics and data to CHAP web platform to pre-populate
3. Complete CHAP web platform with any additional data not captured from PMS and submit.
4. Practice nurse initiates Chronic Disease Care Plan template in PMS and completes
5. Import CHAP assessment summary into patient file sent via secure messaging.

Consideration needs to be given to how to efficiently access the patient's blood results and where appropriate, outcomes of their home medication review.

- Blood results are currently followed up by CATCH contacting the practice nurse
- HMR reports could be forwarded to CATCH for review by their Pharmacist

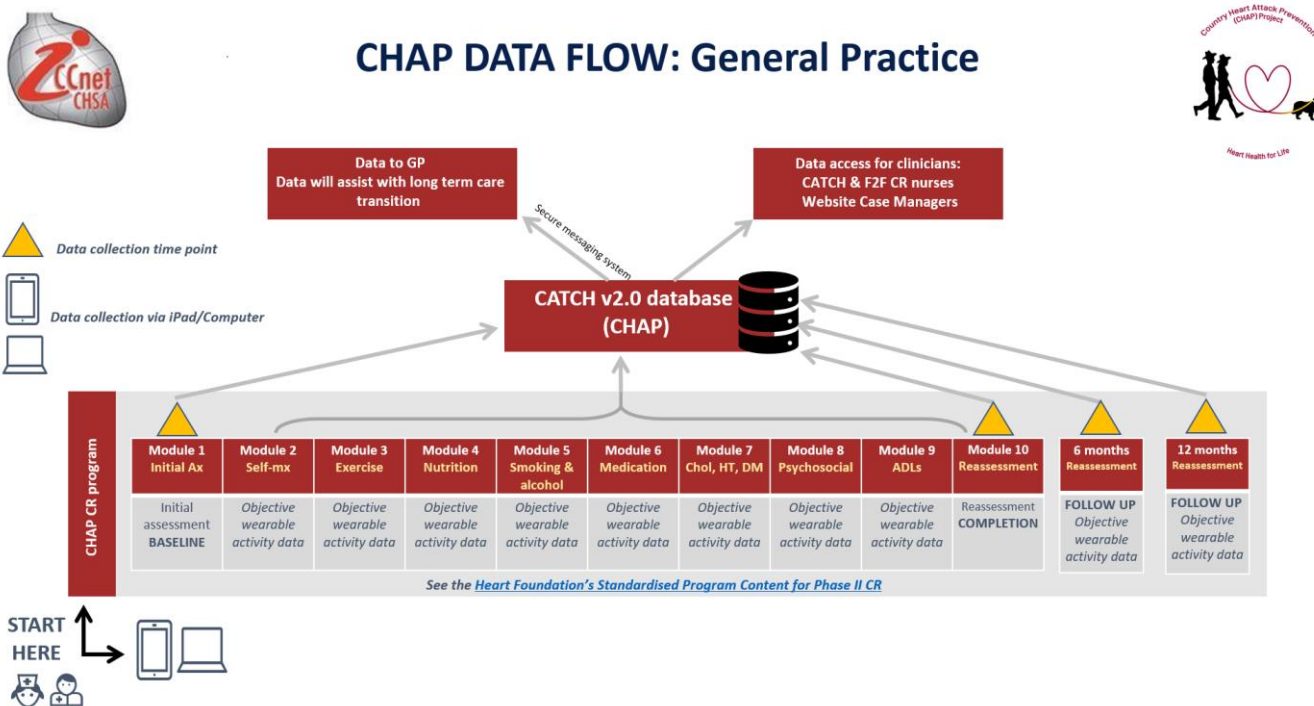
Figure 3



Of note, many GP practices use a technology called Tabnostics to transfer diagnostic test results like ECG's and spirometry, from a tablet directly to the patient file within a PMS via Cloud services.⁶ The successful use of this type of technology in a practice setting provides confidence that data transfer between tablet input to the patient file within a PMS is possible.

Another innovative IT solution that may warrant further investigation, is Personify Care. An Adelaide company who provide a software solution to deliver post-treatment clinical protocols and pathways to patients electronically. "Personify Care has been shown to deliver patient response rates of over 90% and allow early detection of patient risks in 1 in 5 cases."⁷ iCCnet CATCH is currently testing Personify Care's system with a view to improving CR outcomes at the 12-month mark.

Figure 4



⁶ <https://tabnostics.com.au/howitworks.html>

⁷ <https://personifycare.com/>

Business Case – CHAP - Country General Practice

Analysis of Financial Modelling

Priority 1 iCCnet Remote CR Program & Priority 2 iCCnet CHAP GP / Hybrid CR Program

One of the main aims of this project is to analyse the consolidated cost benefit to the GP and the general practice, considering the potential Medicare revenue and the costs associated with the service delivery of the program in general practice.

The financial modelling below confidently demonstrates the viability for the rural or remote general practice to deliver the 4-milestone cardiovascular assessments to patients participating in the iCCnet Remote Cardiac Rehabilitation program, the iCCnet GP / Hybrid CR Program or the CHAP Web-based self-managed program.

This conclusion involved evaluation of best practice management of a patient with a chronic health condition, in this instance cardiac disease. It assumes that the GP would instigate a Chronic Disease Care Plan to oversee and manage the patient's chronic condition and incorporate the 4 CR assessments in the process per *Figure 2*.

Dr Robert Menz, GP (former Senior Medical Advisor, Commonwealth Department of Human Services, Medicare) was engaged to review the business case model and the Medicare items used and comment on any compliance issues. His determination can be found in *Appendix 1*.

In consideration of the time involved in documenting a management plan and completing the CR assessment, it is vital that the practice has an experienced practice nurse to assist the GP in coordination of the patient's care. This is an important factor to ensure the cost effectiveness of the business model.

Optional additional services, that may be provided by the GP or Practice Nurse throughout the episode of care, are included in the analysis. These services attract Medicare items that would provide additional revenue for the practice. The delivery of these services is dependent on the patient's individual circumstances and needs. These include:

- Home medication review
- ATSI health assessment (identify as Aboriginal or Torres Strait Islander)
- Care plan practice nurse follow-ups
- ATSI health assessment practice nurse or aboriginal health worker follow-ups

Initiation of a HMR is encouraged as part of the model of care as strong research evidence suggests HMR in the practice setting are effective in delaying time to re-hospitalization especially for complex comorbid patients treated with heart failure medicines.⁸

Additional research information in support of HMR (Home Medication Review) provided by Professor Debra Rowett and Professor Robyn Clark and can be found in a summary in *Appendix 2*.

It is important to note that in the preparation of a Chronic Disease Care Plan every 12-24 months, the patient will have access to a referral for five allied health services which would be delivered in addition to the four telehealth allied health consultations offered by the iCCnet/CATCH program.

Additionally, if the patient has a diagnosis of Type 2 Diabetes then they are eligible for additional services funded by Medicare that include an assessment for group services and up to 8 group services delivered by either a diabetes educator, exercise physiologist or dietitian.

⁸ University of Adelaide. (2009, July). *The Effectiveness of Collaborative Medicine Reviews in Delaying Time to Next Hospitalization for Patients with Heart Failure in the Practice Setting*.

We see these Chronic Disease Management (CDM) Allied Health services complimenting the iCCnet remote CR telehealth services as well as providing on-going management and monitoring of the patient's cardiac health. We envisage that one or more of the following allied health services available to the GP as part of this referral would be accessed; diabetes educator, psychologist, occupational therapist, physiotherapist, podiatrist, ATSI health worker. However, this would be dependent on the individual patient needs and local access to services.

In *Table 1* and *Table 2* below, we demonstrate the Medicare items available to the GP to charge for services within the service delivery model. Alongside is the corresponding revenue for these items against the value of both the GP and Practice Nurses time.

All due care and consideration has been given in compiling this Medicare item information. It is the responsibility of the practitioner to independently determine the application of the Medicare items contained in this report and to ensure that all the elements of the services comply with the requirements prescribed in the MBS Schedule.

The other consideration is the cost to the practice for delivery of the services. The predominant service expense apportioned to the delivery of the program is for the practice nurses time.

The practice nurses time is based on the rate of \$40/hr being the higher end of the average hourly rate for a registered nurse working in a private GP practice⁹. To include employment on-costs, a 25% loading has been added bringing the hourly rate used in our modelling to \$50/hr.

The GP's time is calculated on a 15-minute standard consultation, Medicare item 23. This may vary and is dependent on the individual practice and their billing policy, specifically if the practice policy is to privately bill or bulk-bill their patients. In these tables we only considered the bulk-billed value of the GPs time. Any patient co-payments are not considered.

Bulk-billing incentive items have been omitted from the business modelling to simplify the realised actual value to the practice as only patients under 16 years of age and Commonwealth concessional beneficiaries qualify to be charged for these items. If the patient did qualify for these items, then the value to the practice would increase by an additional \$156.80 for non-indigenous and \$274.40 for indigenous patients.

To note, the bulk-billing incentive items are currently \$19.60, double their usual value during 30 March and 30 September 2020 as part of the Commonwealth Department of Health's response to the COVID-19 pandemic. It is anticipated that the value of these items will revert to their original value, \$9.80 after this date.

Other consumable and equipment costs associated with the service delivery have not been factored into our calculations as they are funded out of service fees paid to the practice by the GP through their contractual arrangements outlined within individual service fee agreements.

Within the financial modelling, the use of the Medicare item 699, Heart Health Assessment, has not been included. The intended purpose and use of this item is for early detection of heart disease and not in the management or on-going monitoring of heart health. A full description of the Medicare item 699 can be found here. [Glossary Link](#).

⁹ AAPM National Biennial Practice Management Salary Survey 2019.

Table 1

	Medicare Item Description	Medicare Item	Rebate	PN Time	PN Cost	GP Time	Net Value (Less PN cost)	Baseline Value GP Time (Standard Consult)
CHAP Initial Assessment 1	Preparation of GP Management Plan	721	\$ 148.75	45	\$ 37.50	15min	\$ 98.75	\$ 38.75
Pre CR -Assessment	Cardiac Assessment (CHAP)			15	\$ 12.50			
Week 1-2 - post-discharge	Coordination Team Care Arrangements	723	\$ 117.90				\$ 117.90	
GP Practice	Initiate Home Medication Review - billed at later date							
			\$ 266.65		\$ 50.00		\$ 216.65	\$ 38.75
Cardiac Rehabilitation Program 6-10 wk duration - Patient Choice of CR Delivery								
CHAP Re-Assessment 2	Level B GP Consultation	23	\$ 38.75			15min	\$ 13.75	\$ 38.75
Post CR - Re-Assessment	Care plan follow up - PN (see additional services below)	10997	\$ 12.40	15	\$ 12.50		-\$ 12.60	
Week 8-12 - post discharge	Cardiac Assessment (CHAP)			15	\$ 12.50		\$ -	
GP Practice								
	Bill for Home Medication Review	900	\$ 159.65			15min	\$ 159.65	\$ 38.75
			\$ 210.80		\$ 25.00		\$ 160.80	\$ 77.50
CHAP 6mth Assessment 3	Review of GP Management Plan	732	\$ 74.30	45	\$ 37.50	15min	\$ 24.30	\$ 38.75
6mth review GPMP	Cardiac Assessment (CHAP)			15	\$ 12.50			
GP Practice	Review of Team Care Arrangements	732	\$ 74.30				\$ 74.30	
			\$ 148.60		\$ 50.00		\$ 98.60	\$ 38.75
CHAP 12mth Assessment 4	Preparation of GP Management Plan (GPMP)	721	\$ 148.75	45	\$ 37.50	15min	\$ 98.75	\$ 38.75
GP Practice	Cardiac Assessment (CHAP)			15	\$ 12.50			
	Coordination Team Care Arrangements	723	\$ 117.90				\$ 117.90	
			\$ 266.65		\$ 50.00		\$ 216.65	\$ 38.75
Additional Services - if indicated	Care Plan follow up - Practice Nurse 5 x calendar year (less one used above)	10997	\$ 49.60	60	\$ 50.00		-\$ 0.40	
GP Practice	Video Consult with Cardiologist - Practice Nurse	10983	\$ 33.40	15	\$ 12.50		\$ 20.90	
	Home Medication Review - GP	900	\$ 159.65			15min	\$ 159.65	\$ 38.75
			\$ 242.65		\$ 62.50		\$ 180.15	\$ 38.75
							\$ 872.85	\$ 232.50
							Total Net Value to the Practice	\$ 640.35
							Bulk-billing incentive items (if applicable)	\$ 156.80
							Total	\$ 797.15

Table 2

Aboriginal & Torres Strait Islander (ATSI)	Medicare Item Description	Medicare Item	Rebate	PN Time	PN Cost	GP Time	Net Value (Less PN cost)	Baseline Value GP Time (Standard Consult)
CHAP Initial Assessment 1	Preparation of GP Management Plan	721	\$ 148.75	45	\$ 37.50	15min	\$ 98.75	\$ 38.75
Pre CR -Assessment	Cardiac Assessment (CHAP)			15	\$ 12.50			
Week 1-2 - post-discharge	Coordination Team Care Arrangements	723	\$ 117.90				\$ 117.90	
GP Practice	ATSI Health Assessment*	715	\$ 218.90	30	\$ 25.00	15min	\$ 193.90	\$ 38.75
	Initiate Home Medication Review - bill at later date							
			\$ 485.55		\$ 75.00		\$ 410.55	\$ 77.50
Cardiac Rehabilitation Program 6-10 wk duration - Patient Choice of CR Delivery								
CHAP Re-Assessment 2	Level B GP Consultation	23	\$ 38.75			15min	\$ 13.75	\$ 38.75
Post CR - Re-Assessment	Care plan follow up - PN (see additional services below)	10997	\$ 12.40	15	\$ 12.50		-\$ 12.60	
Week 8-12 - post discharge	Cardiac Assessment (CHAP)			15	\$ 12.50			
GP Practice	Bill for Home Medication Review	900	\$ 159.65			15min	\$ 159.65	\$ 38.75
			\$ 210.80		\$ 25.00		\$ 160.80	\$ 77.50
CHAP 6mth Assessment 3	Review of GP Management Plan	732	\$ 74.30	45	\$ 37.50	15min	\$ 24.30	\$ 38.75
6mth review GPMP	Cardiac Assessment (CHAP)			15	\$ 12.50			
GP Practice	Review of Team Care Arrangements	732	\$ 74.30				\$ 74.30	
			\$ 148.60		\$ 50.00		\$ 98.60	\$ 38.75
CHAP 12mth Assessment 4	Preparation of GP Management Plan (GPMP)	721	\$ 148.75	45	\$ 37.50	15min	\$ 98.75	\$ 38.75
GP Practice	Cardiac Assessment (CHAP)			15	\$ 12.50			
	Coordination Team Care Arrangements	723	\$ 117.90				\$ 117.90	
	ATSI Health Assessment*	715	\$ 218.90	30	\$ 25.00	15min	\$ 193.90	\$ 38.75
			\$ 485.55		\$ 75.00		\$ 410.55	\$ 77.50
Additional Services - if indicated	Care Plan follow up - Practice Nurse 5 x calendar year (less one used above)	10997	\$ 49.60	60	\$ 50.00		-\$ 0.40	
GP Practice	ATSI Health Assessment follow up* - AHW or PN	10987	\$ 247.50	150	\$ 125.00		\$ 122.50	
	Video Consult with Cardiologist - AHW or PN	10983	\$ 33.40	15	\$ 12.50		\$ 20.90	
	Home Medication Review	900	\$ 159.65			15min	\$ 159.65	\$ 38.75
	*Identify as Aboriginal or Torres Strait Islander		\$ 490.15		\$ 187.50		\$ 302.65	\$ 38.75
							\$ 1,383.15	\$ 310.00
							Total Net Value to the Practice	\$1,073.15
							Bulk-billing incentive items (if applicable)	\$ 274.40
							Total	\$ 1,147.55

Financial Analysis Summary

Regardless of the patient choice between the iCCnet Remote Cardiac Rehabilitation program, the iCCnet GP / Hybrid CR Program or the CHAP Web-based self-managed program, the financial modelling for the delivery of the 4 assessment services remains the same.

If all milestone patient assessment stages are archived and the GP takes a chronic disease management approach to the care the patients, then the financial model supports these programs.

The following variables will impact on the revenue projections within the modelling:

- Patient compliance with all stages of assessment milestones including practice nurse follow-up services.
- Additional revenue received from private billing, as our modelling presumes all consultations are bulk billed.
- Telehealth Medicare items available during the current pandemic will not be available after September 2020 so have not been included.
- Medicare item 699, Heart Health Assessment, is unable to be used in the modelling as the intended purpose of this item is for early detection of heart disease and not in the management or on-going monitoring of heart health
- Eligibility to claim bulk-billing incentive items will increase the net value to the practice

The financial model is demonstrated to be an attractive proposition for rural and remote general practices. However, appropriate compliance must be maintained in the delivery of the services and this remains the sole responsibility of the practice.

In summary, the service model for general practice-based CR assessments represents a strong business case that is financially viable for implementation into rural and remote general practice and effectively supports the delivery of cardiac rehabilitation programs. The cost benefit to the general practice is strongly supported by the financial modelling and revenue projections.

Priority 3 - Support for 'Heart Health for Life' – Phase 3 Cardiac Rehabilitation

Service Delivery Model

Phase 3 cardiac rehabilitation is defined as ongoing management after a primary prevention program (Phase 1 & Phase 2 cardiac rehabilitation) has been completed. Its objective is to provide continuity of care delivered by the patients nominated GP and should support ongoing risk factor management such as referral to self-management programs and other services that support the heart and general health of the patients. (SA Health, 2011). The CHAP project uses the turn of phrase 'Heart Health for Life' to describe this phase of cardiac rehabilitation.

The service model below (*Figure 5*) provides support for the 'Heart Health for Life' on-going management of the patient provided by their GP. It shows the opportunities for the practice to check up regularly with the patient to provide management and advice regarding their cardiac health and support of behavioural changes the patient has invested in.

The follow up care would be managed by the practice nurse using the practices re-call system to ensure the contact is maintained. The practice is able to claim the Care Plan RN/AHP follow-up item 10997 for these services.

There is evidence that patient engagement and compliance with Phase 3 cardiac rehabilitation 'Heart Health for Life' diminishes after the 9-12mth post discharge point. We see this model of care as a way of mitigating this by the scheduling of routine follow-ups by the practice nurse.

The consistent reinforcement of the benefits to the patient of keeping up behavioural changes and continuing with the program, can be provided by the GP and practice nurse at each of these reviews.

The patients continued involvement with local allied health providers or community allied health services is a key driver to their on-going health and secondary cardiac event prevention.

GP Practice - CHAP Annual Assessment

- GP Management Plan & Team Care Arrangements
- 12mths from discharge
- 75min consultation - 60min Practice Nurse / 15min GP
- 721 / 723 / 10991 x 2
- Home Medication Review (if indicated)
- 900 / 10991

GP Practice

- Practice Nurse Review
- 10997 / 10991 Care Plan follow-up (PN)

GP Practice

- Practice Nurse Review
- 10997 / 10991 Care Plan follow-up (PN)

GP Practice

- Review of GP Management Plan & Team Care Arrangements
- 18mths from discharge
- 45min consultation - 30min Practice Nurse / 15min GP
- 721 / 723 / 10991 x 2

GP Practice

- Practice Nurse Review
- 10997 / 10991 Care Plan follow-up (PN)

GP Practice

- Practice Nurse Review
- 10997 / 10991 Care Plan follow-up (PN)

GP Practice - CHAP Annual Assessment

- GP Management Plan
- 24mths from discharge
- 75min consultation - 60min Practice Nurse / 15min GP
- 721 / 723 / 10991 x 2
- Home Medication Review (if indicated)
- 900 / 10991

GP Practice

- Practice Nurse Review
- 10997 / 10991 Care Plan follow-up (PN)

Financial Modelling

The financial modelling in *Table 3 and Table 4* below, demonstrates the viability of the GP and the practice staff providing on-going care in support of Phase 3 cardiac rehabilitation “Heart Health for Life”. To note, the 12mth Heart Health for Life Assessment also appears in the financial model demonstrated for Priority 1 and Priority 2.

Table 3

Phase 3 Cardiac Rehabilitation - Heart Health for Life		Medicare Item	Rebate	PN Time (min)	PN Cost	GP Time (min)	Net Value (Less PN cost)	Standard Consult
12mth – Heart Health for Life - Assessment	Preparation of GP Management Plan (GPMP)	721	\$ 148.75	45	\$ 37.50	15	\$ 98.75	\$ 38.75
	Cardiac Assessment (CHAP)			15	\$ 12.50			
GP Practice	Coordination Team Care Arrangments	723	\$ 117.90				\$ 117.90	
	Initiate Home Medication Review**					15		\$ 38.75
					\$ 50.00		\$ 216.65	\$ 77.50
Practice Nurse Review	Care Plan follow up - Practice Nurse**	10997	\$ 12.40	10	\$ 8.33		\$ 4.07	
GP Practice	Bill Home Medication Review**	900	\$ 159.65			15	\$ 159.65	\$ 38.75
			\$ 172.05		\$ 8.33		\$ 163.72	\$ 38.75
Practice Nurse Review	Care Plan follow up - Practice Nurse**	10997	\$ 12.40	10	\$ 8.33		\$ 4.07	
GP Practice								
			\$ 12.40		\$ 8.33		\$ 4.07	\$ -
18mth – Assessment	Review of GP Management Plan	732	\$ 74.30	30	\$ 25.00	15	\$ 49.30	\$ 38.75
GP Practice	Review of Team Care Arrangments	732	\$ 74.30				\$ 74.30	
			\$ 148.60		\$ 25.00		\$ 123.60	\$ 38.75
Practice Nurse Review	Care Plan follow up - Practice Nurse**	10997	\$ 12.40	10	\$ 8.33		\$ 4.07	
GP Practice								
			\$ 12.40		\$ 8.33		\$ 4.07	\$ -
Practice Nurse Review	Care Plan follow up - Practice Nurse**	10997	\$ 12.40	10	\$ 8.33		\$ 4.07	
GP Practice								
			\$ 12.40		\$ 8.33		\$ 4.07	\$ -
24mth – Heart Health for Life - Assessment	Preparation of GP Management Plan (GPMP)	721	\$ 148.75	45	\$ 37.50	15	\$ 98.75	\$ 38.75
	Cardiac Assessment (CHAP)			15	\$ 12.50			
GP Practice	Coordination Team Care Arrangments	723	\$ 117.90				\$ 117.90	
			\$ 266.65		\$ 50.00		\$ 216.65	\$ 38.75
Practice Nurse Review	Care Plan follow up - Practice Nurse**	10997	\$ 12.40	10	\$ 8.33		\$ 4.07	
GP Practice	Bill Home Medication Review**	900	\$ 159.65			15	\$ 159.65	\$ 38.75
	** optional services		\$ 172.05		\$ 8.33		\$ 163.72	\$ 38.75
							\$ 896.53	\$ 232.50
							Total Net Value to the Practice	\$ 664.03
							Bulk-billing incentive items (if applicable)	\$ 127.40
							Total	\$ 791.43

Table 4

Phase 3 Cardiac Rehabilitation - Heart Health for Life - ATSI		Medicare Item	Rebate	PN Time (min)	PN Cost	GP Time (min)	Net Value (Less PN cost)	Standard Consult
12mth – Heart Health for Life - Assessment	Preparation of GP Management Plan (GPMP)	721	\$ 148.75	45	\$ 37.50	15	\$ 98.75	\$ 38.75
	Cardiac Assessment (CHAP)			15	\$ 12.50			
	Coordination Team Care Arrangments	723	\$ 117.90				\$ 117.90	
GP Practice	ATSI Health Assessment*	715	\$ 218.90	30	\$ 25.00	15	\$ 193.90	\$ 38.75
			\$ 485.55		\$ 75.00		\$ 410.55	\$ 77.50
Practice Nurse Review	Care Plan follow up - Practice Nurse**	10997	\$ 12.40	10	\$ 8.33		\$ 4.07	
GP Practice								
	Bill Home Medication Review**	900	\$ 159.65			15	\$ 159.65	\$ 38.75
			\$ 172.05		\$ 8.33		\$ 163.72	\$ 38.75
Practice Nurse Review	Care Plan follow up - Practice Nurse **	10997	\$ 12.40	10	\$ 8.33		\$ 4.07	
GP Practice								
			\$ 12.40		\$ 8.33		\$ 4.07	\$ -
18mth – Assessment	Review of GP Management Plan	732	\$ 74.30	30	\$ 25.00	15	\$ 49.30	\$ 38.75
GP Practice	Review of Team Care Arrangments	732	\$ 74.30				\$ 74.30	
			\$ 148.60		\$ 25.00		\$ 123.60	\$ 38.75
Practice Nurse Review	Care Plan follow up - Practice Nurse**	10997	\$ 12.40	10	\$ 8.33		\$ 4.07	
GP Practice								
			\$ 12.40		\$ 8.33		\$ 4.07	\$ -
Practice Nurse Review	Care Plan follow up - Practice Nurse**	10997	\$ 12.40	10	\$ 8.33		\$ 4.07	
GP Practice								
			\$ 12.40		\$ 8.33		\$ 4.07	\$ -
24mth – Heart Health for Life - Assessment	Preparation of GP Management Plan (GPMP)	721	\$ 148.75	45	\$ 37.50	15	\$ 98.75	\$ 38.75
	Cardiac Assessment (CHAP)			15	\$ 12.50			
	Coordination Team Care Arrangments	723	\$ 117.90				\$ 117.90	
GP Practice	ATSI Health Assessment*	715	\$ 218.90	30	\$ 25.00	15	\$ 193.90	\$ 38.75
			\$ 485.55		\$ 75.00		\$ 410.55	\$ 77.50
Practice Nurse Review	Care Plan follow up - Practice Nurse**	10997	\$ 12.40	10	\$ 8.33		\$ 4.07	
GP Practice								
	Bill Home Medication Review**	900	\$ 159.65			15	\$ 159.65	\$ 38.75
	** optional services		\$ 172.05		\$ 8.33		\$ 163.72	\$ 38.75
							\$ 1,284.33	\$ 271.25
							Total Net Value to the Practice	\$ 1,013.08
							Bulk-billing incentive items (if applicable)	\$ 147.00
							Total	\$ 1,160.08

Marketing & stakeholder engagement

In our introduction we reflected on the Quadruple Aim. This business case modelling demonstrates that the CHAP model of care embedded and delivered in Country general practice will deliver outcomes for each Quadruple Aim objective. The marketing and stakeholder engagement strategy should reflect these outcomes.



Value to Patient – Improved patient experience of care

- Patient engagement and commitment to complete the CR program is more likely when program services are delivered or promoted by their trusted GP and GP practice.
- CR program can be tailored to suit the patient's needs.
- Access to a supported program of cardiac rehabilitation post cardiac event providing quality care with a focus on behavioural and physical health delivered by the patient's GP.
- Removes the need for the patient to travel to attend a face-to-face CR program.
- Accessible allied health services provided by CATCH via telephone consultations complemented by local private providers and community-based programs, where available.



Value to the Community – Improved health outcomes & populations management

- Better access and compliance offered by the CHAP program has the potential to significantly reduce the incidence of secondary cardiac events and the associated economic cost to the health system.
- The team care approach in managing the CR program of the patient involves public and private service providers.



Value to practice – Improved cost efficiency and sustainability in healthcare

- Offers the practice a financially attractive model for the delivery of community and practice based cardiac rehabilitation.
- A whole of practice understanding and education of all aspects of the program and the importance of their role would assist in the delivery of a cardiac rehabilitation program in general practice.
- Embed processes into practice systems to increase the efficiency and effectiveness in the delivery of the service model.
- Delivery of the service model provides the practice with an opportunity to participate in a continuous quality improvement activity meeting the quality criteria for a PIP QI Incentive payment.



Value to the Provider – Improved health care provider experience

- The GP is promoted as the central and most pivotal role in the program. Winning the hearts and minds of the GPs is crucial to their promotion of the program to their patients.
- iCCnet CHAP reporting back to practices (GPs and practice staff) on outcomes and success stories strengthens the engagement and motivation to continue participating in the program.
- Allied health professionals in private practice benefit from the opportunity to work alongside GPs in the management of their patients' health.
- The GP is the linchpin to the success or otherwise of this business and service model. Their valuable relationships with their patients is a key component in the patient's motivation and compliance with a program of cardiac rehabilitation.

- The practice nurses who have successfully embedded the iCCnet /CATCH CR program into their practices, reported common key success factors that included:
 - Their passion and commitment to the value of cardiac rehabilitation and ‘Heart Health for Life’ to the positive health outcomes of their patients
 - They were consulted, informed and educated on the program’s objectives.
 - The diligent use of practice recall systems in the follow-up care and education of patients.
 - Their concern with the continuity of the program if they were to be away from the practice
 - Their positive relationship with the team at iCCnet/CATCH

Conclusion

In conclusion, research, analysis and this report provide a clear business case supporting the 3 modes of cardiac rehabilitation Phase 3 Cardiac Rehabilitation ‘Heart Health for Life’ and secondary prevention delivered in Country general practice in South Australia.

- iCCnet Remote Cardiac Rehabilitation Program
- iCCnet GP/Hybrid CR Program
- CHAP Web-based CR Program
- Phase 3 Cardiac Rehabilitation – ‘Heart Health for Life’

This conclusion is supported by the financial modelling and analysis built on the general practice service delivery model presented in this report.

The service delivery model provides a choice to the mode of cardiac rehabilitation that is decided upon by the GP and the patient and may be dependent on the services available in their local community.

Other important success factors to the business model include:

- A chronic disease management approach taken by the GP in the care of the patient
- All service delivery points in the service model are achieved
- Patient compliance and motivation to attend the assessment milestone GP appointments

Other recommendations that we see as important to the implementation of the CHAP project into Country general practice:

Referral

1. Auto-referral system from both tertiary and private hospitals will require electronic access to several IT platforms and secure messaging options.

People

2. Acknowledgement of the GP as central to the management of the patient care supported by the practice nurse and practice manager who coordinate practice systems and procedures.
3. Endorsement of CR by GPs and practice nurses will require consistent education and engagement that includes involvement in research, outcome data and reporting of the successes of the program.
4. Providing a choice to the patient on the mode of CR delivery is demonstrated in our service model of care and supported by our business case analysis.

Data

5. Development of a software interface, app or web-based application, that can collect and distribute patient data securely from the patient and/or the GP practice to the CATCH database. Ideally, an interface that can access pre-populated practice patient data would make this an efficient and cost-effective proposition for the practice.

6. Consideration given to the practical and legal obligations in obtaining patient consent to the transfer of their data between all agencies and stakeholders.
7. Use of IT systems and software already established in a GP practice; practice management system templates, results in-box, secure messaging systems (i.e. Argus, HealthLink), Tabnostics technology.

Service Delivery

8. Engagement of the patient by presenting a choice in the way they can access a cardiac rehabilitation program as demonstrated in the service delivery model of care.
9. Cardiac rehabilitation program delivered in patients' local community and supported by the patients trusted GP and practice staff.
10. Activation of the program by contacting and engagement of the patient within Week 1 post-discharge to introduce them the program services and expectations.

Marketing and stakeholder engagement

11. As part of a marketing strategy the inclusion of 'road-trips' to meet face-to-face with GPs, practice nurses, practice managers, allied health providers and community services providers. With a view to the on-going and long-term engagement of practice staff and GP's
12. Country SA PHN endorsement of the program and assistance in practice support, education and resources required for the on-going success of the program.
13. Cardiac rehabilitation options to be included in Health Pathways ¹⁰on-line reference tool and accessed by GP's at the point of patient cardiac care throughout South Australia.
14. Engagement with Private Health Insurers who fund private hospital run cardiac rehabilitation programs, wellness and behavioural change programs and who have an interest in the reduction of secondary cardiac events.
15. Engagement with Rural Doctors' Association of South Australia Inc. in securing their support of the CHAP program.
16. Brand marketing strategy to build community and stakeholder awareness and to align the brand with targeted GPs, practice staff, patients, allied health providers and community groups. This could include presentations at conferences, seminars, webinars and rural community events.

The use of heart health language in preference to chronic disease management. Suggestions:

- a. Heart Health for Life Plan & Review
- b. Heart Health for Life group exercise classes
- c. Heart Health for Life Cardiac Rehabilitation Partnership.

To conclude, the engagement of the rural and remote GP and the general practice staff, is imperative. They are at the centre of the coordinated support throughout a patient's cardiac recovery and on-going health. It is rewarding to know that the practice has the ability to deliver a service model that is financially viable and provides the cardiac rehabilitation and secondary prevention objectives of the CHAP project.

Utilising public health services through a program of funded cardiac rehabilitation through iCCnet/CATCH, general practice and in conjunction with community-based services, brings health benefits not only to the individual patients but to the larger public health picture. This is significant, ground-breaking and exciting.

However, this report has highlighted the lack of patient access to locally available allied health services to rural and remote patients. Recent access to Medicare and private health insurance telehealth funding has opened patient access to more allied health services for patients, however, we do not expect this funding to continue

¹⁰ Health Pathways (South Australia) – SA Health, Country SA PHN, Adelaide PHN, <https://southaustralia.healthpathwayscommunity.org/index.htm>

past September 2020. To achieve the collaborative care necessary to deliver a program of cardiac rehabilitation, flexible access to publicly and privately funded allied health services is vital.

We are confident that the proven business case model in this report has scalability to deliver the CHAP program to all general practices in Country and Metropolitan settings here in South Australia and we are optimistic on a national scale.

References

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Glossary

Glossary of Medicare Items & Descriptors

The table below provides the summary of all the Medicare services promoted in this report. Further details can be found at www.mbsonline.gov.au

Disclaimer: All due care and consideration has been given in compiling this Medicare item information. It is the responsibility of the practitioner to independently determine the application of the Medicare items contained in this report and to ensure that all the elements of the services comply with the requirements prescribed in the MBS Schedule.

Note: Temporary Medicare items introduced in response to the COVID-19 pandemic are not included in this glossary or any of the business case modelling contained in this report.

Service	Item	Description	Restrictions
GP Management Plan (GPMP)	721	Any patient with a chronic disease is eligible for a GP Management Plan. This service is designed to support a patient with a plan for how their chronic disease will be managed and to mitigate the risk factors that will cause their condition to deteriorate.	Minimum 12 month claiming period.
Team Care Arrangements (TCA)	723	A Team Care Arrangement is a service that links with the GP Management Plan to create a Chronic Disease Care Plan (GPMP + TCA). A TCA service can only be claimed by the GP when the plan includes referral to 2 other health care providers. For a Cardiac Rehabilitation patient, the providers are likely to include the Cardiologist, CATCH Program and any specified allied health providers.	Minimum 12 month claiming period.
<p>In most GP practices, a practice nurse will assist with conducting measure and observations, collecting relevant information and drafting the care plan. The GP then reviews the draft plan, undertakes any medical tasks required including issuing referrals, and updates the plan if required.</p> <p>While the minimum claiming period for the Chronic Disease Care Planning items 721 & 723 is 12 months, exemptions apply for patients who have either had a significant change to their health status or a recent admission to hospital. Both exemptions are relevant in the case of a patient who has been admitted to hospital for a cardiac event. This means that it is appropriate for a GP to draft a new Chronic Disease Care Plan (regardless of whether a previous plan was claimed for within a 12-month period) and claim the 721 & 723 service items.</p>			
Review of GP Management Plan/Team Care Arrangements	732	<p>A review of the Chronic Disease Care Plan can be conducted 3 months after the care plan was claimed, and 3 months after a previous review.</p> <p>The purpose of the review is to check on the patient's health status and also to check that they have been able to access the services prescribed in their care plan.</p> <p>A review service can be claimed for review of a GPMP and separately for review of a TCA. This means that where the patient has both a GPMP and TCA, item 732 is claimed twice.</p>	Minimum 3 month claiming period

Heart Health Assessment	699	<p>A Heart Health Assessment is specifically for assessing the cardiovascular risk of patients.</p> <p>The new item will provide patients with a comprehensive assessment of their cardiovascular health, identification of any physical or lifestyle-related risks to their cardiovascular health, and a comprehensive preventive health care plan to improve their cardiovascular health.</p> <p>The intention of this item is to identify cardiovascular disease (CVD) in people not known to have CVD including:</p> <p>(a) Aboriginal or Torres Strait Islander persons who are aged 30 years and above.</p> <p>(b) Adults aged 45 years and above.</p>	<p>Claimable once only in a 12 month period. The heart health assessment item cannot be claimed if a patient has had a health assessment service (items 701, 703, 705, 707, 715) in the previous 12 months.</p> <p>Duration at least 20 minutes</p>
ATSI Health Assessment	715	<p>An Aboriginal and Torres Strait Islander Health Assessment is <i>an assessment of a patient's health and physical, psychological and social function and consideration of whether preventive health care and education should be offered to the patient, to improve that patient's health and physical, psychological and social function.</i></p> <p>A practice nurse or aboriginal health practitioner can assist the GP in completing the assessment process.</p>	<p>Minimum claiming period 9 months</p>
Medication Review	900	<p>A Domiciliary Medication Management Review (DMMR) is also commonly know as a home medication review. The purpose of the review is for a pharmacist to conduct a comprehensive review of all medications be taken by a patient, including non-prescribed medications. The process is initiated by a GP referral to the pharmacist. The pharmacist visits the patient in their home to conduct the review and provides a report back to the GP.</p> <p>The GP reviews the report and conducts a consultation with the patient to feedback any changes to the medication regime as a result of the review. The GP can only claim for this service following this consultation with the patient.</p> <p>While the minimum claiming period for the medication review is 12 months, exemptions apply for patients who have either had a significant change to their health status or a recent admission to hospital.</p>	<p>Minimum 12-month claim period.</p>
Care Plan Follow-up	10997	<p>A Care Plan follow up service can be claimed for services provided by either a registered nurse or aboriginal health practitioner to follow up on care prescribed in the care plan. e.g. monthly blood pressure checks.</p>	<p>5 services per calendar year</p>

		These services are claimed through the GP's provider number, but the GP does not need to be present.	
Allied Health (CDM services)	Items 10950 - 10970	Where a patient has had a Chronic Disease Care Plan involving a GPMP & TCA, the patient can access Medicare funded Chronic Disease Management (CDM) allied health services if referred by the GP. The GP must specify the type of allied health service and the number of services allocated per provider, up to a maximum of 5 services. e.g. The GP might nominate 1 dietitian service, 1 diabetes nurse educator service and 3 podiatry services	5 services per calendar year. Duration at least 20 minutes
ATSI Health Assessment Follow-up	10987	An Aboriginal and Torres Strait Islander Health Assessment Follow-up service can be claimed for services provided by either a registered nurse or aboriginal health practitioner to follow up on care prescribed in the care plan. e.g. regular blood tests. These services are claimed through the GP's provider number, but the GP does not need to be present.	10 services per calendar year
Bulk-billed Services	10991	Where a service attracts a Medicare item code and that service is bulk billed and is provided in a rural or remote practice location to a patient who is <ul style="list-style-type: none"> - Under 16 years of age or - Commonwealth concession card holder 	For each Medicare Item service provided
Allied Health (ATSI Health Assessment Follow-up)	Items 81300 - 81360	Where a patient has had an Aboriginal and Torres Strait Islander Health Assessment, the patient can access Medicare funded allied health follow-up services if referred by the GP. The GP must specify the type of allied health service and the number of services allocated per provider, up to a maximum of 5 services. e.g. The GP might nominate 1 dietitian service, 1 diabetes nurse educator service and 3 podiatry services	5 services per calendar year. Duration at least 20 minutes
Multi-disciplinary Case Conferences	Items 735 to 758	A multi-disciplinary case conference involves the GP and at least 2 other providers involved in the patient's care. These items fund the GP's involvement in organising and attending the case conference, but there are currently no items available to fund the involvement of allied health providers.	Duration at least 15 minutes

Appendices

Appendix 1

Endorsement of Medicare Items within Business Case Model

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Flinders Uni CHAP project report

Flinders University's College of Nursing and Health Sciences and in partnership with iCCnet (SA Health) have commissioned Brentnalls Health to provide analysis of the business case to support the implementation of the 'Country Heart Attack Prevention' Project (CHAP) into rural and remote general practice within South Australia.

I have been asked by Brentnalls to provide an opinion as to whether or not Medical services provided by GPs and practice nurses as detailed in the report would attract a Medicare benefit.

I am a GP and from 2000 – 2014 was the Senior Medical Advisor to Medicare in South Australia. Thus my opinion is based on expertise gained during that time. Please note this is not an official endorsement by Commonwealth Department of Health (which is responsible for the Medicare program).

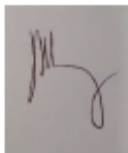
The report lists a variety of Medicare Benefit Schedule (MBS) items that can be claimed by GPs, including for consultations, Chronic Disease Management (CDM), and one for services provided by the practice nurse.

Medical services need to be clinically relevant to attract a Medicare benefit, that is the services must be generally accepted in the medical profession as being necessary for the appropriate treatment of the patient to whom they are rendered

On my opinion the services proposed in the draft report are clinically relevant, and so would attract a Medicare Benefit.

It is essential that all the requirements as listed in the MBS for the items claimed are met. This is particularly important for those items with complex item descriptors, or lengthy notes such as the CDM items.

I trust this opinion will be helpful in progressing the project and will lead to an improvement in the heart health of the patients who participate.



Robert Menz

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Appendix 2

Summary of clinical research data - Home Medication Reviews

Compiled by Professor Debra Rowett and Professor Robyn Clark

- Patients' safe and effective use of medicines could be far lower than many doctors would like to believe.
- Nonadherence to medications has been documented to occur in >60% of cardiovascular patients¹

Table 1. Adherence Rates to Common Cardiovascular Medications

Medication	Self-Reported Adherence, %	Consistent Adherence, %*
Aspirin	83	71
Lipid-lowering agents	63	46
β -blockers	61	44
Aspirin + β -blocker	54	36
Aspirin + β -blocker + lipid-lowering agent	39	21

- Factors that predicted poor adherence rates in these studies were age, gender, ethnicity, comorbidity, and complex polypharmacy
- The Home Medicines Review (HMR) program was introduced into the Australian Medicare Benefits Schedule in 2001 to increase the appropriate use of medicines and reduce the incidence of adverse events. To date, the uptake of this program has been slow.
- Home Medicines review in the practice setting are also effective in delaying time to re-hospitalization especially for complex comorbid patients treated with heart failure medicines (University of Adelaide, 2009)²

Reference to Home Medicines Review – The how and why for GP's (Emblen & Miller, 2004)³

At its core, the HMR addresses the fundamental problem of inappropriate use of medicines in high risk patients as detailed above. The opportunity for the GP lies in the incentive delivered by a Medicare item to work collaboratively with a local pharmacist to improve patient outcomes through teamwork and improved communication.

Pharmaceutical Society of Australia – additional information detailing a response to the Interim Report of the Royal Commission into Aged Care Safety and Quality in April 2020 where HMR follow up services may be conducted by the Pharmacist.⁴

¹ <https://www.ahajournals.org/doi/full/10.1161/circulationaha.109.904003>

² University of Adelaide. (2009, July). The Effectiveness of Collaborative Medicine Reviews in Delaying Time to Next Hospitalization for Patients with Heart Failure in the Practice Setting.

³ Emblen, G., & Miller, E. (2004, Jan/Feb). Home Medicines Review - The how and why for GPs. *Australian Family Physician*.

⁴ <https://www.psa.org.au/coronavirus/#1584935455550-c07cb2eb-1134>

Appendix 3

Feedback from Rural GP Practice Nurses

Feedback Request

Thank you for taking the time to review the attached draft business case for the Country Heart Attack Prevention Project (CHAP), a research initiative undertaken by Flinders University's College of Nursing and Health Sciences in conjunction with iCCnet.

Of interest is your feedback on the following:

- The Cardiac Rehabilitation (CR) Option Flow Chart on Page 9
- The associated GP practice assessment services on Page 10.
- Financial modelling of these assessment services provided on P16 and P17 for indigenous and non-indigenous patients.
- Phase 3 CR service delivery model P19-20 and financial modelling on P21-22.

Your insights on the following would be extremely valuable and with your permission be included in the final report.

Feedback – Rural GP Practice Nurses

Summary of feedback September 2020

Service Delivery

- As the Medicare Item 10997 can be used for any patient follow-up practice nurse service pertaining to a patient's chronic disease makes this feasible for each of the follow up CHAP assessments.
- We may struggle with our rehab nurse providing so many visits between care plans because of our current work structure. We could use other practice nurses to conduct these visits using our treatment room.
- From our experience the practice nurse's time for re-assessments 2 & 3 could be reduced to 30 mins.
- If re-assessment 2 was greater than 3 months after initial 721/723 keep in mind that a 732 x 2 could be charged.
- In our area we struggle for allied health services. Additional access to telehealth allied health services like dietitians, exercise physiologists, psychologists, physiotherapists and podiatrists would benefit our patients greatly.
- Inclusion of an annual ECG as part of the patient's care plan would benefit the patient's on-going care.
- Home Medication Reviews are certainly viable in rural areas as the patient often has a relationship with their local pharmacist who lives in the local area. New care planning software that the practice uses features the HMR more prominently as a care plan option.
- Capturing CHAP 6-min walk data would not be possible in the practice setting. This may be something that the local exercise physiologist¹¹ could achieve as part of the care plan patient referral to the service.

¹¹ Note: not all rural and remote towns have access to an Exercise Physiology service.

Data collection & IT solutions

- Use of integrated software solution for the gathering and upload of CHAP data would be extremely useful.
- Could the patient's cardiologist be automatically included in the Team Care Arrangement (TCA) documentation? This would make the Care Planning process a lot smoother.

General Comments

- The project looks like a very exciting opportunity and looking forward to being a part of it.
- The use of Heart Health Language as opposed to Chronic Disease puts a much more positive and health focused spin on this cycle of care.

Appendix 4

Letter of Introduction of CHAP Project to Country GPs & Practice Managers



Dear Doctor and Practice Manager,

Delivery of Cardiac Rehabilitation for your patients in Country SA

We would like to introduce your practice to the Country Heart Attack Prevention (CHAP) project. In partnership with iCCnet, this exciting project looks to integrate cardiac rehabilitation research evidence delivered in rural and remote general practice through policy and practice.

The key objectives of the CHAP Project include:

- Shifting cardiac rehabilitation from a metropolitan tertiary setting to an accessible locally, rural based model
- Reinforce the general practitioner as the centre of the patient's coordination of care and assessment
- Engage clinicians, including GPs, to ensure that all patients are participating in a cardiac rehabilitation program

The rationale for producing this project is that, despite high level evidence of the proven benefit of risk factor modification to reduce secondary events through Cardiac Rehabilitation (CR), statistics from Australia and around the world report that only 20-50% of eligible patients attend and attendance has not improved in the past 20 years. The CHAP project is a partnership with iCCnet and includes consumers, policy makers, service providers, clinicians and researchers to integrate research evidence into policy and practice for the delivery of rural and remote Cardiac Rehabilitation.

The value proposition for your rural or remote general practice is based on the following factors:

- The opportunity for you and your practice to be recognised for participating in this important research project.
- The business model attached assures practices of the financial benefits of participation
- The ability to deliver positive health outcomes for cardiac patients by monitoring long term outcomes for "Heart Health for Life" in primary care
- Integrating models of care with specialist care such as the iCCnet Telephone, GP hybrid models and web-based self-care cardiac rehabilitation models.

The business model proposes that in a 12-month period, four CVD risk factor assessments incorporated into care plan management consultations, could generate practice revenue of approximately \$1,100 over this time. The model also includes a value-added home medication review (HMR).

In addition to the business model, we provide a secure iPad-based data collection link. Data is stored both at iCCnet and will be sent to your patient's electronic medical record system by a secure message system.

A comprehensive website www.chaproject.com.au has been designed to, not only provide a secure portal for data collection but to outline the governance and development of the CHAP project.

The Link for e-data collection can be found at <https://www.chaproject.com.au/CVDRiskAssesment>.

Please find attached a copy of the new Country Heart Attack Prevention (CHAP) Business Form and Risk Factor Assessment Form for general practice support for remote cardiac rehabilitation (telephone / web based and / hybrid models of care) from iCCnet CATCH service.

We hope you will support our “Heart Health for Life” philosophy in implementing the proposed business model and nationalised standardised risk factor assessment.

Your Sincerely,

Rosy Tirimacco and Robyn Clark

Director

Integrated Cardiovascular Clinical Network SA | iCCnet SA

Rural Support Service

Regional LHNs | SA Health

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Appendix 5

Assessment Forms

Initial Assessment

All CHAP patients



Variable	Expected Response / Response options	Type of response
Demographics		
UR number	Numerical	
Medicare Number	Numerical	
Initial assessment date	Date	DD/MM/YYYY
Full name	First name Middle Surname	Free text
Preferred Name		Free text
Date of birth	Date	DD/MM/YYYY
Gender	Female Male Non-binary Prefer not to disclose Prefer to self-describe	Categorical
Aboriginal and Torres Strait Islander Status	No Yes, Aboriginal Yes, Torres Strait Islander	Categorical
<u>Ethnic background</u> (<u>Heart Foundation link</u>)	Oceanian (ie Australian, NZ, Polynesian*, Maori*) North-west European Southern and eastern European North African and middle eastern* South-East Asian* North-east Asian Southern and Central Asian Peoples of the Americas Sub-Saharan African	Categorical
Other / Fun fact	Hobbies / pet / grandchildren	Free text
Mobile phone number	Numerical	10 digits
Landline phone number	Numerical	10 digits (incl area code)
Email address	Text	XXX@XXXX.XXX
Residential address	Automatic field	Automatic text
Residential postcode	Automatic field	4 digits
Address not available		Free text entry
Language spoken at home		Free text
Interpreter needed	Yes/No	Categorical
Employment status	Employed, work full time Employed, work part time	Categorical

	Employed, away from work Unemployed, looking for full-time work Unemployed, looking for part-time work Not in the labour force	
Highest level of education	Primary education Secondary education (Year 9 and above) Certificate I & II Certificate III & IV Advanced Diploma and Diploma Bachelor Degree Graduate Diploma and Graduate Certificate Postgraduate Degree	Categorical
Currently reside with	Family / Partner Friends Live alone	Categorical
NOK Name	First name Surname	Free text
NOK mobile phone number	Numerical	10 digits
NOK email address	Text	XXX@XXXX.XXX
Technology use		
Technology use	Smartphone iPad Computer at home	Categorical, all that apply
Internet connection	Through SIM Home internet NBN connection	Categorical, all that apply
Social media	Facebook Twitter LinkedIn WeChat WhatsApp Other	Categorical, all that apply
Clinical history		
Hospital discharge date	Date	DD/MM/YYYY
CR referral date	Date	DD/MM/YYYY
Date of assessment	Date	DD/MM/YYYY
Cardiologist	Name (drop down list of SA Cardiologists + other if not listed)	Categorical
Surgeon	Name (drop down list of SA cardiac surgeons + other if not listed)	Categorical
General practitioner	Free text – name	Free text
General practitioner clinic address	Enter address – but comes up automatically	Automatic text

General practitioner clinic postcode	Automatic field	4 digits
Psychologist		
Principal referral diagnosis	NSTEMI STEMI Angina IHD Risk factor management Heart failure Arrhythmia	Categorical
Cardiac intervention	PCI TAVI CABGS Ablation Other	Categorical
Cardiac complications	Arrhythmia Heart failure Wound infection Bleeding Other	
Current and past cardiovascular or previous medical history	Hypertension Hypercholesterolaemia Heart failure Diabetes - insulin dependent Diabetes - non-insulin dependent Valvular disease Stroke / TIA / thromboembolism Peripheral vascular disease Congenital heart condition Other - free text	Choice between current / past for each condition
Current or past medical history (non-cardiac)	Cancer COPD GORD Bowel disease Kidney disease Liver disease Mental health Other	Choice between current / past for each condition
Family history of heart disease		
Close family member (such as a parent or sibling) who has had a heart attack or stroke before the age of 60?	Yes No	Categorical
If female -		
Did you have any complications during pregnancy such as - high BP - preeclampsia	Yes No	Categorical

- gestational diabetes		
Are you currently menopausal?	Yes No	Categorical

Current wounds and symptoms (repeat from here for reassessment visits)

Wound locations	Groin RAG SVG Sternal Mammary Other	Categorical, all that apply
Current pain	Chest pain (ischaemic) Sternal pain RAG pain SVG pain Other	With scale for each location 0 – 10
Current symptoms	SOB Fatigue Lethargy Nausea Anorexia Other	Categorical, all that apply
Required aids	Hearing Vision Gait/Mobility	Categorical, all that apply

Medications			
Supplements (Eg. Vitamins, fish oil)	Vitamin B2 Vitamin B12 Vitamin C Vitamin D Vitamin E CoQ ₁₀ Fish oil Folic acid Multivitamin Iron Other		
Current medication list	Medication name (generic) / Medication Type* / Dose / Frequency	Repeat as many times as needed	*Medication type - anticoagulant - antiplatelet - NOAC - beta blocker - ACE inhibitor - ARB - Statin - Nitrate - Diuretic - MRA - ARNI

			- Calcium channel blocker - Pain management
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Laboratory results

Variable	Response options	Type of response	Unit	Goal range
Lipids	Total cholesterol	Numerical to one decimal place	mmol/L	<4.0
	LDL	Numerical to one decimal place	mmol/L	<1.8
	HDL	Numerical to one decimal place	mmol/L	>1.0
	Triglycerides	Numerical to one decimal place	mmol/L	<2.0
Diabetes	HbA1c	Numerical to one decimal place	mmol/L	<7
	Fasting BGL	Numerical to one decimal place	mmol/L	4 - 7

Clinical assessment risk factors


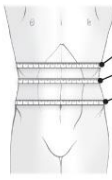

Blood pressure	Systolic	3 digits	mmHg	<130
	Diastolic	3 digits	mmHg	<80
Heart rate	Numerical	3 digits	bpm	
SpO2	Numerical	2 digits	%	>95
Rhythm	Regular / Irregular	Categorical		
Height	Numerical	3 digits	cm	
Weight	Numerical	3 digits	kg	
BMI	Numerical	2 digits		18.5 – 24.9
Girth (wait measurement)	Numerical	3 digits	cm	Women : <80cm Men: <94cm

Your waist measurement is an indicator of the level of internal fat deposits that coat the heart, kidneys, liver, digestive organs and pancreas. This can increase the risk of heart disease and stroke.

Target: women <80cm, men <94cm

Measure using Heart Foundation instructions:

1. Find the top of hip bone and the bottom of ribs
2. Breathe out normally
3. Place tape measure midway between these points and wrap it around your waist

<p>BMI</p>  <p>BMI categories:</p> <ul style="list-style-type: none"> • Underweight = less than 18.5 • Normal weight = 18.5-24.9 • Overweight = 25-29.9 • Obesity = 30 or greater 	<p>Waist circumference</p>  <p>Just below the bottom rib Narrowest part of midriff</p> <p>Waist circumference can be measured in several places. Many researchers favor using the top of the hip bone as a landmark, so the tape measure goes over the navel.</p> <p>Waist circumference associated with increased health risks: For men: More than 40 inches (102 cm) For women: More than 35 inches (88 cm)</p>	<p>Waist-to-hip ratio</p>  <p>Hips are usually measured at the widest circumference, around the buttocks</p> <p>Waist-to-hip ratio associated with increased health risks: For men: 0.9-1.00 For women: 0.85</p>	
Exercise capacity	6MWT results – numerical Instructions and data collection sheet below	4 digits	Metres

Lifestyle risk factors		
Tobacco use	Yes No If yes – <ul style="list-style-type: none"> - Daily smoker (A person who smokes daily) - Weekly smoker (A person who smokes at least weekly but not daily) - Irregular smoker (A person who smokes less than weekly) - Ex-smoker (A person who does not smoke at all now, but has smoked at least 100 cigarettes or similar amount of other tobacco products in his/her lifetime) - Never-smoker (A person who does not smoke now and has smoked fewer than 100 cigarettes or similar amount of other tobacco products in his/her lifetime) - Unknown 	Categorical
Smoking referral initiated	Yes No	Categorical
Referred to	QUIT helpline GP Other – pls list	Categorical

Alcohol use	Current alcohol intake Yes No		
	If yes - Number of standard drinks/day	Numerical	Target: <2 standard drinks/day
Illicit substances	History of illicit substance use	Yes No	Categorical

	Current illicit substance use	Yes No	Categorical
	Substances used	Cannabis Ecstasy Heroin Cocaine Non-medical use of pharmaceuticals Ketamine Hallucinogens Inhalants Other	Categorical, all that apply

Heart Failure patients – clinical assessment

Variable	Expected Response / Response options	Type of response	Units	Goal range
Type of HF	HFrEF HFpEF	Categorical		
LVEF (Recent echocardiography report)	Numerical	2 digits	%	
BNP / NT-proBNP	Numerical	Up to 4 digits	pg/mL	
Presence of ICD	Yes / No	Categorical		
Presence of PPM	Yes / No	Categorical		
PPM type	Single chamber Dual chamber Biventricular	Categorical		
PPM reason for insertion	Arrhythmia Heart failure	Categorical		
Titration plan	Yes No	Categorical		
Readmission within 30 days	Yes No			
	If yes, reason for readmission Decompensation Infection Medication titration Social reason Other	Categorical		
VCC referral	Yes No	Categorical		
Palliative care referral	Yes No	Categorical		
Heart failure functional capacity - NYHA				
NYHA Class I	No symptoms and no limitation in ordinary physical activity eg. Shortness of breath when walking, climbing stairs etc.	Categorical		
NYHA Class II	Mild symptoms (mild shortness of breath and/or angina) and slight limitation during ordinary activity			
NYHA Class III	Marked limitation in activity due to symptoms, even during less-than-ordinary activity eg. Walking short distances (20 - 100 metres). Comfortable only at rest.			
NYHA Class IV	Severe limitations. Experiences symptoms even while at rest. Mostly bedbound patients.			

Arrhythmia patients – clinical assessment

Variable	Expected Response / Response options	Type of response	Units	Goal range / Scoring
Rhythm (per current or recent ECG)	Sinus rhythm / Atrial fibrillation / Atrial flutter / Degree of Block / Other	Categorical, select all that apply		
Heart rate	<from above>			
AF symptoms	Palpitations / Shortness of breath / Weakness or tiredness / Dizziness or fainting / Chest pain or discomfort / Anxiety / No symptoms / Other	Categorical, select all that apply		
Symptom triggers	Emotional stress or anxiety / Physical effort or strenuous exercise / Tiredness or fatigue / Coffee or other caffeinated drinks / Alcohol / Other	Categorical, select all that apply		
Current treatment protocol	Rate control Rhythm control Unsure	Categorical		
Anticoagulation regime	<i>Discuss importance of adhering to anticoagulation regime</i>			
AF stroke risk				
CHADS-VASc	Age	0 - <65 years 1 - 65 - 74 2 - >75 years	<pre-populate>	Score 0 = low risk, may not require anticoagulation Score 1 = low - moderate risk, should consider antiplatelet or anticoagulation Score ≥2 = moderate-high, should be an anticoagulation candidate
	Sex	1- female 0 - male	<pre-populate>	
	Heart failure history	0 - no 1- yes	<pre-populate>	
	Hypertension history	0 - no 1- yes	<pre-populate>	
	Stroke/TIA/thromboembolism history	0 - no 2- yes	<pre-populate>	
	Vascular disease history (AMI, PVD)	0 - no 1- yes	<pre-populate>	
	Diabetes history	0 - No 1 - Yes	<pre-populate>	
Laboratory results				

INR	Numerical	To one decimal place		
Other if available for review				
Review recent Holter Monitor	Free text			
Review recent sleep study	Weight at time of study	Numerical	Kg	
	Average AHI: No Mild Moderate Severe	Categorical		
	Treatment: CPAP Mandibular advancement splint Sleep positioning device Weight loss No treatment	Categorical		



Six Minute Walk Test

These are clinician instructions so will need to be available in clinician view and I also think we should have as laminated handouts so they can use and reuse these in practice.

Set up

Ideally the test should be conducted on a straight 30 metre track. If the track needs to be adapted or shortened due to lack of space, ensure that the patient walks the same course on each re-test.

The track could be marked in metre increments to make it easy to calculate the distance in the final lap.

Suggested equipment

- Two small cones (or something easily visible for patients) to mark the turnaround points
- 6MWT recording form and clip board
- Rate of perceived exertion – Borg scale
- Pulse oximeter with appropriate sensor (if available)
- Stopwatch or timer, if you have a device with a lap counter that is advantageous
- A mechanical lap counter or a paper-based tracking
- At least one chair (number will depend on patient's condition and risk)
- Sphygmomanometer and stethoscope, or similar method of accurately assessing BP
- Portable oxygen if required
- An emergency plan
- Access to oxygen, and telephone in close proximity

Patient preparation

Patients may need to be informed of the following so they are prepared before this session:

- Comfortable clothing
- Appropriate shoes
- Use usual walking aids
- The patient's usual medical regimen should be continued.
- A light meal only before test
- No vigorous exercise 2 hours before the test.

Repeat measures

Two 6MWTs are often recommended for initial assessments due to a learning effect when performing the test. Recent studies have demonstrated however that a single measure is often acceptable.

Administering test

Patient should be sitting near the starting point, and resting for at least 10 minutes before the test. Pre-test assessments could be completed during this time. Apply the oximeter to the patient and ask them to carry it for the duration of the test with the screen facing outwards, so you can see the number.

1. Prior to walking say to patient

The object of this test is to walk as FAR AS POSSIBLE for 6 minutes. You will walk back and forth along this course (demonstrate one lap) for six minutes.

You may slow down if necessary. If you stop, I want you to continue again as soon as possible.

You should pivot briskly around the cone/turning point and continue back the other way without hesitation. Now I'm going to show you. Please watch the way I turn without hesitation. (Demonstrate by walking one lap yourself. Walk and pivot around a cone briskly.)

You will be informed of the time and encouraged each minute.

Please do not talk during the test unless you have a problem or I ask you a question. You must let me know if you have any chest pain or dizziness.

When the timer is 15 seconds from completion I will let you know. When six minutes is up I will ask you to STOP where you are. When you hear 'stop' please stop where you are, and I will come to you.

Do you have any questions?

2. To begin say to patient

Start now, or whenever you are ready (start stopwatch when walking starts).

3. During the test

Provide the following standard encouragements in even tones. Do not use other words of encouragement or body language to speed up.

- At 1 minute: *You are doing well. You have 5 minutes to go.*
- At 2nd minute: *Keep up the good work. You have 4 minutes to go.*
- At 3rd minute: *You are doing well. You are halfway done.*
- At 4th minute: *Keep up the good work. You have only 2 minutes left.*
- At 5th minute: *You are doing well. You have only 1 minute to go.*
- 15 second before completion: *"in a moment I'm going to tell you to stop. When I do, just stop right where you are and I will come to you"*
- At 6th minute: "Stop"

If the patient stops during the test:

Allow the patient to rest or sit in a chair if they wish, and check SpO₂ and heart rate. If the SpO₂ is persistently less than 85%, the test should be stopped. Ask the patient why they stopped.

Keep the stopwatch running and advise: *Please resume walking whenever you feel able.*

4. At the end of the test

Walk to the patient, consider taking a chair for the patient to rest. Congratulate patient on good effort.

Record the total distance walked.

Record, heart rate, blood pressure and Rating of Perceived Exertion (RPE). Record recovery time to gain additional information.

The patient should remain in a clinical area for at least 15 minutes following an uncomplicated test.

Scoring

Change in 6MWT distance can be measured in several ways. The most common include:

- Absolute change (post program distance – pre-program distance). The minimum important distance (MID) is 25 metres in patients with acute coronary artery disease and chronic respiratory disease.
- Percentage change may be a more relevant measure for frail patient whose baseline distance is very short eg. <100 metres. Calculate as follows: $\frac{\text{post program distance} - \text{pre-program distance}}{\text{pre-program distance}} \times 100$.

Reference to equations (to adjust for variables such as height, weight, age and gender predict clinical progress) are available however are no better than simply using 6MWT distance alone.

Six minute Walk Test (6MWT) recording form

Source: [HeartOnline](#)

Clinicians will likely need print out and then enter data into database at end of test – unless it can be easy to enter into an iPad while administering the test? Not sure if that will be too much for some non-tech saavy clinicians

- Medical history checked
- Medical clearance provided for the patient to participate in exercise testing

Contraindications to 6MWT:

- Resting heart rate >120 beats/min after 10 minutes rest (relative contraindication)
- Systolic blood pressure >180mmHg +/- diastolic blood pressure > 100mmHg (relative contraindication)
- Resting SpO2 <85% on room air, persistent SpO2 levels <85% during the test, or on prescribed level of supplemental oxygen
- Physical disability preventing safe performance
- No contraindications identified

Medications taken before the test:

Medication name (generic) / Medication Type* / Dose / Frequency (repeat as needed)

6MWT 1						Date:	Time:
						Mobility aid:	
Time (mins)	BP	SpO2	HR	RPE (BORG)	Rest (number of times the patient rested)	Comments	
Rest							
1 min							
2 mins							
3 mins							
4 mins							
5 mins							
6 mins							
Recovery 1							
Recovery 2							
Number of laps: _____ Total distance = _____ m (<i>Total distance: Track length x complete laps walked + partial final lap distance</i>) Was test terminated? <input type="checkbox"/> No <input type="checkbox"/> Yes If yes: when? _____							
6MWT termination Criteria: <input type="checkbox"/> Chest pain or angina-like symptoms <input type="checkbox"/> Heart rate > Predicted HR max <input type="checkbox"/> Evolving mental confusion, light-headedness, or incoordination <input type="checkbox"/> Physical or verbal severe fatigue <input type="checkbox"/> Intolerable dyspnoea, unrelieved by rest <input type="checkbox"/> Persistent SpO2 <85% (Note: pending clinical presentation) <input type="checkbox"/> Abnormal gait pattern (leg cramps, staggering, ataxia) <input type="checkbox"/> Other clinically warranted reason							
Get the patient to sit and rest for 15 mins and complete any outstanding patient surveys							

BORG SCALE

Clinicians will need a laminated version of this to show the patient. This doesn't have to be uploaded into the CHAP system.

1 – 10 Borg Scale of Perceived Exertion	
0	Rest
1	Really easy
2	Easy
3	Moderate
4	Sort of hard
5	Hard
6	
7	Really hard
8	
9	Really, really hard
10	Maximal

Assessment Questionnaires

Functional capacity

Score = *highest* MET value, therefore highest possible score is 9

Can you complete the following activities without symptoms?				Score
1	Dress without stopping because of symptoms?	Yes / No	Categorial	2.00
2	Do moderate work around the house like vacuum sweep floors, or carry groceries?	Yes / No	Categorial	2.50
3	Walk down a flight of stairs unassisted and without stopping?	Yes / No	Categorial	3.00
4	Do heavy work around the house like strip and make the bed, hang out washing, or wash the car?	Yes / No	Categorial	3.25
5	Do moderate gardening like weed or rake the leaves?	Yes / No	Categorial	4.25
6	Push an electric or petrol mower on level ground?	Yes / No	Categorial	4.50
7	Participate in moderate activities like walk at a normal pace (4km/hr) or play golf and carry the clubs?	Yes / No	Categorial	4.75
8	Walk briskly around an oval?	Yes / No	Categorial	5.00
9	Do outdoor work like split wood or dig in the garden?	Yes / No	Categorial	5.50
10	Carry an 8-kg weight (eg. Load of wet washing up 8 steps)	Yes / No	Categorial	6.00
11	Carry at least 10kg (eg. Suitcase) up 8 steps?	Yes / No	Categorial	7.00
12	Carry objects that weigh at least 35kg (eg. 11 year old child)?	Yes / No	Categorial	7.50
13	Participate in vigorous activities like swimming (crawl), jogging (8km/hr), cycling (17km/hr), single tennis?	Yes / No	Categorial	9.00
1	Dress without stopping because of symptoms?	Yes / No	Categorial	2.00
2	Do moderate work around the house like vacuum sweep floors, or carry groceries?	Yes / No	Categorial	2.50
3	Walk down a flight of stairs unassisted and without stopping?	Yes / No	Categorial	3.00
4	Do heavy work around the house like strip and make the bed, hang out washing, or wash the car?	Yes / No	Categorial	3.25

Return to activities of daily living

Has the participant:

1	Had a graded return to work (as applicable)	Yes/No	If no, reason (free text)
2	Returned to driving (as applicable)	Yes/No	If no, reason (free text)
3	Resumed sexual activities (if applicable)	Yes/No	If no, reason (free text)

Nutrition

	Question	Responses	Response type	Goal	
1	How many serves of vegetables do you usually eat each day? A 'serve' is ½ cup cooked vegetables or 1 cup of salad.	I don't eat vegetables Less than one serve 1 – 2 serves 3 – 4 serves 4 – 5 serves >5 serves	Categorical	5 serves	Informed by heart healthy eating pattern – Heart Foundation
2	How many serves of fruit do you usually eat each day? A 'serve' is 1 medium piece or 2 small pieces of fruit, 1 cup of diced pieces, or 1 tablespoon of dried fruit.	I don't eat fruit Less than one serve 1 – 2 serves 3 – 4 serves 4 – 5 serves >5 serves	Categorical	2 serves	Informed by heart healthy eating pattern – Heart Foundation
3	How many serves of grain foods (cereal, oats, barley) do you usually eat each day?	I don't eat grains Less than one serve 1 – 2 serves 3 – 4 serves 4 – 5 serves >5 serves	Categorical	1 or more	Informed by heart healthy eating pattern – Heart Foundation
4	Do you include plant-based proteins in your diet like beans, chickpeas, lentils, nuts, seeds as well as fish and seafood?	Never Occasionally Regularly	Categorical	Regularly	Informed by heart healthy eating pattern – Heart Foundation
5	Do you (or the person who prepares your meals) add salt when cooking?	No Yes – very often Yes – occasionally Yes – rarely	Categorical	No, occasionally or rarely	Informed by SA monitoring and surveillance system
6	How often do you usually have meals or snacks from take away food stores (this includes fast food chains, Fish/Chicken shop)	Never Each day Each week Each month	Categorical	Each month	Informed by CSIRO healthy diet

Depression

Part 1 (PhQ2)

If yes to either question, move to Part 2 – PhQ9

- | | | | |
|---|---|----------|-------------|
| 1 | During the past month, have you often been bothered by feeling down, depressed or hopeless? | Yes / No | Categorical |
| 2 | During the past month, have you often been bothered by little interest or pleasure in doing things? | Yes / No | Categorical |

Part 2 (PhQ9)

Score – depression severity	
0 – 4	None – Mild
5 – 9	Mild
10-14	Moderate
15 – 19	Moderately severe
20-27	Severe

Over the past two weeks, how often have you been bothered by any of the following problems?

- | | | |
|---|--|--|
| 1 | Little interest or pleasure in doing things | Score 0 - 3 |
| 2 | Feeling down, depressed, or hopeless | Score 0 - 3 |
| 3 | Trouble falling or staying asleep, or sleeping too much | Score 0 - 3 |
| 4 | Feeling tired or having little energy | Score 0 - 3 |
| 5 | Poor appetite or overeating | Score 0 - 3 |
| 6 | Feeling bad about yourself - or that you are a failure or have let yourself or your family down | 0 - Not at all
1 - Several days
2 - More than half the days
Score 0 - 3 |
| 7 | Trouble concentrating on things, such as reading the newspaper or watching television | 3 - Nearly every day
Score 0 - 3 |
| 8 | Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual | Score 0 - 3 |
| 9 | Thoughts that you would be better off dead or of hurting yourself in some way | Score 0 - 3 |

Depression – action taken

Depression referral initiated	Yes No	Categorical
Referred to	Hospital / LHN counsellor/psychologist GP Other – please list	Categorical

Anxiety – Cardiac Anxiety Scale

This tool will calculate heart-focused anxiety.

For total score sum all responses to individual items and divide the sum by 18 (the number of total test items). Therefore, higher scores indicate greater heart-focused anxiety.

Please rate each item by answering the number that best applies to you:

1	I pay attention to my heart beat		Score 0 - 4
2	I avoid physical exertion		Score 0 - 4
3	My racing heart wakes me up at night		Score 0 - 4
4	Chest pain/discomfort wakes me up at night		Score 0 - 4
5	I take it easy as much as possible		Score 0 - 4
6	I check my pulse		Score 0 - 4
7	I avoid exercise or other physical work	0 - Never	Score 0 - 4
8	I can feel my heart in my chest	1 - Rarely	Score 0 - 4
9	I avoid activities that make my heart beat faster	2 - Sometimes	Score 0 - 4
10	If tests come out normal, I still worry about my heart	3 - Often	Score 0 - 4
11	I feel safe being around a hospital, physician or other medical facility	4 - Always	Score 0 - 4
12	I avoid activities that make me sweat		Score 0 - 4
13	I worry that doctors do not believe my symptoms are real		Score 0 - 4
When I have chest discomfort or when my heart is beating fast			
14	I worry that I may have a heart attack	0 - Never	Score 0 - 4
15	I have difficulty concentrating on anything else	1 - Rarely	Score 0 - 4
16	I get frightened	2 - Sometimes	Score 0 - 4
17	I like to be checked out by a doctor	3 - Often	Score 0 - 4
18	I tell my family or friends	4 - Always	Score 0 - 4

Quality of Life – EQ-5D-5L

- 1 – indicates no problem
- 2 – indicates slight problems
- 3 – indicates moderate problem
- 4 – indicates severe problems
- 5 – indicates unable to/extreme problems

Under each heading, please tick ONE box that best describes your health TODAY

1	Mobility	1 - I have no problems in walking about 2 - I have slight problems in walking about 3 - I have moderate problems walking about 4 - I have severe problems walking about 5 - I am unable to walk about	Numerical
2	Self-Care	1 - I have no problems in washing or dressing myself 2 - I have slight problems in washing or dressing myself 3 - I have moderate problems washing or dressing myself 4 - I have severe problems washing or dressing myself 5 - I am unable to wash or dress myself	Numerical
3	Usual activities (eg. Work, study, housework, family or leisure activities)	1 - I have no problems doing my usual activities 2 - I have slight problems doing my usual activities 3 - I have moderate problems doing my usual activities 4 - I have severe problems doing my usual activities 5 - I am unable to do my usual activities	Numerical
4	Pain / Discomfort	1 - I have no pain or discomfort 2 - I have slight pain or discomfort 3 - I have moderate pain or discomfort 4 - I have severe pain or discomfort 5 - I have extreme pain or discomfort	Numerical
5	Anxiety / Depression	1 - I am not anxious or depressed 2 - I am slightly anxious or depressed 3 - I am moderately anxious or depressed 4 - I am severely anxious or depressed 5 - I have extremely anxious or depressed	Numerical
6	Visual analogue scale We would like to know how good or bad your health is TODAY This scale is numbered from 0 - 100 100 means the <u>best</u> health you can imagine 0 means the <u>worst</u> health you can imagine Mark an X on the scale to indicate	Numerical	3 digits Plus potentially visual picture

how your health
is TODAY
Now, please write
the number you
marked on the
scale in the box
below

Health literacy – Brief Health Literacy Screening tool

Please circle the answer that best represents your response

1	How often do you have someone help you read hospital materials?	Always Often Sometimes Occasionally Never	Categorical
2	How often do you have problems learning about your medical condition because of difficulty understanding written information?	Always Often Sometimes Occasionally Never	Categorical
3	How often do you have a problem understanding what is told to you about your medical condition?	Always Often Sometimes Occasionally Never	Categorical
4	How confident are you filling out medical forms by yourself?	Not at all A little bit Somewhat Quite a bit Extremely	Categorical

Heart Failure patients

Quality of life - MLWHFQ

Lower scores indicate more significant disease impact

The following questions refer to heart failure and how it may affect your life. Please read and complete the following questions. There are no right or wrong answers. Please mark the answer that best applies to you.

1	Heart failure affects different people in different ways. Some feel shortness of breath while others feel fatigue. Please indicate how much you are limited by heart failure (shortness of breath or fatigue) in your ability to do the following activities <u>over the past two weeks</u> .			
a	Showering / bathing	1 - Extremely limited	Score 1 - 6	Physical limitations
b	Walking 1 block on level ground	2 - Quite a bit limited 3 - Moderately limited	Score 1 - 6	
c	Hurrying or jogging (as if to catch a bus)	4 - Slightly limited 5 - Not at all limited 6 - Limited for other reasons or did not do the activity	Score 1 - 6	
2	Over the <u>past 2 weeks</u> , how many times did you have swelling in your		Score 1 - 5	

	feet, ankles or legs when you woke up in the morning?	<ul style="list-style-type: none"> 1 - Every morning 2 - 3 or more times per week but not every day 3 - 1-2 times per week 4 - Less than once a week 5 - Never over the past 2 weeks 		
3	Over the <u>past 2 weeks</u> , how many times has fatigue limited your ability to do what you wanted?	<ul style="list-style-type: none"> 1 - All of the time 2 - Several times per day 3 - At least once a day 4 - 3 or more times per week but not every day 5 - 1-2 times per week 6 - Less than once a week 7 - Never over the past 2 weeks 	Score 1 - 7	
4	Over the <u>past 2 weeks</u> , on average, how many times has shortness of breath limited your ability to do what you wanted?	<ul style="list-style-type: none"> 1 - All of the time 2 - Several times per day 3 - At least once a day 4 - 3 or more times per week but not every day 5 - 1-2 times per week 6 - Less than once a week 7 - Never over the past 2 weeks 	Score 1 - 7	
5	Over the <u>past 2 weeks</u> , on average, how many times have you been forced to sleep sitting up in a chair or with at least 3 pillows to prop you up because of shortness of breath	<ul style="list-style-type: none"> 1 - Every night 2 - 3 or more times per week but not every day 3 - 1-2 times per week 4 - Less than once a week 5 - Never over the past 2 weeks 	Score 1 - 5	
6	Over the <u>past 2 weeks</u> , how much has your heart failure limited your enjoyment of life?	<ul style="list-style-type: none"> 1 - it has extremely limited my enjoyment of life 2 - It has limited my enjoyment of life quite a bit 3 - It has moderately limited my enjoyment of life 4 - It has slightly limited my enjoyment of life 5 - It has not limited my enjoyment of life at all 	Score 1 - 5	Quality of life
7	It you had to spend the rest of your life with your heart failure the way it is <u>right now</u> , how would you feel about this?	<ul style="list-style-type: none"> 1 - Not at all satisfied 2 - Mostly dissatisfied 3 - Somewhat satisfied 4 - Mostly satisfied 5 - Completely satisfied 	Score 1 - 5	Quality of life

8	How much does your heart failure affect your lifestyle? Please indicate how your heart failure may have limited your participation in the following activities <u>over the past 2 weeks</u> ?	Social limitations
a	Hobbies, recreational activities	Score 1 - 6
b	Working or doing household chores	Score 1 - 6
c	Visiting family or friends out of your home	Score 1 - 6

- 1 - Severely limited
- 2 - Limited quite a bit
- 3 - Moderately limited
- 4 - Slightly limited
- 5 - Did not limit at all
- 6 - Does not apply or did not do for other reasons

Arrhythmia patients

Atrial fibrillation severity scale

PART A			Scoring	Goal
1	Gender	<pre-populate>	Categorical	
2	Age	<pre-populate>	Categorical	
3	Are you in atrial fibrillation currently?	Yes No I don't know	Categorical	
4	How do you feel about your life at the present time?	Scale 1- 10 1 = worst possible life 10 = best possible life	Numerical	Number (raw score) Aim higher score
5	How often on average, does your irregular heart rhythm (atrial fibrillation) occur?	1- Continuously 2 - More than twice a day 3 - Daily or almost daily 4 - 4 - 5 times a week 5 - 2 - 3 times a week 6 - About once a week 7 - About once a month 8 - About twice a month 9 - About 2 - 4 times a year 10 - About once a year 11 - Less than once a year	Categorical	Sore 1 – 11 Aim lower score
6	How long on average, do the episodes of the irregular heart rhythm last?	Not applicable, I have never had an irregular heart rhythm 1 - Continuously 2- Several days or more 3 - All day 4 - Several hours, but less than a day 5 - About an hour 6- 30-45 minutes 7- <30 minutes 8 - A few minutes	Categorical	Score 1 – 8 Aim higher score (lower score denotes AF of longer duration)
		Not applicable, I have never had an irregular heart rhythm		

7	How severe was your most recent episode of irregular heart rhythm?	Scale 1- 10 1 = Not at all severe 10 = Extremely severe	Numerical	Score 1 – 10	Aim lower score
8	How severe was your first episode of irregular heart rhythm?	Scale 1- 10 1 = Not at all severe 10 = Extremely severe	Numerical	Score 1 – 10	Aim lower score Add mean scores from Q7 & 8 – aim lower score

PART B

9	Have you ever been cardioverted (ie. been put to sleep and electrically shocked)	Yes No If yes, how many times?	Categorical		
10	How many times did you visit the emergency room within the past year because of an irregular heart rhythm?	0 1 2 3 4 5 Enter number if >5	Numerical	0 visits = 0 1 visit = 1 2 visits = 2 3 visits = 3 4 visits = 4 5 – 10 visits – 5 >10 visits to 15 visit = 6 >16 visits = 7	Aim lower score
11	How many times were you hospitalised within the past year because of an irregular heart rhythm?	0 1 2 3 4 5 Enter number if >5	Numerical	0 hospitalisations = 0 1 hospitalisations = 1 2 hospitalisations = 2 3 hospitalisations = 3 4 hospitalisations = 4 5 – 10 hospitalisations – 5 >10 hospitalisations to 15 hospitalisations = 6	Aim lower score

				>16 hospitalisations = 7	
	How many times did you visit your specialist within the past year because of an irregular heart rhythm?	0 1 2 3 4 5 Enter number if >5		0 visits = 0 1 visit = 1 2 visits = 2 3 visits = 3 4 visits = 4 5 – 10 visits – 5 >10 visits to 15 visit = 6 >16 visits = 7	Aim lower score
12			Numerical		

PART C

Please indicate how bothered you have been by the following symptoms (if at all) in the past 4 weeks. Fill in the answer that best describes your symptoms.

		Scale 0-5			Aim lower score
1	Palpitations: How often have you been bothered by this symptom in the past 4 weeks?	0 - I have not had this symptom in the past 4 weeks 1 - Very little 2 - A little 3 - A fair amount 4 - a lot 5 - a great deal		Numerical	
2	Shortness of breath: How often have you been bothered by this symptom in the past 4 weeks?	Scale 0-5 0 - I have not had this symptom in the past 4 weeks 1 - Very little 2 - A little 3 - A fair amount 4 - a lot 5 - a great deal		Numerical	Aim lower score
3	Shortness of breath during physical activity: How often have you been bothered by this symptom in the past 4 weeks?	Scale 0-5 0 - I have not had this symptom in the past 4 weeks 1 - Very little 2 - A little 3 - A fair amount 4 - a lot 5 - a great deal		Numerical	Aim lower score
4	Exercise intolerance (fatigue during mild physical activity): How often have you been bothered by this symptom in the past 4 weeks?	Scale 0-5 0 - I have not had this symptom in the past 4 weeks 1 - Very little 2 - A little 3 - A fair amount 4 - a lot 5 - a great deal		Numerical	Aim lower score

		Scale 0-5		Aim lower score
5	Fatigue at rest: How often have you been bothered by this symptom in the past 4 weeks?	0 - I have not had this symptom in the past 4 weeks 1 - Very little 2 - A little 3 - A fair amount 4 - a lot 5 - a great deal	Numerical	
6	Light-headedness/dizziness: How often have you been bothered by this symptom in the past 4 weeks?	Scale 0-5 0 - I have not had this symptom in the past 4 weeks 1 - Very little 2 - A little 3 - A fair amount 4 - a lot 5 - a great deal	Numerical	Aim lower score
7	Chest pain or pressure: How often have you been bothered by this symptom in the past 4 weeks?	Scale 0-5 0 - I have not had this symptom in the past 4 weeks 1 - Very little 2 - A little 3 - A fair amount 4 - a lot 5 - a great deal	Numerical	Aim lower score

Sleep Apnoea – STOP BANG

OSA low risk – Yes to 0 – 2 questions
 OSA intermediate risk – Yes to 3 – 4 questions
 OSA high risk – Yes to 5 – 8 questions
 OR
 Yes to 2 or more of 4 STOP questions + male gender
 Or Yes to 2 or more of 4 STOP questions + BMI >35kg/m²
 Or Yes to 2 or more of 4 STOP questions + neck circumference > highest cut offs

Please answer the following questions below to determine if you might be at risk

- | | | |
|---|---|----------------------------|
| S | Snoring
Do you snore loudly (loud enough to be heard through closed doors or your bed-partner elbows you for snoring at night?) | Yes / No |
| T | Tired
Do you often feel tired, fatigued, or sleepy during the daytime (such as falling asleep during driving or talking to someone)? | Yes / No |
| O | Observed
Has anyone observed you stop breathing or choking/gasping during your sleep? | Yes / No |
| P | Pressure
Do you have or are being treated for high blood pressure? | Yes / No
<pre-populate> |
| B | Body mass index more than 35kg/m ² ? | Yes / No
<pre-populate> |
| A | Age older than 50? | Yes / No
<pre-populate> |

N	Neck size large (measured around Adams apple) For male, is your shirt collar 17 inches / 43cm or larger? For female, is your shirt collar 16 inches / 41cm or larger?	Cm
G	Gender Are you male?	Yes / No <pre-populate>