Report on the outcomes generated by the

Wimmera Hub & Spoke Cardiac Rehabilitation Model of Care

Evaluation domains:

- Consumer satisfaction
- Clinician satisfaction
- Technical functioning
- Improved health outcomes

FINAL REPORT

Wimmera Hub & Spoke Cardiac Rehabilitation Model of Care

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Contents

Introduction

The Wimmera Southern Mallee Health Alliance identified an opportunity to link outlying services and their consumers to an existing Cardiac Rehabilitation education program offered at the Wimmera Health Care Group's (WHCG) Horsham campus, the sole such program in the sub-region.

Cardiac rehabilitation is recommended for those who are recovering from a cardiac event. For rural patients living outside of the city of Horsham, the cost and effort of travel may preclude participation.

Funding was obtained to deliver and evaluate a telehealth trial project to address this issue.

The Wimmera Hub & Spoke Cardiac Rehabilitation Model of Care utilises existing telehealth facilities in out-lying communities to link patients to the education component of the WHCG cardiac rehabilitation program, with physical activities supported by allied health and nursing staff at remote locations.

Identified opportunities and benefits allied to a successful roll-out of the Hub & Spoke model include, but are not limited to:

- Increased access to, and up-take of, cardiac rehabilitation by more remote patients
- Increase the audience for, and scope of practice of, specialist cardiac rehabilitation trainers through creating greater economies of scale for delivery
- Serve as a test case for the extension of telehealth applications in non-acute service delivery
- Provide a model for the application of the Hub & Spoke model to other clinical applications and other geographic locations

Project Aims

The aims of the pilot project, as identified in the development of the Wimmera Hub & Spoke Cardiac Rehabilitation model were as follows:

- To support the staff at the WSMHA health service sites to work collaboratively with WHCG to deliver a satellite Cardiac Rehabilitation program using the Education component of the WHCG program, with local support for associated physical activities provided by allied health and nursing staff at the remote locations.
- To improve Cardiac Rehabilitation options and uptake of rehabilitation for Wimmera and Southern Mallee cardiac patients

The original evaluation plan included data collection and observation at two sites – the Wimmera Health Care Group (the Hub) in

The evaluation project was extended to include the integration of a third site, the Nhill campus of the West Wimmera Health Service. This proved an excellent opportunity to gather information regarding the dynamic of multiple sites on-line at any given time.

Horsham, and an initial `spoke' site at Rural Northwest Health in Warracknabeal.

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Evaluation aims

The general aims of the evaluation for the initial Hub & Spoke Cardiac Rehabilitation Model of Care implementation are, broadly speaking:

- to ensure that patients are satisfied with their experience of the program
- to ensure that clinicians feel confident that the mixed delivery allows them to perform to the full scope of their professional activity
- to trial the use of relevant technologies and protocols and ensure their efficacy
- to improve capacity for improved health outcomes through integrated, multi-centre care

An additional aim is:

- to document and analyse the program and its results in a manner suitable to the replication of the process in:
    - other clinical areas, and
    - other health services in different geographic locations.

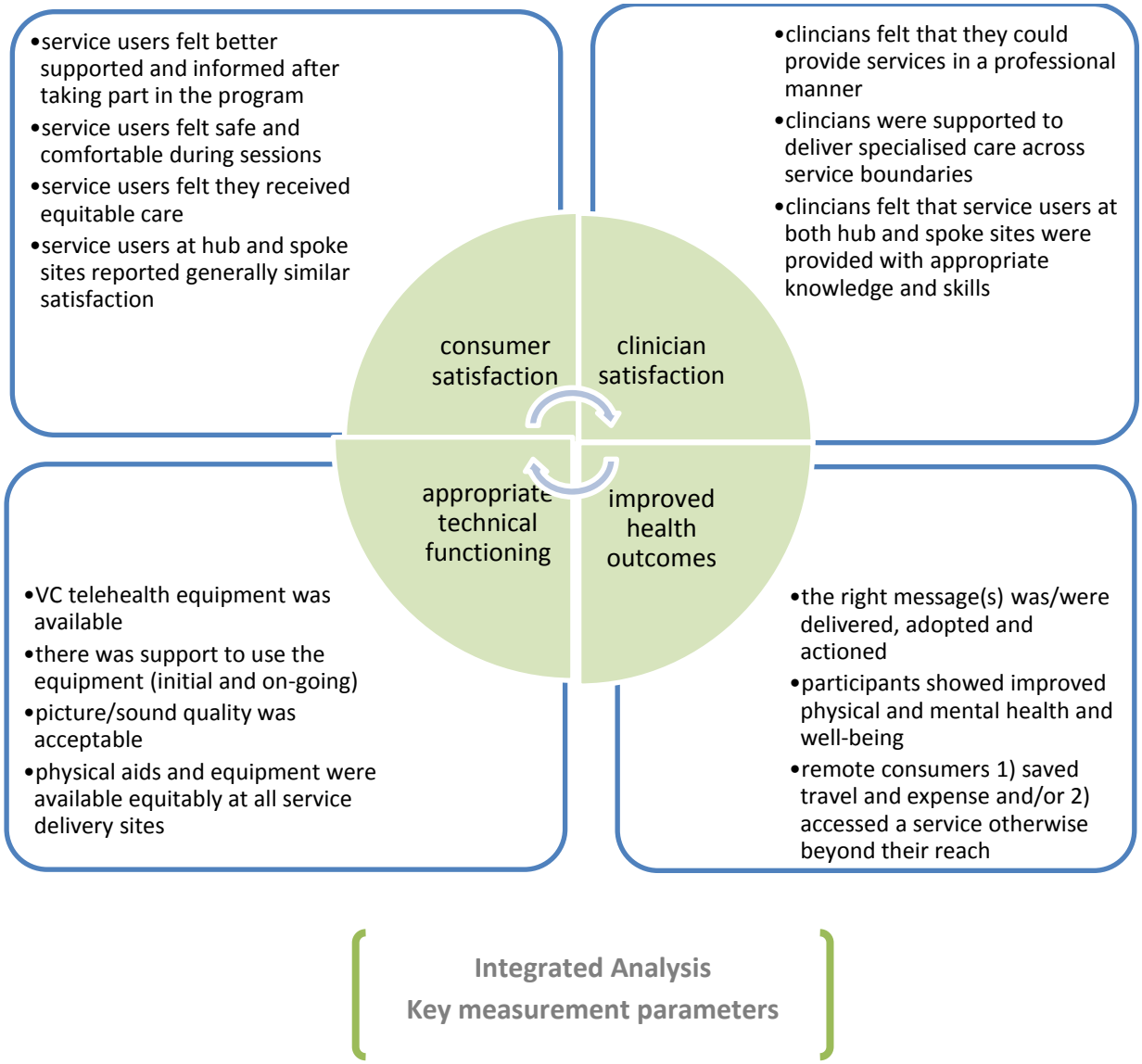
Evaluation methods

Human factor analysis – Does the Hub and Spoke delivery system satisfy the people involved?

Initially, it was intended to utilize brief surveys to assess some aspects of the evaluation targets. For example, pre- and post-training surveys for health service staff addresses potential areas of concern in the technical functioning of the telehealth delivery. Further brief surveys were developed to analyse both practitioner and patient satisfaction with the quality of telehealth interactions. These surveys were not utilized but are held by the WSMHA/WPCP for potential future use. Given the small sample size of the initial trial, qualitative data from semi-structured interviews of health service staff and patients attending both the `hub' and `spoke' sites became the primary data source. In future, a starting cohort of at least 5 consumers beginning the rehab program simultaneously would be a suitable target for the surveys.

Heuristic analysis – Does the Hub and Spoke delivery system work smoothly as a process?

Once again, qualitative data from interviews was used to supplement practitioner and project officer notes regarding the development, implementation, reliability and efficacy of the telehealth component of the program delivery.



Quadrants of activity for analysis

The **four identified quadrants of activity** for an integrated analysis of the Wimmera Hub & Spoke Cardiac Rehabilitation Model of Care are:

- **Consumer satisfaction**
- **Clinician satisfaction**
- **appropriate technical functioning, and**
- **improved health outcomes**

Each quadrant was interrogated in relation to both human factors and heuristic analysis.

Qualitative data from semi-structured interviews and observation was used for this process.

Quadrant 1: Consumer satisfaction

Service users felt better supported and informed after taking part in the program

This was certainly the case for consumers at the remote (spoke) sites. Remote site consumers at both Nhill and Warracknabeal spoke about the enormous benefit of not having to travel to receive the service. One user at Nhill lived nearly 100 km further west and commented that they could manage a half day to come to Nhill, but Horsham would effectively be a full day away from the farm.

Of remote users at both sites, only one thought they might have travelled to Horsham for the program, though felt they would have been unlikely to complete the 8 week course.

> 'Without this (video unit), I just wouldn't be doing the course.

Service users felt safe and comfortable during sessions

Users at all sites reported feeling generally comfortable. All felt safe. There were no concerns regarding the security of transmission of the sessions or confidentiality shared with remote sites. The hub consumers generally reported less comfort then the spoke consumers with the video conference unit, though this was detected primarily through nuance of speech.

Service users felt they received equitable care

Several Horsham-based consumers mentioned that they knew the video-conference was a good thing for the people at the far end, but they might have preferred to be in a session of their own. When questioned further, this sentiment referred entirely to the social interaction of the video-conference, not to the content. They felt very supported by the hub staff. In this limited sample, the differentiation between the hub and spoke sites may be more a function of dominant personalities a the spoke site then with the planned interactions.

Service users at hub and spoke sites reported generally similar satisfaction

Both remote and Horsham (hub) consumers reported high degrees of satisfaction with the delivery of the content of Cardiac Rehabilitation program. Spoke site consumers were unanimous in high levels of satisfaction with the video conferencing process. Horsham consumers were less satisfied with the video-conferencing. They were still happy to attend, but there was a slight emergent theme of discontent with sharing the sessions with the remote sites.

Summary

Consumer satisfaction with the content and general mode of delivery of the program was very high. All felt safe in the shared learning environment. All felt that they were receiving equitable care.

Remote site users were unanimous in their support for the video conferencing model. Almost all reported that they would not have undertaken the education component of their cardiac rehabilitation without access to the video conferencing option.

The slight discontent felt by hub-site consumers seemed to relate to a sense that they were the `hosts' and therefore tended to defer to remote sites. This may be attributable to personality types in the observed small samples. It may also be, in part, an artefact of the first remote group joining in with an established cohort at the hub site. The scope of this study did not permit return to the Hub site at a later date, when all members of the cohort would have joined after the instigation of video conferencing as standard practice. It may well be that this will already have ameliorated the slight discrepancy in satisfaction between hub and spoke sites.

Quadrant 2: Clinician satisfaction

Clinicians felt that they could provide services in a professional manner

At the hub and both spoke sites, clinicians were entirely satisfied that they were able to provide services in a professional manner. Those at both spoke sites spoke of learning something from each education session and enjoying the collaboration involved in the co-delivery of the video conferenced sessions. The delivery of the Telehealth Cardiac Rehabilitation program was a positive factor leading to increased job satisfaction for remote clinicians.

> I feel like I am using my education more fully because of this project. It's great for job satisfaction. I like living in a rural place, but I miss stretching myself to do more.

Delivery from the hub created new challenges for those delivering the education modules. These included: technical issues, management of the dynamic of the interaction across all sites, and ensuring the uniformity of quality and content of the aids and propos used in training (for example – finding sample biscuits available at the shops in each town for the dietician's module). These issues were easily overcome but do illustrate the care and attention required to provide a seamless, equitable program to all constituents.

Clinicians were supported to deliver specialised care across service boundaries

Clinicians felt well supported – technically and professionally - in their delivery of specialised care across service boundaries.

An important aspect of the trial was the negotiation of shared standards of practice and procedures. The negotiation process, handled well, is an opportunity for greater mutual understanding and appreciation of the skills and aptitude of staff across the whole of the hub and spoke structure.

Clinicians felt that service users at both hub and spoke sites were provided with appropriate knowledge and skills

Clinicians were unanimous in their support of the efficacy of the video conferencing model to deliver appropriate knowledge and skills to cardiac rehabilitation consumers. Observation of the use of adult learning methods (such as teach back) during the sessions confirmed that both hub and spoke-based consumers showed similar levels of absorption and comprehension of the materials and concepts presented.

Summary

Clinician satisfaction was clear in relation to their confidence in the efficacy of the delivery of the cardiac rehabilitation education modules and in relation to their own job satisfaction (this being more clearly articulated at the spoke sites).

Quadrant 3: Appropriate technical functioning

VC telehealth equipment was available

Equipment was available at all sites. Quality varied to some degree, but was adequate for purpose, with improvements being developed during the course of the trial. These related primarily to sound quality and/or available bandwidth for transmission.

There was support to use the equipment (initial and on-going)

Substantial support was provided by the WSMHA project officer, based with the Wimmera Primary Care Partnership, working in partnership with the Grampians Rural Health Alliance (GRAH). This comprised both:

- direct support
    - development and delivery of initial training
    - development and delivery of a protocols and procedures handbook
    - physical presence during trials
    - regular contact with, and support of, clinicians

and

- liaison with local and regional technical support staff.

Picture/sound quality was acceptable

There were some initial concerns regarding sound quality. Upgrading of microphones at the hub site was undertaken.

Use of a second camera and/or a second person to move the camera at the hub end of the transmission helped to create a greater sense of a cohesive group. Remote sites were sometimes unable to see the larger group at the hub site. This created a false sense of the group size and may have led to an increased monopolisation of the conversation by remote site consumers (though once again, the limited sample size makes it difficult to differentiate between the effect of individual personalities and/or the perception of the group size created as an artefact of lack of visual connection.

Larger screens were unanimously regarded as preferable, partly to better see the group at the far end of the transmission and partly for remote sites to better view any aids or equipment utilised by the hub site clinicians.

Physical aids and equipment were available equitably at all service delivery sites

Relative equity across all service sites was achieved. There are some limitations due to available bandwidth and/or quality of technology. However, a serviceable and acceptable service was equitably delivered on the whole.

Summary

Initial support to clinicians to train in the use of the video conferencing technology was developed and delivered (facilitated and evaluated by the Wimmera Primary Care Partnership and GRAH) was key to a successful trial. Additional, on-going technical support provided in-house by the hub and spoke agencies is necessary for seamless delivery. Sufficient bandwidth for transmission and good quality speakers are also essential.

Quadrant 4: Improved health outcomes

The right message(s) was/were delivered, adopted and actioned

It was clear from observation of the sessions that the messages in the education component of the Cardiac Rehabilitation program were delivered efficiently and effectively.

Clinicians put thought and effort into managing the logistics of the group interaction to ensure equitable delivery of interactive training. For example, when engaging the group by going around the table asking questions, the facilitator began with one side of the hub site table, continued the discussion through the remote sites as though they were sitting at far end of the table, then continued back through the second half of the hub site attendees, creating a demonstrable sense of communality and collegiality in the participants.

At the end of each session, the individual sites turned off their VC units, discussed and reinforced the messages from the training and clarified any areas of concern. This review clearly served to reinforce the structure of local groups and provided an enhanced learning opportunity.

Delivery of the exercise component of the Cardiac Rehabilitation at the spoke sites meant that monitoring of the absorption of the education messages and, to some degree, adherence to those messages could be monitored over the eight week course.

Participants showed improved physical and mental health and well-being

The scope of this trial did not provide sufficient longitudinal data to make individual comparisons of improved individual physical and mental health and well-being. However:

> …there is no doubt that virtually all remote participants were provided with enhanced tools and understanding to better manage their own health and well-being.

Remote consumers saved travel and expense and/or otherwise unable to access service

This target was clearly met. Figures for impact relating to consumers at just one of the remote sites over a sample period of 4 months demonstrate significant savings.

	May - Aug 2014	May - Aug 2015	May - Aug 2015
	WHCG Client attendance n=12	Telehealth CR n=26	Telehealth CR client savings n=26
Kilometres	1320km	0km	2860km
Cost (0.66c/Km)	$871.20	$0	$1,887.60
Travel Time (minutes return)	1440 mins	0 mins	3120 mins

Summary

The Wimmera Hub and Spoke Cardiac Rehabilitation project has clearly provided enhanced access to care for remote citizens recovering from a cardiac event. Limited sample size and small scale prohibit a detailed analysis of improved health outcomes, but qualitative analysis clearly demonstrates increased access to appropriate rehabilitation to a cohort who would have been denied access due to distance (including practical, economic and logistic barriers).

Key learnings

Process

- Partner agencies must agree to processes and procedures, including clearly identifying which agency carries primary responsibility for patients at all times
- Facilitation of the development process by a third party (WSMHA officer) was a necessary support for the pilot project and would be an advantage in the initial stages of a replication project.

Existing collaborations and partnerships will facilitate the process of developing a hub and spoke model of care

Technology

- Practice runs matter! Test everything in a dry run with no patients first
- Ensure local technical support is aware of the video conference time and location and are available to troubleshoot.
- High quality sound is necessary
- Larger size screens are preferable, but not necessary
- Sufficient bandwidth is required for smooth transmission
- Co-ordination of muting at remote sites is required to avoid disruption.

Always have the clinician at the far end on your mobile phone contacts!

People

- patients adapt very quickly to the video conferencing process
- Smaller groups at the remote may need to be reminded that they are part of a larger group
- Integrating the groups by facilitating discussion to move back and forth between sites and/or to simulate the sense of all sites sitting around one large table
- A sense of camaraderie between participants (an anticipated outcome was increased informal social support) seems to be limited to discrete sites. Though the larger group functions together well, they are not interested in meeting together in person. This was true of hub and spoke sites and was strongly represented theme in the qualitative data.

Remote site consumers – on self-report and observation – were uniformly more likely to speak up, ask questions and seek clarification. It is unclear whether this is the result of personality influences or a deeper dynamic. This phenomenon should be monitored and addressed if it persists as a trend.

Conclusion

This qualitative, impartial observation analysis of the Wimmera Hub and Spoke Cardiac Rehabilitation Model of Care indicates that it is possible to deliver safe, effective cardiac rehabilitation to those citizens who would otherwise experience significant barriers or risks to access this best practice-indicated care.

It is notable that one remote site participant was deemed unfit and in need of immediate medical treatment upon screening at the beginning of an exercise and education session. There is an incalculable benefit to having that person identified and treated immediately in their local community, rather than having them drive to Horsham in that state and/or not participating in the program due to distance and so not being diagnosed and treated in a timely fashion.

Requirements for success are well within the scope of most rural communities with access to sufficient telecommunications infrastructure.

Reciprocal trust in relationships between the hub and spoke services, formalised in MOUs, shared policies and procedures are a key indicator of success.

Medico-legal implications of the mutual and shared responsibilities of both hub and spoke partner agencies are paramount. The pilot project has worked through these issues and resolved them to the satisfaction of all parties.

Basic training in the technology and test runs before initial sessions supported a relatively seamless delivery.

There are clear benefits to the physical and mental health and well-being of patients:

- **in stress, time, distance and expenses saved**
- **in equity of provision education and support**

There are additional benefits to clinicians in:

- **expanded scope of practice for rural clinicians**
- **enhanced job satisfaction for clinicians, particularly those at remote site locations**

A final benefit is the defacto expansion of telehealth provision and acceptance amongst rural patients and clinicians. Telehealth is clearly a significant factor in rural health provision, with a growing role to play.

This project has already spawned ideas for similar delivery models for other clinical programs.

Links to all documents and templates pertaining to the Wimmera Hub and Spoke Cardiac Rehabilitation Model of Care will be made freely available on the Wimmera Primary Care Partnership website (http://wimmerapcp.org.au/).

The Wimmera Hub and Spoke Cardiac Rehabilitation Model of Care is efficient, applicable and replicable, with potential to address consumer needs in an ever-increasing variety of rural and remote settings and clinical modalities.