



# STAYING STRONG PILOT PROJECT

ENHANCED CARE FOR OLDER ABORIGINAL  
AND TORRES STRAIT ISLANDER AUSTRALIANS

*Broadband Technology Enabled Telehealth Pilot Program  
The Department of Health - Australian Government*

*Concise Report February 2015*





# Acknowledgement

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**integratedliving** and the Staying Strong project team would like to acknowledge the traditional owners of the land in the regions where this project was undertaken. We pay respect to the Elders past and present of these lands, and we extend that respect to all the Aboriginal people of Australia.

We wish sincerely to thank the older Aboriginal people who supported and participated in the Staying Strong project.

**integratedliving** and the Staying Strong project team wish to thank the Aboriginal Medical Centres and Health Services and other service providers who joined as project stakeholders. They are:

- Aboriginal Cultural Centre and Keeping Place in Armidale, New South Wales
- Armajun Aboriginal Health Services in Inverell, New South Wales
- Carbal Medical Centre in Toowoomba, Queensland
- Galambila Aboriginal Health Service in Coffs Harbour, New South Wales
- Goondir Aboriginal and Torres Strait Islander Corporation for Health Services in Dalby, Queensland
- Jagun Aged Care in Coffs Harbour, New South Wales
- New England Conservatorium of Music (NECOM) in Armidale, New South Wales
- New England Medicare Local (NEML) in Armidale, New South Wales
- North Coast Medicare Local (NCML) in Coffs Harbour, New South Wales
- Tunstall Australasia in Brisbane, Queensland
- We Care Aboriginal and Torres Strait Islander Service for Aged and Disabled Assoc. Inc. in Redbank Plains, Queensland

Funding for this pilot project was provided in January 2013 by the then Department of Health and Ageing, now renamed the Department of Health, under the NBN Enabled Telehealth Pilots Program.

An independent project evaluation was undertaken by Cartwright Consulting Australia Pty Ltd.

Finally, a special acknowledgement to Cassandra Slade-Potts, a Theatre Studies student from the School of Arts, University of New England in Armidale, New South Wales, for her assistance with the intergenerational activities.

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## **WARNING**

We wish to advise Aboriginal and Torres Strait Islander readers to please be aware that this report may contain images or names of people who have since passed away. All images appearing in this report are being used with those people's consent.



# Table of Contents

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Acknowledgement	2
Foreword	5
Executive Summary	6
Project Snapshot	7
Introduction	8
The Staying Strong Telehealth Model	10
Intergenerational Activities	11
Independent Evaluation	11
Participant Demographics	12
1. Common Health Conditions	13
2. Attitude to Technology	14
3. Personal Wellbeing Index	16
Project Findings	17
1. Enabled Self-Management of Own Health Conditions	17
2. Deliver Improved Healthcare Services	18
3. Enablers and Barriers of Telehealth	24
a. Enablers of Telehealth	24
b. Barriers to Telehealth	26
4. Improved Social Connectedness	27
5. Cost Effectiveness of Telehealth Monitoring	27
Conclusion	28
References	30

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## Foreword

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Staying Strong was a collaborative initiative between **integratedliving**, Australia's First Peoples and the Department of Health, of the Australian Government to foster practical reconciliation and "Close the Gap" on health outcomes for Aboriginal people. It was a unique pilot project, being the first of its kind to specifically trial telehealth with older Aboriginal people to improve access to health services and build capacity for self-management of people's own health conditions.

The Staying Strong pilot project was successful on several fronts, demonstrating that telehealth can be applied to the clinical management of patients with multiple morbidities; capturing documented evidence that showcase how telehealth monitoring enabled better health outcomes; and identifying a range of factors that would either support or inhibit the uptake of telehealth opportunities within this population group.

The pilot project also found that the telehealth model can be useful in reducing the cost burden of healthcare, and importantly, Staying Strong facilitated the development of strong and effective partnerships with Aboriginal organisations and communities, which was vital not only to the successful attainment of the project objectives, but also for enhancing opportunities to continue to support older Aboriginal people.

**integratedliving** greatly values our involvement in the NBN Enabled Telehealth Pilots Program and the ability to make a significant contribution to the growing body of research in the field of e-health and alternative mediums to enhance Aboriginal health outcomes.

A handwritten signature in black ink that reads "Catherine Daley".

**Catherine Daley**  
*Chief Executive Officer*

**integratedliving** Australia Limited  
February 2015

# Executive Summary

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**integratedliving**'s Telehealth Pilot Project - Staying Strong, was an outstanding success in terms of demonstrating how telehealth and broadband technology can deliver effective and efficient healthcare to older Aboriginal and Torres Strait Islander peoples living in regional Australia.

Staying Strong demonstrated how telehealth can be a cost effective, at 40% of the traditional face-to-face model, and an efficient model for clinical management of older people with multiple chronic health conditions. The project captured case studies that showcased how telehealth monitoring enabled timely GP visit and specialist referrals, medication review, prevented unplanned hospitalisation, shortened hospital stays, as well as increased awareness leading to self-management of chronic health conditions and lifestyle changes.

Independent evaluation showed that the project participants found the telehealth technology clear and understandable, easy to use and easy to learn. Participants with complex and chronic health conditions were willing and able to use telehealth to manage monitoring for multiple conditions simultaneously.

# participants with complex and chronic health conditions were willing and able to use telehealth to manage monitoring for multiple conditions simultaneously

## Project Snapshot

- A total of 136 older Aboriginal and Torres Strait Islander Australians participated in the project, exceeding the project target of 120 participants by 13%.
- The pilot trialled two models of telehealth monitoring of vital health signs; an in-home model and a hub model.
- High blood pressure, Type 2 diabetes and high blood cholesterol were the top three chronic health conditions suffered by the project participants.
- Participants with complex and chronic health conditions were willing and able to use telehealth to manage monitoring for multiple conditions simultaneously.
- The follow-up Attitude to Technology survey results identified that the project participants found the telehealth technology clear and understandable, easy to use and easy to learn.
- There was a positive trend in the results for the Personal Wellbeing Index from baseline to follow-up for the project participants on the following two domains; 'How satisfied are you with your health?' and 'How satisfied are you with your future security?'
- 98% of participants reported that they enjoyed being part of the project.
- The project found that broadband enabled telehealth facilitated the project participants to self-manage their own health conditions.
- The project demonstrated the ability of broadband and telehealth technology to deliver improved healthcare services.
- The project evaluation identified a range of factors that would either support or inhibit the uptake of telehealth opportunities for the project participants.
- Broadband technology improved social connectedness and built the capacity of participants to use the internet.
- The remote telehealth monitoring model is estimated at 40% of the cost of a face-to-face service delivery model.

# Introduction

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The Australian government established the Telehealth Pilots Program in 2012, providing funding for pilot projects to develop and deliver telehealth services to high speed broadband enabled homes with a focus on aged, palliative or cancer care services, including advance care planning services. The Program aimed to investigate and demonstrate opportunities for the extension of telehealth services in the future and the business case for doing so.

Aboriginal and Torres Strait Islander Australians have significantly lower health outcomes than non-Aboriginal Australians (Jorm, et al, 2012; ABS, 2004) and these continue to be compounded with the ageing population. Access to health services in rural and regional areas is particularly problematic for this population group due to remoteness, a traditional lack of services in these areas, difficulties accessing transport and historical distrust of mainstream services (Cutcliffe, 2004; Ivers et al, 1997; PC, 2011). Along with older Australians in general, older Aboriginal and Torres Strait Islander people have been identified as a particular target group in the emerging field of e-healthcare (DBCDE, 2011).

In 2012, **integratedliving** made a successful submission to deliver the “Staying Strong” Enhanced Care project for older Aboriginal and Torres Strait Islander Australians, which aimed to improve the health of this group by:

- Supporting older Aboriginal and Torres Strait Islanders to access telehealth monitoring at their home or at a service hub (such as a medical centre);

- Developing and supporting intergenerational cultural activities that use broadband technology to connect older Aboriginal and Torres Strait Islander people with younger Australians to improve social connectedness and sense of wellbeing; and
- Conducting a formal evaluation of the pilot project to contribute to a greater understanding of the factors which support and inhibit uptake of telehealth by this cohort.

Based on consultation with key stakeholders, including Aboriginal representatives, the Staying Strong project aimed to support older Aboriginal and Torres Strait Islander Australians to “stay strong” in both health and in culture.

The 18 months project commenced in January 2013 and was completed on 30 June 2014. To be eligible, participants needed to identify as Aboriginal and Torres Strait Islander Australian, be 50 years of age or older and live in an NBN roll-out site.

Registered Nurses (RNs) were employed as telehealth RNs, in each of the project sites. Clinical governance was provided by **integratedliving**'s Care Services Team. A project team with Aboriginal engagement capabilities and experience was formed to ensure the success of Staying Strong. Tunstall Healthcare was engaged as the supplier of telehealth equipment and the triaging software.

Services were established in Armidale and Coffs Harbour/Sawtell in NSW and Toowoomba and Goodna in Queensland. The map on this page shows the pilot sites in relation to the service regions of **integratedliving**.

## STAYING STRONG PILOT SITES

- ★ **ARMIDALE**  
 Armidale, Ullara, Walcha & Inverell

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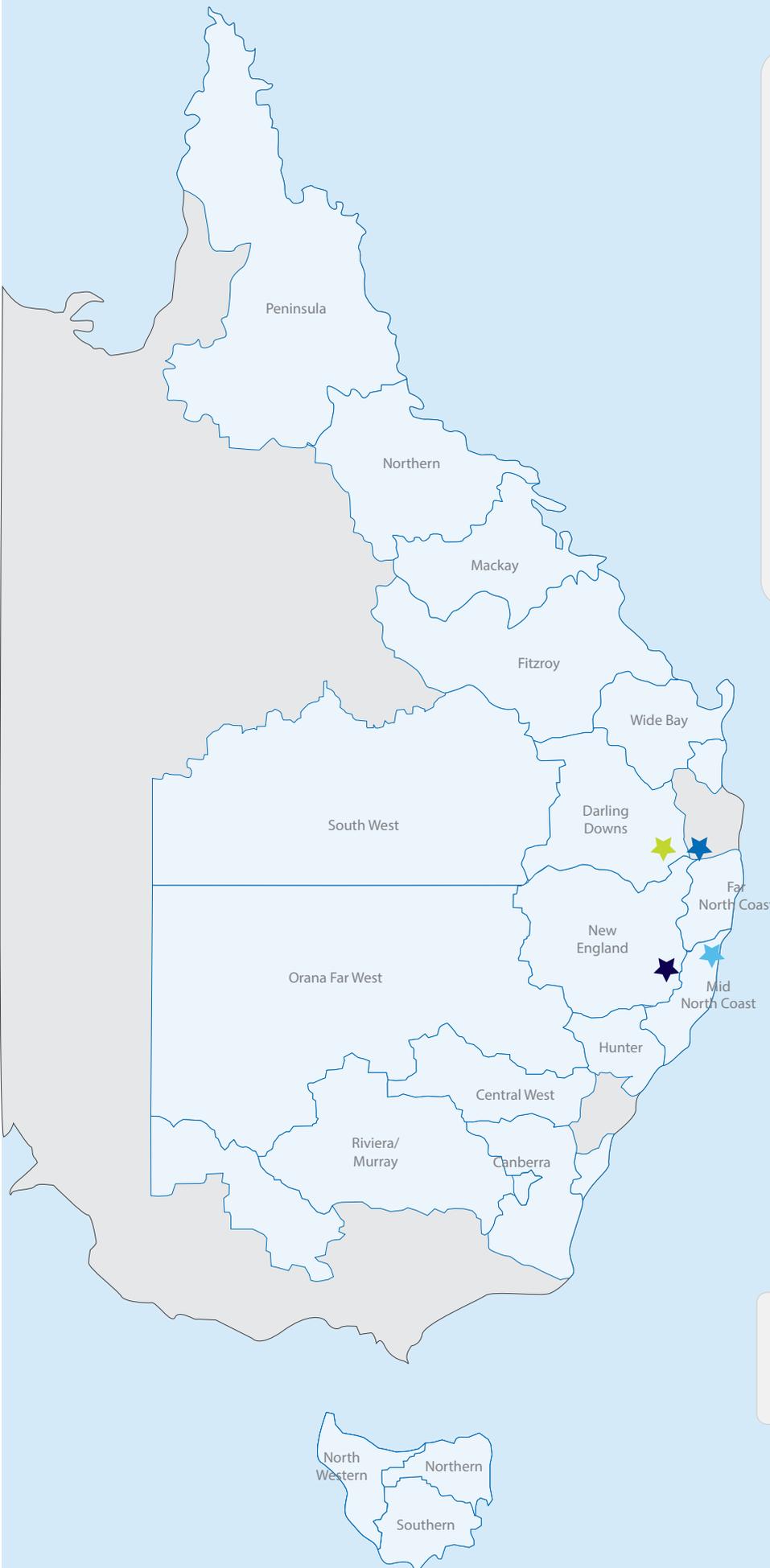
- ★ **COFFS HARBOUR**  
 Coffs Harbour, Sawtell to Redrock

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- ★ **GOODNA**  
 Goodna, Ipswich, Riverview, Flinders View & Redbank

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- ★ **TOOWOOMBA**  
 Toowoomba, Warwick & Dalby



 **Shading Represents**  
integratedliving service regions



## The Staying Strong Telehealth Model

The Staying Strong project trialed two distinct models of telehealth monitoring. The first model was the traditional setup of telehealth monitoring equipment in the participant's home – in-home monitoring. Here, the participants were supported by the local [integratedliving](#) telehealth RN to gain an NBN or other fit-for-purpose broadband enabled connection in their home. They received a tablet device and a range of blue tooth operated peripheral equipment depending on their health needs, including blood pressure monitor, glucometer, oximeter, scales, thermometer and/or lung monitor. The RN provided one-on-one training to the participants in their own home, on how to use the telehealth equipment and to measure their vital health signs.

The second model recognised that, given the staged roll-out of the NBN and the anticipated delays in connection to multi-user dwelling sites such as unit complexes, some participants in the project sites would not have access to broadband technology at their home address or may not yet be willing to engage with the technology. For these participants, through local partnerships with Aboriginal community health centres, local telehealth hubs were established. The health centres each provided a dedicated and private space for telehealth monitoring and storage of the hub equipment. The RN was present at the hub to support the participants with monitoring their vital health signs. Participants used a unique identifying login password to securely access their own record on the shared telehealth equipment. The hubs also delivered secondary benefits for participants including the benefits of group based socialisation and support, and of being “gently” introduced to the new technology.

One telehealth hub was established at the New England Medicare Local, in Armidale. Two more hubs were established in the Darling Downs, with the support of Carbal Medical Centre; one at Warwick with the Carbal Eye Van and another in Toowoomba with the Carbal PHaMs centre. By June 2014, of the 136 participants, 25 (18%) were hub connections and 111 (82%) were in-home connections.

Each Staying Strong project participant received a health monitoring plan developed by either their usual General Practitioner (GP) or an **integratedliving** telehealth RN, based on their unique health needs. The monitoring plan determined which vital health signs were to be monitored, how frequently and what was the acceptable range for readings of each health sign. Parameters were established in the triaging software to automatically flag any readings “of concern” for each individual participant. Using broadband connectivity, vital health sign readings from both the in-home and hub equipment were automatically transmitted to a centralized database. Readings of “of concern” were then remotely triaged and followed-up by the **integratedliving** telehealth RNs.

## Intergenerational Activities

The Staying Strong intergenerational component was based on research confirming the positive health and wellbeing effects for older people who are able to interact with younger generation and for older people who are able to participate in culturally specific activities (Cohen et al, 2006).

The program consisted of a suite of broadband supported activities which were designed to facilitate the development of intergenerational connections and cultural engagement. These activities included the digital recording of interviews with local Aboriginal Elders; music workshops in which school students learned songs from Aboriginal Elders;

traditional dance workshops and the use of internet technology to connect with family and undertake cultural and historical research. The project activities facilitated social connectedness; cultural awareness and respect for Aboriginal and Torres Strait Islander history and heritage.

At the end of June 2014 the intergenerational activities had a total of 49 participants; ten Elders and 39 younger people. The Sharing Stories recordings are available on the **integratedliving** website for public viewing (<http://integratedliving.org.au/our-projects.html>).

## Independent Evaluation

An independent project evaluation was conducted by Cartwright Consulting, with full human research ethics approval by the Australian National Health and Medical Research Council. The final evaluation report was completed in June 2014. A copy of Cartwright Consulting report titled ‘Staying Strong NBN-Enabled Telehealth Pilot Project for **integratedliving** Australia Ltd’ is available from [www.integratedliving.org.au](http://www.integratedliving.org.au).

A number of research questions were developed to measure whether or not Staying Strong achieved its project objectives. The project evaluation used mixed methodology – both quantitative and qualitative.

The quantitative survey included one Baseline survey and one Follow-up survey, both paper-based and undertaken with participants individually. Each survey was comprised of the Personal Wellbeing Index; an Attitude to Technology questionnaire; a Social Connectedness Scale; and the Barthel Index. In addition to this, the follow-up survey also asked the participants about their satisfaction with the project.

Data on participant profiles was collected with the Baseline survey. Quantitative data was also collated from the Tunstall centralised database, as at 31 March

2014. This included de-identified data about alerts from the equipment (i.e., clinical alerts, equipment alerts, and missed readings) and daily recording of participants' readings.

The qualitative methodology incorporated yarning circles with groups of participants in each site; and one-on-one interviews with participants, project staff and key stakeholders. These were conducted in March 2014.

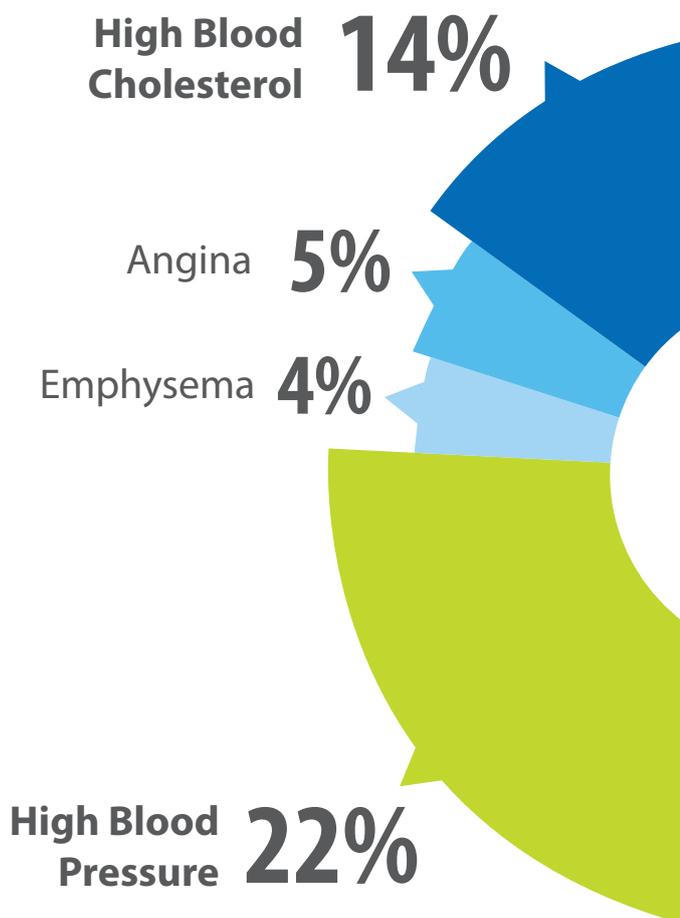
### Participant Demographics

By the end of the project, a total of 136 older Aboriginal and Torres Strait Islander Australians participated in the project, exceeding the original target of 120 participants by 13%. The demographics

of the independent project evaluation were based on a sample of 70 participants.

The average age of the participants was 62 years, with approximately 75% of participants being women. Overall, 31% of participants were married, 13% were widowed, 11% were divorced and 27% were single. Thirty percent (30%) of participants lived alone, 14% with their spouse only, 54% with other family members, with or without their spouse, and 1% lived with another person as co-tenant.

90% of evaluation participants had five or more chronic conditions

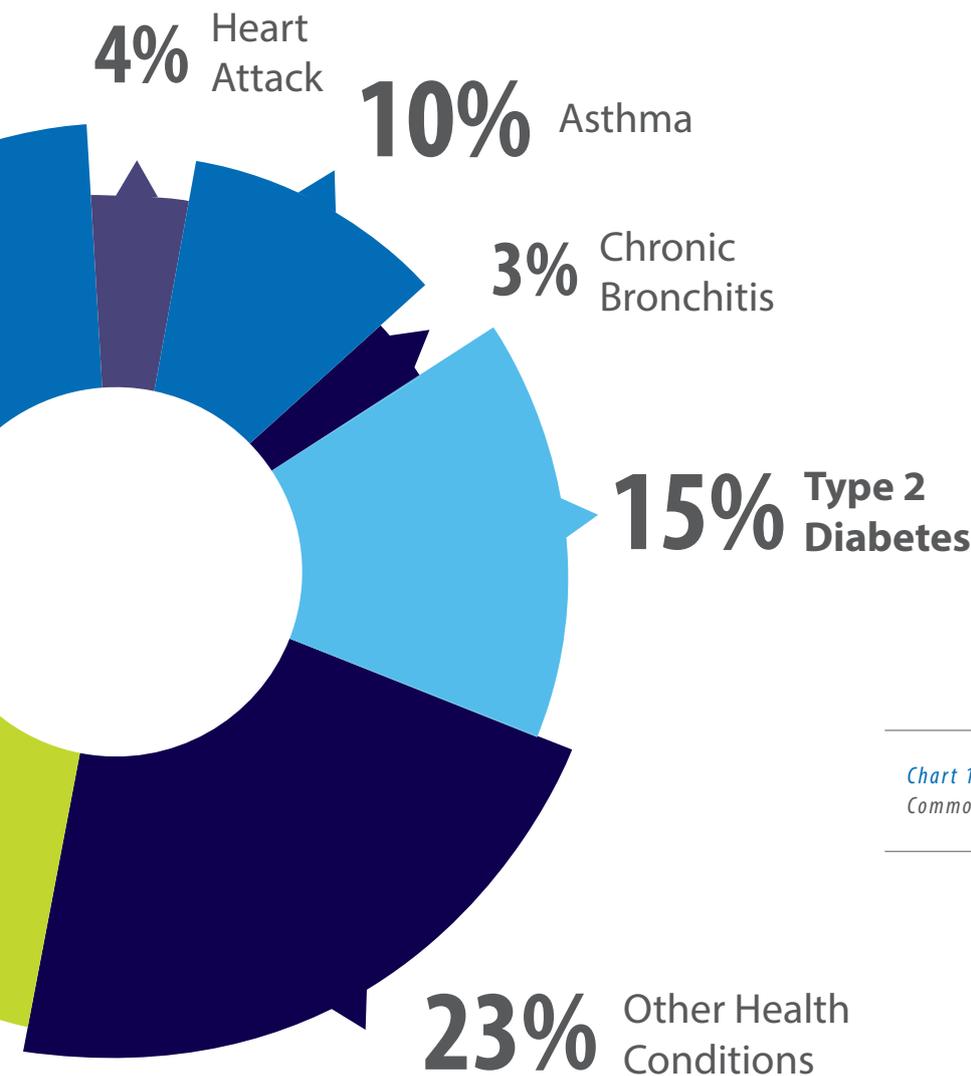


Twenty percent (20%) of participants reported that they had a primary (non-professional) carer. All carers were listed as family members, including two ex-spouses. Twenty-seven percent (27%) reported that they receive informal support, the majority from family and friends.

**1. Common Health Conditions**

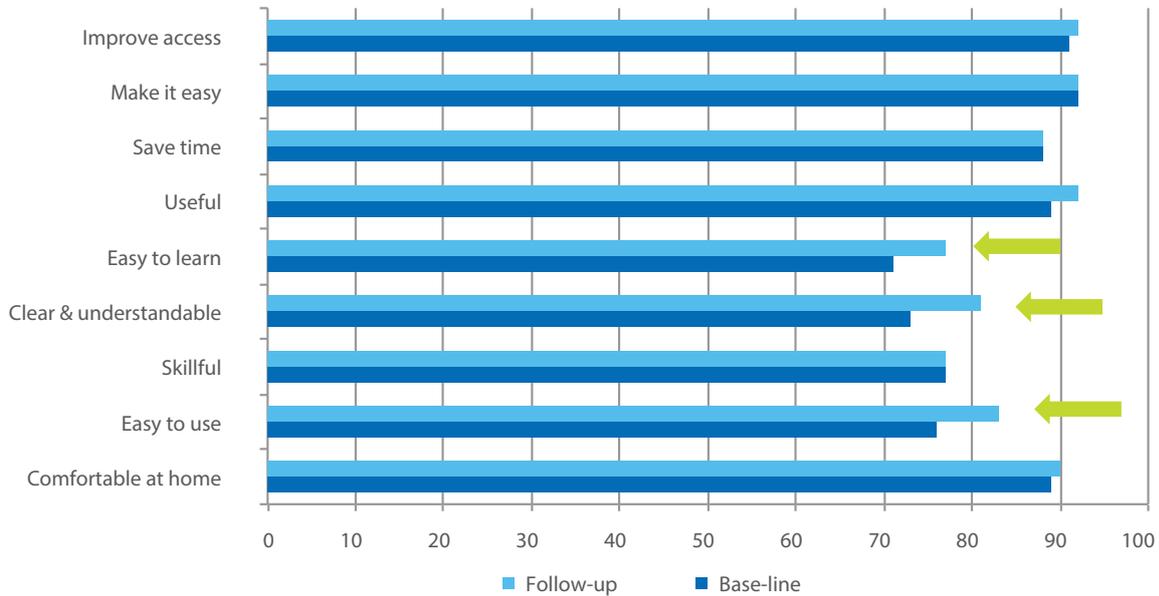
In Australia, approximately 40% of people with chronic diseases have three or more chronic conditions that they are managing simultaneously (AIHW, 2012). In this project, 90% of evaluation

participants had five or more chronic conditions, with 15% having ten or more chronic conditions for which they were receiving ongoing clinical care. The most common health conditions reported were high blood pressure, Type 2 diabetes and high blood cholesterol. Thirty percent (30%) reported that they had been admitted to hospital at least once in the previous 12 months. All but three participants took daily medications. The Common Health Conditions chart below shows the participants' most common health conditions.



*Chart 1:  
Common Health Conditions*

Chart 2:  
Attitude to Technology

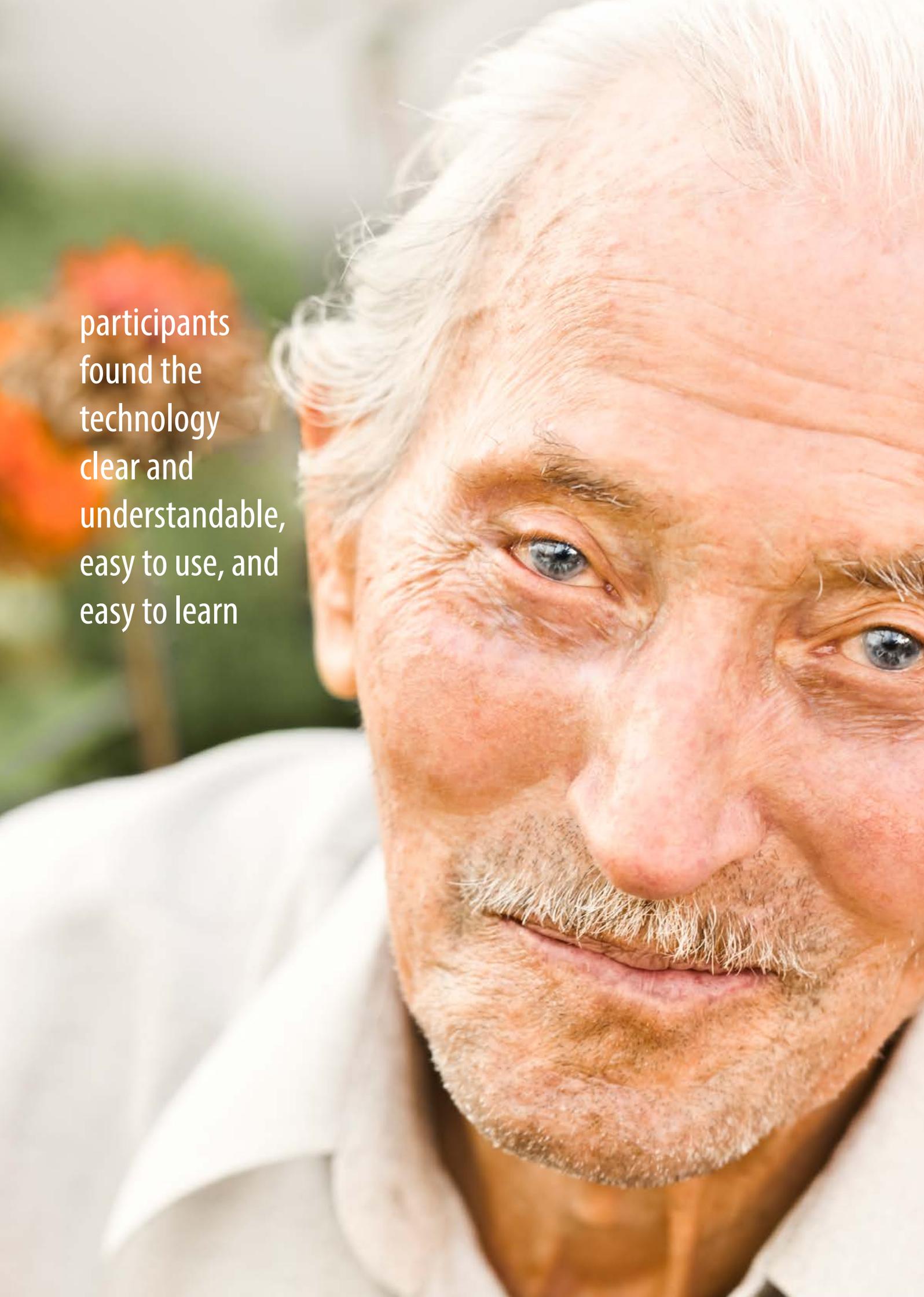


## 2. Attitude to Technology

Most participants were able to use the telehealth equipment independently after two weeks of support from the telehealth RNs. The Attitude to Technology survey verified that most of the participants reported great confidence with technology. The Follow-up survey indicated that the participants found the technology clear and understandable, easy to use, and easy to learn. The Attitude to Technology graph shows these results.

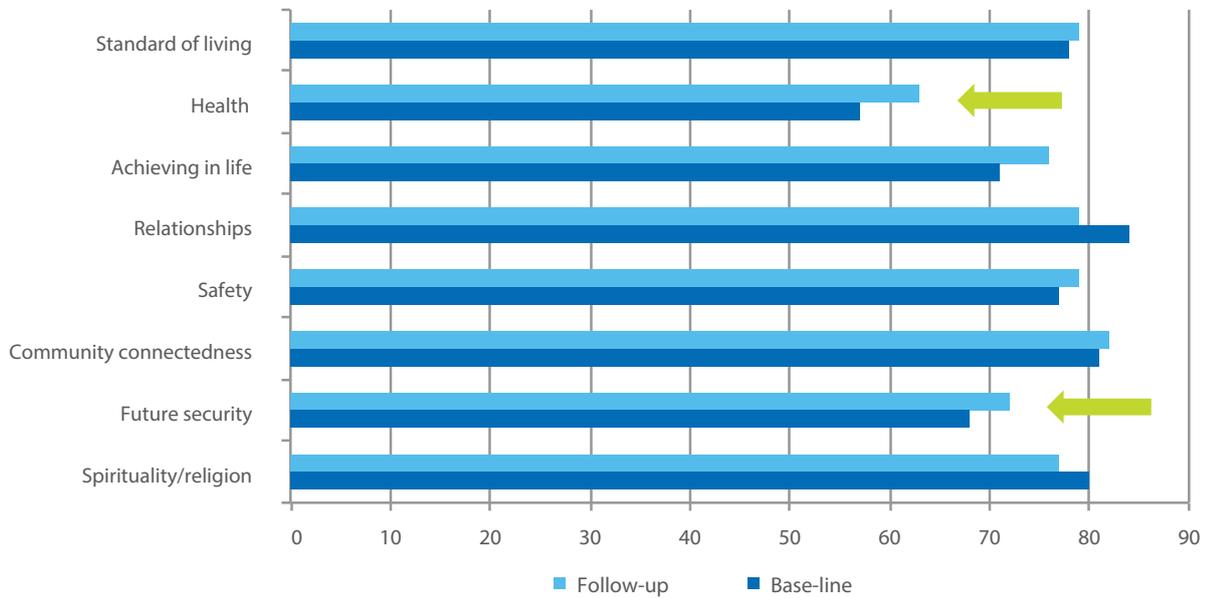
The telehealth monitor is an audio-visual tool which is operated manually by the user. The monitor features a touch screen with large visual symbols. The auditory component of the monitor is a voice

which asks questions of the user in short and simple phrases, prompting the selection of an option on the touch screen. This interaction with the monitor is a kinaesthetic or tactile activity. These characteristics match the learning styles of many Aboriginal people, who tend to be auditory, visual and kinaesthetic learners rather than text-based reading and writing preference learners (Duggan, 2009; Eady, et al, 2010; Yunkaporta, 2009). These project findings indicate that there is a very high potential for telehealth in rural and remote areas to improve the health of older Aboriginal people.



participants  
found the  
technology  
clear and  
understandable,  
easy to use, and  
easy to learn

Chart 3:  
Personal Wellbeing Index



### 3. Personal Wellbeing Index

The Personal Wellbeing Index (PWI) is a validated survey instrument that is used to measure quality of life across cultural groups. The PWI scale contains eight items of satisfaction, each one corresponding to a quality of life domain. The overarching question is “How satisfied are you with your life as a whole?”

The normative range of PWI for Australians is 73.4 to 78.3 points (Cummins et al, 2013). The differences in PWI from Baseline to Follow-up for the project participants were not statistically significant for any subscale or for the total score but there was a positive trend for the questions ‘How satisfied are you with your health?’ (overall Baseline score of 57 compared to Follow-up score of 63) and ‘How satisfied are you with your future security?’ (overall Baseline score of 68 compared to Follow-up score of 72), both of which

were key elements of this evaluation.

The Personal Wellbeing Index graph highlights these improvements.

Project participant retention rates were also very high; with only 6 participants (4%) withdrawing from the project. This high retention rate is extremely significant in light of the fact that the project required participants to engage with internet technology in a way they had not done previously and to take regular telehealth readings. The main reason for withdrawal was mental health issues. Ninety eight percent (98%) of the evaluated participants reported that they enjoyed being part of the project.

## Project Findings

This project was the first in Australia to trial telehealth monitoring specifically with older Aboriginal and Torres Strait Islander Australians. Ultimately this project aimed to help “Close the Gap” in health outcomes for the nation’s First Peoples through the use of telehealth and broadband technology. The section below outlines the project outcomes and benefits.

### 1. Enabled Self-Management of Own Health Conditions

The Staying Strong project found that broadband enabled telehealth empowered older Aboriginal people to self-manage their own health conditions. This was accomplished through increased knowledge and awareness of own health conditions, evidence based GP visits and moderation of lifestyle choices.

#### Increased awareness and knowledge of own health conditions

Qualitative data identified that a primary outcome of the Staying Strong project was an increase in participants’ own knowledge and awareness of their health conditions; factors which impact on these; and effective self-management strategies. This included increased capacity on the part of participants to discuss details of their health conditions, such as their own ‘normal range’ for blood glucose level, and to take appropriate actions when a reading was outside of this range.

## CASE STUDY 1

A 63 year old Aboriginal woman in Goodna, QLD, identified and self-managed a hyperglycaemia emergency using telehealth monitoring equipment. Her increased awareness of Type 1 diabetes alerted her to the potential hyperglycaemic attack and triggered a set of actions that resulted in immediate hospitalisation and management of her condition. The participant was discharged the following day. Telehealth was instrumental in saving her life (December 2013).

Participants’ increased knowledge and awareness enabled effective early intervention and preventative responses, by participants themselves and the clinical care team.

#### Increased GP visits for evidence based needs

The availability of vital health signs data and the access to **integratedliving** telehealth RN advice enabled some participants to take a more targeted approach to GP visits, and reduce the number of routine visits.

- *“Before, I’d go just for anything, now I only go if I really need to.” (Yarning Circle Participant)*
- *“I see what is happening every day (from their readings) and if I see that three weeks later it is still not improving I say, “You really need to get back to your doctor – this is not working.” (Telehealth Nurse)*

This reduction in routine visits provided greater opportunity for GPs to allocate time to priority patients, thus increasing access to medical care for those patients in need. Other implications were reduced impost on public health system and associated cost savings; reduced waiting time in medical practices; reduced travel costs for participants and time saved by participants' carers. These outcomes are fundamental to the cost-effectiveness of remote telehealth monitoring.

#### Empowered to moderate lifestyle choices

Participants' increased understanding and awareness of the direct links between lifestyle choices (for example, those related to eating, drinking and smoking) and vital health sign readings has empowered participants to moderate their behaviours, resulting in improved health and wellbeing.

- *"I know that when I have a couple of beers on Friday or Saturday, it (blood pressure) goes up. I've cut back on a lot of drinking because of that, because I'm a bit worried about the Monday morning blood pressure test." (Interview Participant)*

vital health sign readings has empowered participants to moderate their behaviours, resulting in improved health and wellbeing

## CASE STUDY 2

An Aboriginal woman in Goodna, QLD, who lives with Type 1 Diabetes, identified through telehealth monitoring that she often experienced one hypoglycaemic episode per week. Through the project, the participant took her blood glucose measures twice each day to monitor her own levels. She began identifying potential hypoglycaemic attacks and preventing them by eating a complex carbohydrate such as bread and milk. As a result of gaining more knowledge about the effects of sugar, the participant also made dietary changes, including purchasing 'no sugar' and 'low sugar' foods. (December 2013).

### 2. Deliver Improved Healthcare Services

The Staying Strong project demonstrated the ability of broadband enabled telehealth to deliver improved health care services through accurate and timely diagnosis, establishment of good clinical care relationships with telehealth RNs, increased access to health services through greater RN caseload and by overcoming accessibility barriers.

#### Accurate and timely diagnosis

The telehealth model used in the Staying Strong project facilitated accurate and timely diagnosis of health conditions. The availability of vital health signs

### CASE STUDY 3

Remote telehealth monitoring and triaging by telehealth nurse of the vital health signs of a 57 year old man from Toowoomba QLD, resulted in an opportune GP consultation and the prescription of antibiotics to prevent pneumonia and unplanned hospitalisation.  
(March 2014).

### CASE STUDY 4

Observation of out-of-range blood pressure readings by the telehealth nurse, for a participant from Coffs Harbour NSW, led to timely medication review by a GP and a resulting change in blood pressure medications to manage hypertension.  
(March 2014)

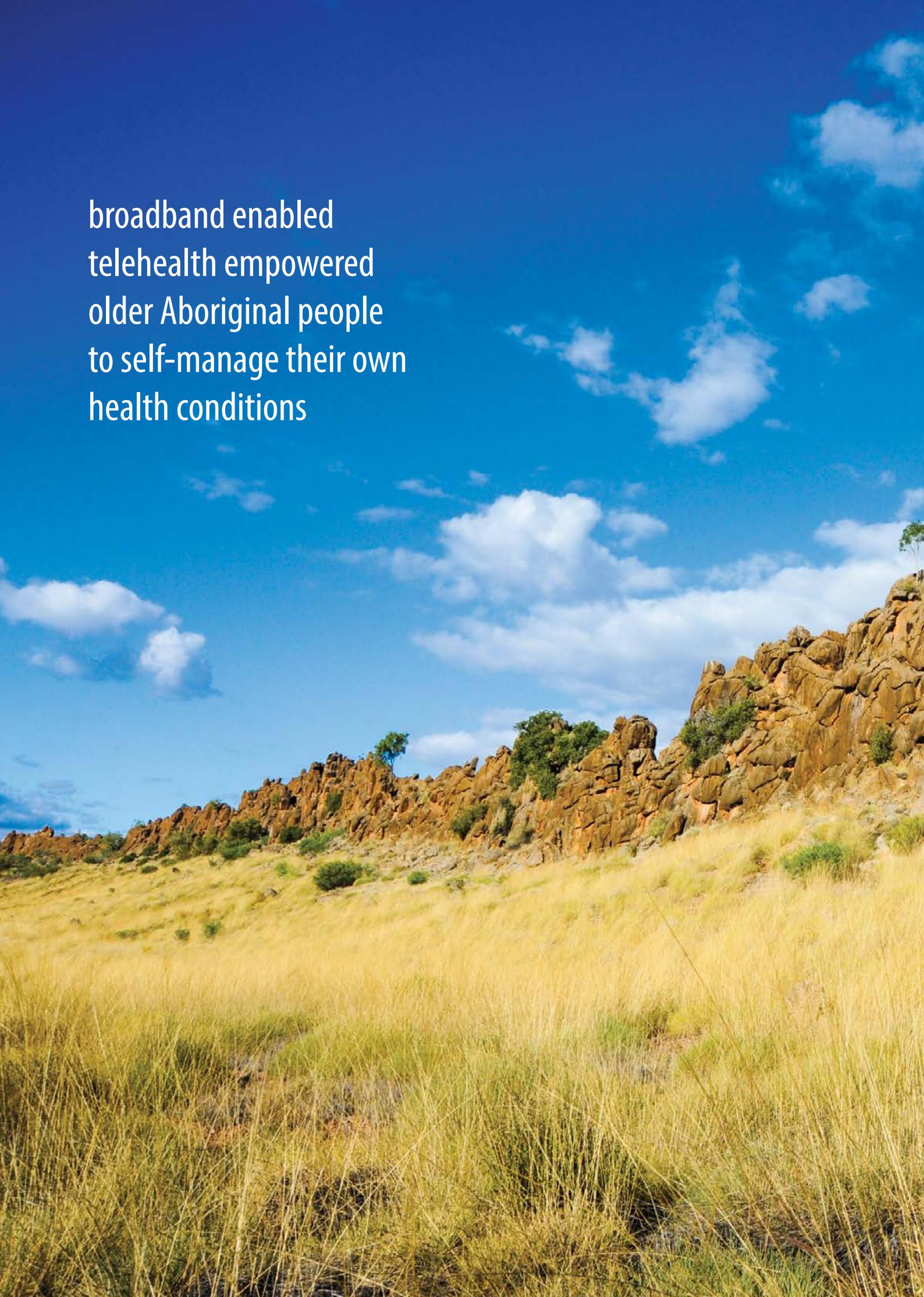
### CASE STUDY 5

A 70 year old woman in Armidale NSW, was prevented from suffering a heart attack, when out-of-margin vital health signs prompted a telehealth nurse to contact the woman's GP, who then admitted her immediately to hospital.  
(July 2013).

### CASE STUDY 6

In response to concerning oxygen saturation levels of a woman with chronic obstructive pulmonary disease, in Goodna QLD, the telehealth nurse telephoned the GP. The GP immediately referred the participant to a respiratory specialist, who conducted some tests and organised an oxygen concentrator for the participant, at her home.  
(January 2014).

broadband enabled  
telehealth empowered  
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to self-manage their own  
health conditions





data and trends was central to this process. The daily monitoring of vital health signs data enabled the RNs to identify potential and actual health issues and to intervene early, advising participants to visit their GP or medical specialist when necessary.

Telehealth monitoring provided the medical team with a historical trend of vital health signs, as opposed to the 'snap-shot' observation which is possible during a one-off consultation. This trend data equipped GPs to undertake accurate and timely diagnosis and referrals, resulting in early intervention, increase evidence based GP visits and decrease in avoidable hospitalisation.

#### Good clinical care relationships

The telehealth component of the Staying Strong project demonstrated the effectiveness of broadband technology as a means through which older Aboriginal people can establish and sustain effective clinical care relationships with RNs and GPs.

- *"What I've found good about it was that when (my BGL) has been too low, they've rung me up to see if I was alright. That's a good thing – you feel like someone is caring about you." (Yarning Circle Participant)*

Participants in the evaluation yarning circles also identified that the daily monitoring by the telehealth RN was an incentive to take their readings on a daily basis.

#### Increased access to health services

Increased access to health services was demonstrated in three ways. These were greater RN caseload; flexibility and responsiveness of remote monitoring; and increased evidence based visits to GPs.

The average time required for a RN to travel to a participant's home and to measure their vital health

## increase evidence based GP visits and decrease in avoidable hospitalisation

signs, was around 40 minutes, in the project sites. Based on this calculation, a full time RN could monitor approximately 11 participants in one week. In the Staying Strong project, telehealth RNs in Armidale and Coffs Harbour were each remotely monitoring and triaging over 40 participants, by June 2014. The telehealth RN caseload far exceeded an average face-to-face RN caseload for daily monitoring and triaging of vital health signs.

The collection of participants' vital health data in a centralised database enabled remote monitoring and triaging by telehealth RNs, from any location. In the event that the local Staying Strong telehealth RN was not available, remote triaging was undertaken by another telehealth RN from another project site.

The telehealth RNs reported that a significant number of Staying Strong participants, even when they were unwell, had a tendency to 'put off' visits to their doctor or specialist. As a result, many participants had experienced ill health episodes of a severity which could have been prevented, and some had experienced unplanned hospital admissions. Remote telehealth monitoring has the capacity to circumvent this process. The RNs responded to the daily monitoring results and prompted participants



to visit their GP or specialist when necessary. The independent evaluation identified that some participants visited their GP or specialist more often during the project than they had previously.

- *"It was (the RN) that picked up that I was on my way to a cardiac arrest. The pulse was too low. It was dropping right down low. She made the appointment with the doctor and I said, "Can't it wait 'til tomorrow?" She said, "No, I've made the appointment with Dr X. Go straight away now." From there I ended up in hospital. From there I ended up in intensive care with too much potassium around my heart." (Yarning Circle Participant)*

#### Overcoming accessibility barriers

The remote telehealth monitoring and the connection between participants and the telehealth RNs overcame many of the barriers which serve to limit the access of older Aboriginal people to

health care knowledge and services. Aboriginal people draw a strong connection between the inequality they have experienced and continue to experience; and the limits which this places on access and individual choice.

The Staying Strong project operated in direct contrast to these experiences. The independent evaluation identified that the project was characterized by the development of relationships between participants and the telehealth RNs, which participants described as positive and personally enriching. The project was also characterized by an opening up of opportunity and the facilitation of informed decision making by participants. This could have significant implications for the design of future culturally appropriate and accessible service delivery models for this population group.

- *“My family reckon it’s the best thing since sliced bread because I’ve had a few health problems in the past. Now they say “Mum, we don’t have to worry about you so much,” so that’s good.” (Yarning Circle Participant)*

### 3. Enablers and Barriers of Telehealth

The formal evaluation of the project by Cartwright Consulting identified a range of factors that would either support or inhibit the uptake of telehealth opportunities by older Aboriginal and Torres Strait Islander peoples, providing an important contribution to the growing body of research in the field of e-health.

#### a. Enablers of Telehealth

##### Technological training and support provided by the telehealth RNs

The evaluation found that the majority of participants needed no more than three training sessions or demonstrations to be comfortable and proficient using telehealth. In a small number of cases, it required five or more visits from the RN before participants felt confident to use the equipment by themselves.

##### Quality of clinical care relationship

The evaluation identified that participants felt safer and more secure; because as well as seeing their results themselves they had the added reassurance of knowing that someone else was watching the results of the readings and would take action if it was required. Central to this sense of security was the participants’ recognition of the telehealth RNs’ clinical

expertise and the trust the participants placed in the technology. Participants commented that this system picks up anything that is going wrong, especially if there is a pattern over a number of days and “the RN is onto it.”

- *“It’s nice when (the RN) rings me and says ‘I think you’d better get to the doctor’s’. Just having someone to talk to helps a lot and knowing that they are there and they will ring you if they think you should go.” (Yarning Circle Participant)*

##### Strong relationships with Aboriginal Medical Services

The project evaluation demonstrated that the effective rollout of Staying Strong project was highly dependent on the development and maintenance

**“My family reckon it’s the best thing since sliced bread because I’ve had a few health problems in the past. Now they say “Mum, we don’t have to worry about you so much,” so that’s good”**

of collaborative relationships with local Aboriginal Medical Services and Health Centres. This relationship provided a strong referral base for participant recruitment and acceptance of the pilot project by older Aboriginal and Torres Strait Islander people.

#### GP involvement

The engagement and involvement of the GP, from the development of the monitoring plan through to review and intervention, resulted in a holistic and multidisciplinary approach to the participants' health care, and was identified as an enabler of telehealth uptake. The GP involvement may have given the project added 'legitimacy' in the eyes of participants.

#### Participant pride

The sense of pride felt by the participants in having the telehealth equipment in their home was another key motivator for older Aboriginal people signing-up for the Staying Strong project. Participants also demonstrated a sense of pride in being able to use the telehealth equipment effectively and help each other.

- *“(X) was having problems doing her readings so I went over and showed her how to do it. She wasn't waiting for the (flower) to stop spinning.” (Yarning Circle Participant)*

#### Word of mouth

A crucial factor which contributed to the ongoing recruitment of participants to the project was the operation of the Aboriginal community 'grapevine'.

**“It's nice when (the RN) rings me and says 'I think you'd better get to the doctor's'. Just having someone to talk to helps a lot and knowing that they are there and they will ring you if they think you should go”**

- *“I spoke to my daughter's mother-in-law about it. I rang her first and told her about this and I said to her, 'Would you like to get on the program?' She said yes, she would and I asked if it was okay if I gave her contact details and everything to (the RN) and she said “yes” so I did.” (Yarning Circle Participant)*

#### Respect for Aboriginal people

The evaluation identified that the respect which the project team demonstrated for older Aboriginal people was fundamental to the success of the project in improving the health outcomes of participants. It is considered important that this respect be understood as a complex and powerful phenomenon,



and not labelled too simplistically as 'cross cultural competence'. Whilst it does involve cross cultural competence, it involves a combination of many nuanced factors including the capacity to find common ground; the capacity to build relationships; consistency in behaviour; the capacity for humour; an holistic view of people; an empathic approach; and a principled commitment to improving the health of Aboriginal and Torres Strait Islander people.

#### b. Barriers to Telehealth

##### Family and kinship responsibilities

Many project participants had full or part-time responsibility for young grandchildren and in some cases adult children with special needs. Some participants described this as a barrier to their effective participation in telehealth, due to the busyness of their lives.

- *"From the time I get up in the morning I've either got a phone call or someone's calling me out to help do something or I've got a crisis somewhere along the line." (Interview Participant)*

It was common for the telehealth RNs to find that participants would not be available on a suggested day, because they were going to a funeral. Similarly, when the RNs visited and found participants away from home unexpectedly, the RNs often learned that the participants had been away on sorry business. In each project site, one funeral would generally be attended by a number of project participants.

##### Visual and cognitive impairment

Visual impairment was a strong barrier to the use of telehealth equipment. The telehealth tablet is an audio-visual device that requires the participant to respond to the health interview questions by touching a button on the touch screen. The participant also needs to be able to physically handle the equipment and administer various peripherals such as strapping on the blood pressure cuff and pressing the start button to commence taking the blood pressure measurement. The support of a carer could overcome this hurdle.

Cognitive impairment, including dementia, was a potential barrier to effective participation in

telehealth monitoring. The process of taking vital health signs consists of a specific sequence of steps. The project demonstrated that in some instances, symptoms of dementia including confusion, difficulty in processing new information, and difficulty retaining new information make it impractical for a person living with dementia to take regular telehealth readings without the assistance of a carer.

#### Mental health

There were four instances in the project in which mental health challenges constituted a barrier to effective participation in telehealth monitoring, resulting in irregular and sporadic telehealth readings by participants and/or complete withdrawal from the project. The health conditions of projects participants in this category included schizophrenia, bipolar disorder, pharmaceutical substance addiction and stressful home life.

#### Technical issues with equipment

Technical issues with equipment were identified as an inhibitor to the continued usage of telehealth equipment at home. Equipment that had many steps in the process like the glucometer, were challenging for the participants. Poor blue tooth connectivity due to low or flat batteries, unexpected and random self-reconfiguring of the tablet devices were some of the common problems experienced by the participants.

#### **4. Improved Social Connectedness**

The intergenerational activities brought together, older Aboriginal people, early childhood children, primary school children, secondary school young adults and university student, resulting in enhanced knowledge, awareness and respect for Aboriginal culture, history and heritage. The intergenerational activities were also shown to strengthen the capacity

of older Aboriginal and Torres Strait Islanders to use the internet. The participants learned how to use a diverse range of internet tools, including Skype, Gmail, Face book, Sound Cloud, YouTube, eBay and Google Search.

#### **5. Cost Effectiveness of Telehealth Monitoring**

Cost comparisons between the two models established that the remote telehealth monitoring model costs less than half of the face-to-face model, demonstrating that telehealth monitoring is a cost effective way to deliver better health outcomes for people living in regional, rural and remote Australia.

The weekly average cost under the Staying Strong project, of delivering remote telehealth monitoring, in participants' own homes, for 5 days a week, was \$137.52 per participant. In contrast, the estimated cost of face-to-face delivery of in-home vital health signs monitoring, for 5 days a week, by a RN who travels to the participant's home, is approximately \$347.82 per participant. The telehealth service model costs an estimated 40% of the face-to-face model.

The cost of the face-to-face delivery model increases when the RN has to travel greater distance in more rural areas. The high cost of face-to-face monitoring, usually results in less frequent monitoring by RNs, or periodical monitoring when the participants visit their clinic or doctor for routine health checks. The Staying Strong project finding has shown that vital health signs trend is more useful than periodical monitoring data, to support accurate and timely diagnosis. In addition to this direct savings, the independent evaluation highlighted the potential savings from reduced unplanned hospital admissions and other indirect public health benefits.

# Conclusion

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In Australia, approximately 40% of people with chronic diseases have three or more chronic conditions which they are managing simultaneously. In this project, 90% of participants had five or more chronic conditions. The project findings demonstrate that Aboriginal and Torres Strait Islander people with complex, chronic conditions are able to monitor multiple conditions simultaneously and are very willing to use telehealth to improve their clinical care. The findings suggest that telehealth enhances the clinical management of patients with multiple morbidities.

Older Aboriginal and Torres Strait Islander people have positive attitudes to telehealth; they demonstrate strong capacity in using the equipment and in understanding the connection between lifestyle choices and health sign readings. There was also a trend indicating that participants' attitudes to technology continued to improve over time. Furthermore, the design and concept of the telehealth tablet matched the auditory, visual and kinaesthetic learning styles of many Aboriginal people.

These findings indicate that telehealth has very strong potential as a tool to improve the clinical outcomes of older Aboriginal people and increase access in rural and remote areas. Clinical health outcomes included timely medical diagnosis; specialist referrals and early intervention by health professionals; reduction in unplanned hospital admission; pro-active and evidence-based medication review; increased awareness leading to self-management and lifestyle changes; and engagement with preventative health strategies.

The increased access to appropriate health services was expedited by technology. The availability of participants' vital health signs data enabled early intervention

by clinicians and a more evidence-based approach to GP visits by participants. Remote monitoring and a centralised triaging platform also enabled greater productivity with respect to nurse caseload. This further increased consumer access to health services.

Remote telehealth monitoring also increased the access of older Aboriginal people to health care. The Staying Strong project was characterized, for example, by positive relationships between participants and the telehealth nurses; the opening up of opportunity and the facilitation of informed decision making by participants. These outcomes created a positive experience of health care delivery for participants.

The **integratedliving** Staying Strong pilot project demonstrated that remote telehealth monitoring with broadband technology is cost effective. Remote telehealth monitoring of vital health signs was estimated at 40% of the cost of a face-to-face model. The broadband technology enabled greater nurse caseload; flexible and responsive remote triaging; reduced need for routine GP visits; facilitated accurate and timely medical diagnosis and reduced unplanned hospitalisation. These outcomes contribute to cost savings in health expenditure.

The intergenerational project activities illustrated the effectiveness of broadband technology in enhancing the social connectedness of older Aboriginal people. These activities also facilitated a sense of cultural pride and respect through the sharing of Aboriginal history and heritage, and strengthened the capacity of older Aboriginal people to use internet tools independently.

The project findings highlight the utility of the Staying Strong telehealth model in the clinically efficient and cost effective delivery of health care. The model is now part of **integratedliving**'s broader strategy to deliver enhanced health outcomes for older people in rural and regional Australia, ensuring they are true participants in the new age of e-health.

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