Virtually Intouch—an evaluation of desktop telehealth in rural and remote New South Wales

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Introduction
Video consultation is an important aid to improving access to health services for rural and Indigenous Australians.

However, from our combined experience in health care provision in rural and Aboriginal communities over many decades, we have observed the following persistent reasons for poor uptake of telehealth.

- **Technical/logistical constraints**: Existing technology has made access to telehealth difficult. Video consultations have required dedicated rooms and personnel including a booking clerk and an IT support officer;

- **Cost inhibitors**: Existing technology, in many health facilities, utilised expensive legacy technology, costing up to $117 per hour in some areas. Legacy video conferencing technology1 also required significant capital investment, some costing millions to establish;

- **Insufficient Medicare funding**: Because there has been limited access to Medicare funding for specialists and other practitioners to undertake video consultations, the technology has generally been utilised by staff specialists rather than private practitioners;

- **Resistance by staff and patients**: There is considerable anecdotal evidence of perceived patient and staff resistance to telehealth, and more particularly with mental health clients, the elderly and Aboriginal patients;

- **Disinterest/opposition by health practitioners**: Some practitioners are concerned that video consultation has the potential to damage doctor-patient relationships, increase risk and may be inappropriate for multidisciplinary team cooperation; and

- **General lack of organisation support**: Some organisations have been more resistant than others to embrace video conferencing, due to the logistical challenges of implementing the technology and competing priorities.

Despite the large number of studies undertaken internationally for well over a decade, there is a paucity of hard evidence about the clinical and non-clinical benefits of telehealth, yet many international studies report high levels of patient satisfaction with video consultations. For example, a small Mayo Clinic pilot study in 1998 reported2:

> One of the most significant findings was that 17 (94%) of the 18 participants reported the computer system did not have a negative impact on their relationship with the physician and 11 participants (61%) actually thought the system had a positive effect. This is in contrast to many perceived beliefs that telehealthcare may harm the doctor-patient relationship.

Additionally, a recent UK study reported favourable health outcomes utilising telehealth for people with chronic disease through reduced hospital admissions and mortality3.

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1 Legacy video conferencing technology refers to pre-existing video conferencing technology that uses ISDN (a communication standard) as the means to transfer video and audio between two locations
3 Steventon et al. Effect of Telehealth on use of secondary care and mortality: findings form the whole System Demonstrator cluster randomised trial BMJ, 2012; 344,
Aside from the health and social benefits, the cost of telehealth has come under some scrutiny. A recent review of telehealth in Australia refers to most services utilising unnecessarily expensive infrastructure.

A session at the May 2012 Royal Australian College of Physicians conference in Brisbane (http://www.racpcongress2012.com.au) featuring a debate between supporters and detractors of telehealth was most informative. It was interesting to hear the view of a telehealth advocate that telehealth supports culturally appropriate care for Aboriginal people by enabling treatment in their communities with family support.

Telehealth has been utilised in various forms throughout NSW for many years. However doctor-patient video consultations have been irregular at best. By overcoming the challenges we have identified it is anticipated that the use of telehealth consultations will strongly increase.

**Rationale for telehealth evaluation**

This evaluation of simple low-cost desktop video-consultations for rural NSW was funded by the Department Of Health and Ageing (DoHA) and carried out by an organisation with over 25 years experience in the provision of health service outreach to rural and Aboriginal communities in NSW.

Funding was sought in 2009, eighteen months before the introduction of telehealth MBS items, on the following grounds:

- Some rural communities were too small to justify a regular visiting service. This was not merely a cost issue but, more importantly, a matter of concern for visiting clinicians who found the small number of patients did not always justify the time taken in travel.
- Some existing visiting services were experiencing increasingly long waiting lists.
- Some patients needed follow-up more frequently than the visiting clinician was able to provide.
- Documented experience of telehealth in Australia and overseas had shown that in most cases the pre-existing technology could be augmented, not only for group discussions and training but also for video consultation.
- Some specialties proved particularly conducive to video consultation.
- Communication between chronic disease multidisciplinary team members could be enhanced by the technology.
- Readily available simple desktop technologies could enable specialist clinicians to participate from their urban consulting rooms.

**Evaluation objectives**

The objectives of the evaluation were to:

- increase access to specialist care for rural and Aboriginal communities
- enhance visiting services rather than replace them
- build the capacity of the rural health workforce by providing specialist professional support to rural GPs and health practitioners through video conferencing
- evaluate the effectiveness of using existing technology versus cost effective technology in delivering telehealth specialist medical services.

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4 Uniquest Telehealth Assessment Final Report 28 June 2011 UNiquest Pty Ltd Project number 16807
Method
The steps taken to achieve the evaluation objectives were:

- identification of specialties conducive to video consultations
- consultations with stakeholders including Divisions of General Practice (DGP), Aboriginal Community Controlled Health Services (ACCHS) and Area Health Services (AHS)
- identification of communities unable to sustain regular visiting services
- identification of existing visiting services experiencing long waiting lists or patients needing more frequent follow-up
- validation of potential rural location infrastructure and telehealth capabilities
- recruitment of doctors through an expression of interest (EOI)
- development of evaluation measurements for each telehealth consultation
- development of evaluation forms using the measurements
- generation of policy and procedures to assist in the set-up and delivery of telehealth consultations
- evaluation of comparable outcomes of new desktop and existing technology
- compilation of comparable outcomes for Aboriginal and non-Aboriginal patients, supporting health workers and doctors
- development of policy improvements for telehealth.

Testing remote sites
Given the vast distances in rural NSW, and the considerable variations in internet capacity, two people, an IT professional and a non-IT user, were engaged to objectively and independently test various locations across NSW. The aim was to find suitable locations and technical solutions to overcome restrictive infrastructure and internet access in rural towns.

Tests at each location were split into audio and video and used a zero (bad) to four (great) rating scale. The following audio tests were rated, by repeating the alphabet and counting to ten:

- sound clarity
- disturbing echo
- network latency
- dropouts.

The following video tests were rated, by carrying out a range of limited, small and big movements:

- clarity of image
- talking head
- head and one arm movement
- large movement both arms

5 Low cost technology that is IP (Internet Protocol) based and requires minimal technical setup, including a computer, video camera or microphone and access to the internet.
The tests were duplicated at each site for wireless and non-wireless connectivity.

Given the presence of firewalls in some facilities, some non-wireless tests were not conducted. In this case there was a need to identify efficient low-cost means of installing and operating alternative technology.

The sites listed below were tested for desktop telehealth consultations and yielded the following results.

Table 1  Suitability of wireless and non-wireless locations in NSW

<table>
<thead>
<tr>
<th>Site</th>
<th>Wireless</th>
<th>Non Wireless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armidale</td>
<td>Not suitable</td>
<td>Possibly suitable</td>
</tr>
<tr>
<td>Bega</td>
<td>Possibly suitable</td>
<td>Possibly suitable</td>
</tr>
<tr>
<td>Bourke Site 1</td>
<td>Suitable</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Bourke Site 2</td>
<td>Suitable</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Brewarrina Site 1</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Brewarrina Site 2</td>
<td>Possibly suitable</td>
<td>Possibly suitable</td>
</tr>
<tr>
<td>Broken Hill Site 1</td>
<td>Possibly suitable</td>
<td>Possibly suitable</td>
</tr>
<tr>
<td>Broken Hill Site 2</td>
<td>Possibly suitable</td>
<td>Possibly suitable</td>
</tr>
<tr>
<td>Cobar Site 1</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Cobar Site 2</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Coffs Harbour</td>
<td>Not suitable</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Cooma</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Coonamble</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Dubbo Site 1</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Dubbo Site 2</td>
<td>Not suitable</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Goulburn</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Inverell</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Ivanhoe</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Kempsey</td>
<td>Possibly suitable</td>
<td>Possibly suitable</td>
</tr>
<tr>
<td>Lightning Ridge</td>
<td>Not suitable</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Menindee</td>
<td>Not suitable</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Moree Site 1</td>
<td>Not suitable</td>
<td>Possibly suitable</td>
</tr>
<tr>
<td>Moree Site 2</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Moruya</td>
<td>Not suitable</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Pambula</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Port Macquarie Site 1</td>
<td>Possibly suitable</td>
<td>Possibly suitable</td>
</tr>
<tr>
<td>Port Macquarie Site 2</td>
<td>Unable to test</td>
<td>Unable to test</td>
</tr>
<tr>
<td>Tibooburra</td>
<td>Possibly suitable</td>
<td>Possibly suitable</td>
</tr>
<tr>
<td>Walgett</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Wellington</td>
<td>Unable to test</td>
<td>Unable to test</td>
</tr>
<tr>
<td>White Cliffs</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Wilcannia</td>
<td>Suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Young</td>
<td>Not suitable</td>
<td>Not suitable</td>
</tr>
</tbody>
</table>
The tests yielded the following recommendations:

- systems should be simple as increased functionality requires increased bandwidth
- bandwidth should meet the accepted requirements of Medicare and the RACGP
- technology that can suitably operate in low bandwidth environments should be utilised [eg. 100kbps]
- systems could be chosen where the resolution could be downgraded in real-time to respond to network traffic spikes
- a phone could be used to avoid audio problems and momentary video freezes and reduce network traffic load
- a separate ADSL 2+ connection could be used to avoid internal traffic congestion and firewall issues
- 3G connections might be used, but were not preferred due to their unreliable test results.

**Finding interested medical specialists and local health organisations**

The project sought interest from:

- local health organisations (LHOs) that would set up access for patients and undertake the logistics around appointments
- medical specialists who would be prepared to participate in the trial from their rooms.

EOI forms were distributed to rural NSW health organisations including:

- AHSs
- DGPs
- ACCHSs.

The EOI targeted existing outreach specialists and LHOs. Initially, eight specialists/specialist practices responded, but two did not eventuate—an ophthalmology service due to equipment constraints and a paediatric endocrinologist who became unavailable.

Specialists from the following disciplines agreed to participate:

- medical oncology
- radiation oncology
- palliative care
- developmental paediatrics
- psychiatry
- clinical genetics
- endocrinology
- paediatric endocrinology
- psychogeriatrics (upskilling local GPs only)
- cardiology.
The first six services listed delivered telehealth consultations within six months of project commencement.

**Selecting and installing the technology**

Criteria to assess telehealth technology included:

- video quality
- audio quality
- security
- cost
- ease of installation and configuration
- usability
- additional features
- additional equipment required.

With the assessment completed an Internet based video-conference solution, “VidyoDesktop”, was selected. The installation of the infrastructure in Sydney was completed in September 2010 with the following experiences noted:

- Operation of VidyoDesktop throughout the evaluation was largely without incident. Some initial problems included integration with legacy systems; however, these were overcome. Internal security and firewalls, particularly in hospital environments, were often difficult to navigate, and did cause considerable delay in setup. Skype was an alternative in these situations;
- Support staff, part of the project team, were trained in VidyoDesktop. Support also involved visiting the specialists and host site rooms as required and providing telephone support; and
- Though VidyoDesktop was deployed in all operating locations, it sometimes proved inefficient because of users’ familiarity with other systems. In such cases, Skype or other video conferencing systems were used.

**The trial experience**

1. **Video Consultation Parameters**

It was emphasised that video consultations would, in general, supplement face-to-face consultations, rather than replace them. However, this proved to be not always the case as pure telehealth services were found to work well in some situations—particularly when a health worker would be present at the consultation.

2. **Early Delays and Limitations**

- The limited availability of medical specialists was the biggest factor delaying or in some cases preventing the commencement of some services. Unfortunately, because the time required for planning, coordination and consultation exceeded their expectations and capacity, the paediatric endocrinologist withdrew from the trial.
- The endocrinology service was delayed primarily due to an unexpected change in outreach location.
- Some AHSs were reluctant to fund the cost of video conference calls, particularly where those calls were to be made using legacy technology, however two participated in the trial.
• The resignation of key personnel [a mental health worker] contributed to the delay and eventual withdrawal of the psychogeriatric service.

• There was initial reluctance by some patients to embrace telehealth, particularly the psychiatry service linking a Sydney-based specialist with patients in the Central West. However promotion through local GP endorsement resulted in increased patient uptake.

• The cost of digital imaging equipment meant the project was unable to include the ophthalmology service that would have linked patients in north-western NSW with a Queensland based specialist.

3. Telehealth Trial Duration
The evaluation was extended by 14 months to accommodate a larger volume of patients for each of the specialists involved.

The returned evaluation forms represent only a sample of participants as not all completed and submitted forms despite frequent reminders. The patients were the most diligent in completing forms, followed by local health workers and then specialists.

4. Evaluation results
For each telehealth consultation an evaluation was sought from the patient, accompanying health worker and the medical specialist. Evaluation forms revealed overwhelmingly positive views. However, there were some problems, which are also detailed. The survey participation rates across the disciplines were as follows.

<table>
<thead>
<tr>
<th>Table 2 Number of survey responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Patient Health worker Specialist</td>
</tr>
<tr>
<td>Clinical genetics 12 12 11</td>
</tr>
<tr>
<td>Developmental paediatrics 7 7 0</td>
</tr>
<tr>
<td>Endocrinology 41 14 9</td>
</tr>
<tr>
<td>Medical oncology 15 14 6</td>
</tr>
<tr>
<td>Psychiatry 7 2 20</td>
</tr>
<tr>
<td>Radiation oncology 7 8 0</td>
</tr>
<tr>
<td>Cardiology 0 0 10</td>
</tr>
<tr>
<td>Palliative medicine 0 0 1</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>89 57 57</td>
</tr>
</tbody>
</table>

It is unclear how many telehealth participants did not complete a survey, however patient evaluations asked for a consultation time, and analysis of these times per clinic infers a very high participation rate. Participating specialists and health workers were given the opportunity to complete multiple evaluation forms, i.e. for each consultation.

There was an overwhelming trend of high levels of satisfaction for all three participant groups, although it is interesting to note that this level of satisfaction dropped from patient to health worker to specialist.
Table 3  Telehealth satisfaction rating summary

<table>
<thead>
<tr>
<th></th>
<th>Patient</th>
<th>Health worker</th>
<th>Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very satisfied</td>
<td>73%</td>
<td>66%</td>
<td>35%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>24%</td>
<td>32%</td>
<td>42%</td>
</tr>
<tr>
<td>Neither satisfied nor dissatisfied</td>
<td>1%</td>
<td>0%</td>
<td>9%</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>0%</td>
<td>0%</td>
<td>9%</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>No response</td>
<td>2%</td>
<td>2%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Correlation between all three participants in a telehealth consultation clearly demonstrated equal or higher levels of satisfaction from the patient in almost every consultation. This is evident below;

Figure 1  Correlation of telehealth participant satisfaction rating

An expressed view that Aboriginal patients may not embrace Telehealth consultations was found to be incorrect. The trial results recorded 45% of patient surveys identified as Aboriginal. The figure below compares the responses of Aboriginal, non-Aboriginal and unidentified patients. There were no significant differences between the groups.
A main objective of the trial was to test the suitability of low cost technology telehealth consultations, with 54% of patient surveys identified using low cost, desktop video conferencing technology. Below are the participant results for the different technologies.

**Table 4**  
Telehealth satisfaction rating for low cost and legacy technology

<table>
<thead>
<tr>
<th>Overall satisfaction rating</th>
<th>Patient</th>
<th>Health worker</th>
<th>Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low cost</td>
<td>Legacy</td>
<td>Low cost</td>
</tr>
<tr>
<td>Very satisfied</td>
<td>77.1%</td>
<td>68.3%</td>
<td>93.8%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>18.8%</td>
<td>29.3%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Neither satisfied nor dissatisfied</td>
<td>0.0%</td>
<td>2.4%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>No response</td>
<td>0.0%</td>
<td>0.0%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

**Patient results**

97% of patient surveys reported a very satisfied or satisfied evaluation score. This proportion did not differ significantly when the patient identified as Aboriginal or if the type of technology used was low cost or legacy.
Comments by patients were positive, including three comments referring to video communication problems.

“Good to speak to specialist in X. Like being in their consulting room.”

“The screen blacked out a number of times, but sound maintained. Did not affect the clarity of the interview. Slight time delay. Something to get used to.”

“My use of SKYPE on my home computer has given me experience with visual/audio telecommunication, so felt comfortable with this form of communication. Appreciate not having to travel away from X to access specialist service.”

“An excellent medium for regional clients to be able to access and interface with the specialist. Overall a very beneficial experience.”

“The presence of the health worker was very helpful. It made the interaction very easy. Very happy.”

“Fantastic having X with me. Invaluable support.” There were two other comments about the benefit of the health worker’s presence. The sessions were with a developmental paediatrician.

“Video link broke down. But once restarted there was no problem.”

“Some echo. Good method of consultation.”

**Participating local health worker results**

98% of health worker surveys reported a very satisfied or satisfied evaluation score. This proportion did not differ significantly when the patient identified as Aboriginal or if the type of technology used was low cost or legacy. 72% of the health worker surveys used low cost video conferencing technology.

There were eight comments concerning IT problems referring to a mix of drop-outs and audio problems, but all problems seem to have been resolved. Other comments expressed the need for consents to be completed before interview, and a separate interview room to be available to discuss recommendations with patient and family.

“Need specific waiting room for clients.”

“Consents need to be done prior to actual day.”

“Medical input greatly appreciated. Recommend interview or waiting room be available to discuss recommendations with patient and family after conference.”

“Consult went very well. Medical representation available at this end. Patient elderly-carer present. Positive feedback from carer.”

“Remote access made consult easier, some IT problems, overall a good consult”

“Clinic went well, no real IT issues, have had good Dr referral and case management.”

“Slight vibration when volume up, patient hard of hearing. Better facilities special patient waiting area. Consents need to be done prior to actual day”

**Participating specialist results**

77% of specialist surveys reported a very satisfied or satisfied evaluation score. This proportion did not differ significantly when the patient identified as Aboriginal or if the type of technology used was low cost or legacy. 53% of the specialist surveys used low cost video conferencing technology.

There were four comments referring to transmission problems and other comments included were:

“Clear and no delays. Good for picking up on emotional response of couple” (clinical geneticist);
“Very emotional discussion...complex inheritance advice. Success in reassurance.” (clinical geneticist);

“Giving very complex results. Should have made sure health worker at other end better briefed to have visual materials to reinforce information.” (clinical geneticist);

“Again very emotional content, giving bad news and discussion of same. Distance actually helped ‘see’ body language and instructions (2 clients) better.” (clinical geneticist);

“Presence of doctor [patients GP] can be useful.” (medical oncologist);

“Telehealth generates more investigations for physical visits.” (cardiologist);

“As the national broadband system develops and GP acceptance of telehealth increases this means positive improvements in telehealth, but I worry that fly-in-fly-out services will become less relevant as I feel they are still very necessary” (psychiatrist 1);

“I see no difference between patients following a plan through telehealth as physical visits” (psychiatrist 1)

“It is better for medical consultations/procedures than therapy sessions as there is a sense of removal from the patient that is an impediment to delivering the service” (psychiatrist 2);

“Patient was in a large room and the sound did not transmit well. I asked the patient to repeat a couple of times” (clinical geneticist);

Other observations

Observations offered by other local health team members involved with the trial have been valuable and emphasise the need for the LHO to be well organised, and encompass:

- accurate assessment of the number of rooms required for pre-screening, video-consultation and allied health staff [dietician, diabetes educator, exercise physiologist]
- patient transport to telehealth clinic
- patient reception and managing patient anxiety
- Medicare billing-forms and processes made available, given that doctor and patient are in different locations
- management of scripts, pathology and recall systems
- consideration for support for Aboriginal women [using local female support worker]
- strategies to ensure screen does not go into power saver mode [by periodically nudging mouse]
- management of patient expectations
- quality of GP referral
- strategies to minimise failure to attend. In this regard there was anecdotal evidence that failure to attend, particularly for psychiatry video consultations, was more likely than if the specialist was physically present
- management of requirement for multiple use of on-line patient records
- need to ensure skilling of a number of staff in managing the technology
- diagrams or toolkits at the GP or patient end provided by the specialist are a great tool in case video becomes unavailable during a consultation
• smaller windows displaying the specialists’ images can be distracting, as you can be observing your own image more than the patient’s
• cost prohibitors in using expensive standard telephone calls coupled with satellite broadband technology
• the observation of a mixed reaction from LHOs, some embracing telehealth as a viable expansion or alternative to outreach whereas others see it as a metro solution and will discourage specialists from relocating to regional areas.

Conclusion
The telehealth trial successfully demonstrated existing video conferencing technology is largely suitable for video conferencing with patients, although some improvements in quality and location of the facility should be sought. In general patients were comfortable participating in telehealth consultations and clinicians were never dissatisfied with the outcome of a telehealth consultation during the trial, even if technical difficulties were experienced. The trial demonstrated that low cost videoconference systems provide a genuine and cost effective alternative to large commercial systems. Furthermore telehealth consultations can provide a cost effective alternative to physical visits for some specialties.

The trial did highlight a variety of limitations. The video and audio quality of low cost desktop telehealth consultations can be variable depending on location and time of consultation. This variation is expected to reduce with the introduction of the NBN and could lead to better uptake of telehealth. Firewalls often present a significant barrier to commencing telehealth services, particularly in large health facilities. Interoperability between video communication platforms complicates, and may contribute to the delayed uptake of telehealth. This is mainly due to additional cost, ie a rural GP may be required to invest in several different systems to establish telehealth links with different specialists. There are also clinical limitations associated with telehealth consultations for some specialties—such as those that require a significant physical examination. This of course is particularly true for the first consultation. However, telehealth consultations have been excellent for patient follow-up and review. It was also recognised that significant time and resources are required in the initial planning stage, particularly for the LHO, to ensure telehealth clinics run smoothly. Some smaller host sites required the advice and service of an external support person for IT and administrative process issues. Some larger, better-resourced host sites were able to deal with these issues internally.

The trial’s conclusion and experiences have led the author to list possible policy considerations for telehealth MBS items, including:

• Access to services could be improved by expanding MBS items to support store-and-forward telehealth services that don’t require real-time video consultations. This would support telehealth dermatology, colposcopy and services involving image interpretation.

• Community health centres will be encouraged to host telehealth clinics if given independent access to nurse/AHW MBS items, currently not possible without a linked GP provider number.

• There is a risk that some specialists will substitute visiting clinics for pure telehealth services due to convenience and higher remuneration associated with telehealth. The result could be a net loss of services for rural communities and damaged team effort.

• The creation of Medicare benefits (ranging from $22.05 for a 5 minute consultation to a maximum of $137.10) for GP participation in video consultations has the potential to create a moral hazard for LHOs by encouraging GP attendance to maximise income when either a local health worker (attracting $31.80 per consultation) or a patient on their own might be sufficient. Awareness and cognisance of perverse incentives and opportunity costs is requisite.
• The portability, low entry costs quasi anonymity of telehealth providers may encourage the shift of service delivery based on commercial viability rather than community need.

Notable further observations resulting from the trial include:

• The introduction of Medicare MBS items saw a dramatic increase in interest in video consultations.

• The psychiatrist in the trial has significantly expanded his interest in telehealth work in other states, while continuing to participate in NSW.

• The endocrinologist has significantly increased the number of her telehealth sites and the model of care is being referenced to other ACCHSs across NSW.

• A nurse colposcopy clinic using a mix of store-and-forward and video consultation technology is in development.

There is strong evidence from the telehealth trial in rural NSW that preconceived concerns about video consultations have been largely unwarranted with wide user satisfaction reported.