



RACGP

*Implementation  
guidelines for  
video consultations  
in general practice*

A telehealth initiative

3rd edition – April 2014



## Disclaimer

The information set out in this publication is current at the date of first publication. It is intended for use as a general guide only and may or may not be relevant to particular patients or circumstances. This publication is not exhaustive of the subject matter. People implementing any recommendations contained in this publication must exercise their own independent skill or judgement, or seek appropriate professional advice relevant to their own circumstances when so doing. Compliance with any recommendations cannot, of itself, guarantee discharge of the duty of care owed to patients and others coming into contact with the health professional and the premises from which the health professional operates.

While the text is directed to health professionals possessing appropriate qualifications and skills in ascertaining and discharging their professional (including legal) duties, it is not to be regarded as clinical advice and, in particular, is no substitute for a full examination and consideration of medical history in reaching a diagnosis and treatment based on accepted clinical practices.

Accordingly, The Royal Australian College of General Practitioners and its employees and agents shall have no liability (including without limitation liability by reason of negligence) to any users of the information contained in this publication for any loss or damage (consequential or otherwise), cost or expense incurred or arising by reason of any person using or relying on the information contained in this publication and whether caused by reason of any error, negligent act, omission or misrepresentation in the information.

## *Implementation guidelines for video consultations in general practice (3rd edition)*

This edition was updated by Janelle Jakowenko, RACGP e-health Senior Project Officer, with editorial assistance from Sharon Benson, Project Manager, and Camilla Preston, RACGP e-health Senior Project Officer. Contributions were provided by Chris Ryan and Dr Victoria Wade, and a review undertaken by Dr Mike Civil and Dr Nathan Pinski.

The document was originally prepared by the RACGP National Standing Committee – e-health and RACGP Telehealth Standards Taskforce; Judy Evans, RACGP e-health Manager; Camilla Preston, RACGP e-health Senior Project Officer; with contributions by Dr Nathan Pinski, Chris Ryan, Paul Bruce, David Baker, Dr Victoria Wade, Angela Ryan and Russell Yardley.

Updating to this third edition has been supported by the Australian Government Department of Health and Ageing.



**Australian Government**  
**Department of Health and Ageing**

Published by:

The Royal Australian College of General Practitioners  
100 Wellington Parade  
East Melbourne Victoria 3002  
Australia

Tel 03 8699 0414  
Fax 03 8699 0400  
[www.racgp.org.au](http://www.racgp.org.au)

ISBN 978-0-9874075-0-4  
Published September 2012, updated April 2014

© The Royal Australian College of General Practitioners, 2012. All rights reserved.  
We welcome your feedback at [telehealth@racgp.org.au](mailto:telehealth@racgp.org.au).

## Contents

<i>About the guidelines</i>	1
<i>Key messages</i>	2
<i>Quick-start checklist</i>	3
<i>1. Introduction</i>	4
<i>2. What is telehealth?</i>	5
<i>3. Medicare Benefits Schedule item numbers</i>	6
<i>4. Telehealth: viability</i>	7
<i>4.1 Which videoconferencing option is best for my practice?</i>	7
<i>5. Video consulting with a specialist</i>	9
<i>5.1 Video consulting with a hospital-based specialist</i>	9
<i>6. Change management</i>	10
<i>6.1 How to manage change</i>	10
<i>6.2 What to change: workflow and process</i>	11
<i>7. Site-to-site considerations</i>	13
<i>7.1 Quality assurance</i>	13
<i>7.2 Security requirements</i>	13
<i>7.3 Privacy requirements</i>	14
<i>8. Internet connectivity</i>	15
<i>8.1 Upload and download data speed</i>	15
<i>8.2 The National Broadband Network</i>	15
<i>8.3 Network and video quality</i>	16
<i>8.4 Current recommendations for video consultations</i>	16
<i>9. RACGP position on Skype</i>	17

<i>10. Video consultation technology solutions</i>	<i>18</i>
<i>10.1 Software</i>	<i>18</i>
<i>10.2 Hardware</i>	<i>19</i>
<i>10.3 Audio quality</i>	<i>19</i>
<i>10.4 Interoperability</i>	<i>20</i>
<i>10.5 Support</i>	<i>20</i>
<i>11. Practice environment and equipment</i>	<i>20</i>
<i>11.1 Equipment</i>	<i>21</i>
<i>11.2 Monitors</i>	<i>21</i>
<i>12. Setting up the video consultation software and equipment</i>	<i>22</i>
<i>12.1 Using the equipment</i>	<i>22</i>
<i>12.2 Connecting the camera</i>	<i>22</i>
<i>13. Practice facilities</i>	<i>23</i>
<i>13.1 Room set-up</i>	<i>23</i>
<i>13.2 Facilities for video consultations onsite</i>	<i>23</i>
<i>13.3 Facilities for video consultations offsite</i>	<i>23</i>
<i>14. Standards for general practices offering video consultations</i>	<i>24</i>
<i>15. Medicolegal guidelines</i>	<i>25</i>
<i>16. Policies</i>	<i>25</i>
<i>16.1 Policy on video recording</i>	<i>25</i>
<i>Glossary</i>	<i>26</i>

## *About the guidelines*

These guidelines are intended to assist general practitioners (GPs) and their staff in establishing video consulting within their practice by providing understandable and easy to interpret guidance on a range of implementation, technical and usage issues.

The guidelines should be read in conjunction with the *Standards for general practices offering video consultations: an addendum to the Standards for general practices* (4th edition). The Royal Australian College of General Practitioners (RACGP) has developed these standards to help GPs interpret safety and quality issues in the context of a video consultation amongst the GP, the patient and the specialist at a distant location.

As new information becomes available and as technologies evolve, these guidelines will be updated. Please check the RACGP website regularly for updates at [www.racgp.org.au/telehealth](http://www.racgp.org.au/telehealth).

## *Key messages*

### Nine important messages are communicated in this document

1. The successful implementation of video consultations into general practice requires a planned and coordinated approach.
2. Video consultations are successful when conducted within a usual and familiar consulting environment. This includes systems that are fit for clinical purposes and protect the privacy of the consultation as well as the security, confidentiality and privacy of patients' health information.
3. Adequate internet connectivity is required to support audio and video quality for clinical purposes. If the connection is of poor quality, the audio may be muted and a telephone used to support the consultation, freeing up bandwidth to allow better video quality.
4. GP, staff training and efficient coordination are essential to integrating video consultations into practice workflow.
5. Best practice principles governing internet use and communication privacy should be applied to telehealth. Practices should also comply with the *Standards for general practices offering video consultations: an addendum to the Standards for general practices* (4th edition) and the RACGP *Computer and information security standards*.
6. When considering peer-to-peer and/or freely available technologies (eg. Skype), it is important that GPs are fully aware of any associated risks and limitations.
7. The RACGP recommends that general practices adopt a default position of not recording video consultations.
8. Health data obtained and captured during the course of a video consultation should not be stored outside Australia.
9. As with a physical consultation, practices and clinicians participating in video consultations must have suitable professional indemnity insurance as provided by a medical defence organisation, employer or commercial insurer.

### Resources

- RACGP telehealth webpage, available at [www.racgp.org.au/telehealth](http://www.racgp.org.au/telehealth)
- RACGP *Standards for general practices offering video consultations: an addendum to the Standards for general practices* (4th edition), available at [www.racgp.org.au/your-practice/standards/video](http://www.racgp.org.au/your-practice/standards/video)
- RACGP *Computer and information security standards*, available at [www.racgp.org.au/ehealth/ciss](http://www.racgp.org.au/ehealth/ciss)
- RACGP *Standards for general practices* (4th edition), available at [www.racgp.org.au/your-practice/standards](http://www.racgp.org.au/your-practice/standards)

## *Quick-start checklist*

The uptake of video consultation in general practice is increasing. Clinicians are recognising the benefits to patients, and the technology will continue to become easier to use and more affordable.

Each of the quick-start points below is elaborated upon within this publication. It is important to remember that standard medical consulting principles apply.

Practices may wish to consider the following issues:

Issue	Addressed
Will the video consultation facilitate improved patient care (ie. faster access to specialists, reduced travel, reduced costs and reduced stress)?	
Are there willing and enthusiastic clinicians at both the specialist end and patient end?	
Does the general practice have a staff member who is a telehealth coordinator (ie. someone who is responsible for coordinating the appointments and testing the equipment)?	
Is the service financially viable for the practice?	
Is the videoconferencing hardware or software in place, including an acceptable internet connection?	
Have practice staff received adequate training on how to conduct a video consultation?	
Has the patient been correctly informed about what may happen during the video consultation?	



## *1. Introduction*

Video consultations are an alternative option to physical consultations. While in some situations a physical consultation will be preferred, there are many scenarios where a video consultation will enable more convenient and accessible healthcare delivery without compromising patient safety.

For the purpose of these guidelines, the term 'physical', as opposed to 'face-to-face', will be used when referring to traditional medical consultations where the patient is physically in the same consultation rooms as the specialist. It is now accepted that video consultations offer an alternative method of face-to-face consultations whereby the patient and specialist are able to see each other, without being in the same room.

Video consultations provide opportunities for care to be provided using additional technologies. This requires informed decision-making so that general practices purchase and deploy video consulting solutions that are fit for the purpose and represent best value for the investment to provide adequate video and audio quality.

It is important that video consulting is accessible and executed safely, thus enabling improved access to healthcare and numerous other benefits to patients.

## *2. What is telehealth?*

Telehealth is healthcare 'at a distance'. It is the electronic transmission of health information and images in the delivery of both clinical and non-clinical health-related services, using a range of telecommunications technologies. The RACGP uses the term 'telehealth' in these guidelines to refer to video technology for video consultations conducted in real-time among a GP (or practice nurse/Aboriginal health worker), a patient and/or a specialist in another location. The video consultation will involve real-time visual and audio.

The following three components are included in the broad definition of a video consultation:

1. The clinical consultation is not performed in a traditional physical meeting, but via a videoconferencing platform (hardware or software).
2. Information is transmitted electronically to a patient, or a healthcare professional at a second location.
3. The healthcare professional accompanying the patient employs clinical skills and judgement to provide healthcare and feedback to both the specialist and the patient.

By general definition, telehealth can be delivered via technologies that are either asynchronous (ie. store-and-forward such as email, or still images such as radiology or photographs of skin or wounds) or synchronous (ie. in real time such as video consultation). Regardless of how telehealth is defined, the focus should be on the patient and healthcare delivery, not the technology.

### Resources

Useful resources are available at [www.racgp.org.au/telehealth](http://www.racgp.org.au/telehealth). These include a range of factsheets and templates for practices to use, and the 'background paper' for further information on telehealth and its benefits.

### *3. Medicare Benefits Schedule item numbers*

On 1 July 2011, the Australian Government Department of Health and Ageing (DoHA) introduced Medicare Benefits Schedule (MBS) item numbers for video consultations between a specialist and a patient who may be with their GP or with another mandated health professional.

In October 2012, DoHA announced that from 1 January 2013 telehealth eligibility will be determined using the Australian Standard Geographical Classification Remoteness Area (ASCG-RA) resulting in an MBS change requiring that services to patients must be provided outside of RA1 (major city locations). This means any practice currently located in an outer metropolitan area is no longer eligible to use the telehealth MBS item numbers as of 1 January 2013, however, services provided at residential aged care facilities or Aboriginal health services anywhere in Australia are not affected.

From 1 November 2012 the MBS telehealth items required that a patient and specialist be at least 15 km apart. For the purpose of these guidelines, the program as it stands from 14 November 2012 will be used as the reference point.

There are three groups of video consultation MBS item numbers for GPs:

1. At consulting rooms outside an inner-metropolitan area or at an Aboriginal medical service.
2. Other than consulting rooms, such as a home visit or other institution outside an inner metropolitan area.
3. At a residential aged-care facility.

Within each of these groups there are four categories, which are time-related. It is worth noting that in categories two and three (above), the calculation of fees becomes a little complicated and dependent upon the number of patients seen. Please direct questions regarding these MBS item numbers to Medicare by phoning 1800 222 032.

#### **Resource**

For further information, please refer to the Medicare website at [www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-2012-13BudgetFactsheet.htm](http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-2012-13BudgetFactsheet.htm).

## 4. Telehealth: viability

Is telehealth viable for your practice? A way to find out is to run through a business plan, assessing the broad categories of people, opportunities, context and risks/rewards.

The decision to offer video consultation represents a change in healthcare provision. Practices will need to:

- understand the needs of their patients
- estimate the costs involved in videoconferencing and identify how they might be funded in both the short and long term
- ascertain what is needed to ease the transition of offering telehealth (eg. adequate staff resources, awareness, training and involvement of staff, modelling on a program in a similar practice)
- identify practice objectives, including timelines
- identify the positive outcomes and the potential pitfalls
- perform a cost–benefit analysis.

### 4.1 Which videoconferencing option is best for my practice?

Each general practice is unique in its composition of GPs, nurses, allied health presence, access to locums, access to outreach services, location and patient cohort. *Table 1* outlines a number of scenarios that may describe your practice and video consulting situation. Please note: due to the variations listed above, there is no clear-cut formula.

Table 1. Practice scenarios and video consultation considerations

Scenario	Video consultation considerations
Residential aged care facility	Portable devices, such as laptops and tablets, that are enabled with 4G or suitable wireless internet technologies.
A medium or large practice with a fast, reliable and/or dedicated internet connection	<p>Either a software or hardware system is suitable</p> <ul style="list-style-type: none"> <li>• For high volume videoconferencing users (not just consulting), a hardware solution may be more cost effective over a 5-year period.</li> <li>• List the health professionals who you'll video consult with and what type of technology they have installed.</li> <li>• If many of them use a common hardware system, it may be worth pursuing a standardised hardware solution.</li> <li>• If they use different hardware and software systems, it may be worth purchasing a software solution that is standards-based (an initial set-up fee may apply), which also sends out invitations so that it won't matter what type of software/system is initially being used at the other end. Check ongoing monthly costs.</li> </ul> <p>Where software can send 'invitations' to the person you would like to video consult with</p> <ul style="list-style-type: none"> <li>• The same software at both ends is not necessarily initially required as the relevant software to download is provided via the invitation.</li> <li>• Software may be loaded onto a laptop and used by one health practitioner at a time.</li> <li>• This is suitable if the practice will not have a number of video consultations occurring simultaneously. If a number of consultations occur simultaneously, more licences may be required in the subscription. Check ongoing monthly costs (see <i>Section 10.1</i>).</li> </ul>
A solo GP or small general practice	<p>Download and install Skype (free software)</p> <ul style="list-style-type: none"> <li>• Only works from Skype-to-Skype.</li> <li>• Create a pseudonym username (so as not to attract unidentified, unsolicited contacts).</li> <li>• If you decide that video consulting is viable for your practice and the volumes justify a better solution, it may be worth considering professional videoconferencing software.</li> </ul>
A remote GP/practice with unreliable, limited or expensive internet	<p>Choose videoconferencing hardware that works on ISDN (a telephone service connection)</p> <ul style="list-style-type: none"> <li>• This has the benefit of a stable connection, with a slightly pixelated picture.</li> <li>• It is suitable for most clinical consultations.</li> <li>• Expense is a drawback as it uses a telephone line – there are charges for call connection and data exchange.</li> <li>• Overall, may be a better option where reliable, affordable broadband is unavailable, given the improved patient access to healthcare providers.</li> </ul>

Whatever the needs of your practice, there are some features that you might want to consider avoiding when choosing a videoconferencing option. These include:

- systems that limit the ease of connectivity to a broad range of participants
- systems that do not have accessible business support
- systems for which the hosting location is unknown.

## 5. *Video consulting with a specialist*

One of the first hurdles a general practice faces is finding the specialist who best matches the patients who may benefit from video consultation. The follow steps may assist.

### Step 1

If your general practice has more than one GP, it may be worth all GPs to collectively discuss those specialist services that could best meet the needs of the practice patients.

- Identify the specialists to whom you regularly refer.
- List the specialists who conduct outreach visits; telehealth clinics may be offered in between visits to improve the continuity and timeliness of the specialist services.
- Identify whether there are any sub-specialists who are not available locally.

### Step 2

Once you have an idea of the specialists you would like to consult with, consider the frequency and number of consultations that would be appropriate. For example, a dermatologist visits every 6 months, however, there may be 3–4 patients who would benefit from an interim visit.

### Step 3

Contact the relevant specialists to discuss the possibility of video consultations.

- Be prepared to describe video consultations and how they will benefit patients.
- Share information about the MBS item numbers.
- Describe your practice's videoconferencing system and discuss how it might work with their set-up.
- Discuss dates, frequency of telehealth clinics and any ad hoc arrangements and billing.

### Step 4

Finally, if your practice is experiencing difficulties in engaging with specialists, offer to email or post the specialist some details. The details should include points mentioned in *Step 3*. A template for this letter can be found at [www.racgp.org.au/telehealth/gettingstarted](http://www.racgp.org.au/telehealth/gettingstarted).

### 5.1 *Video consulting with a hospital-based specialist*

Many tertiary and city-based hospitals are starting to offer video consulting clinics. These clinics may offer patients the opportunity to avoid travelling long distances and associated costs. These options may be useful for post-operative consultations, infectious diseases, sub-specialty paediatrics and other services only available in large cities.

If you have a patient who regularly travels to a hospital for care, it may be worth exploring video consultation opportunities. Hospitals are increasingly offering a range of video consulting services and one telephone call may help improve the quality of life for a patient and their carer.

## 6. Change management

For a successful video consulting service to be integrated into a general practice, both the GPs and the practice will need to embrace this change. Video consultations are a new domain within general practice and the best solution is to keep systems simple and patient focused. Achieving exchange of services via telehealth presents management, facilitation, workflow integration, communication and technical challenges. Identifying the challenges and developing solutions will lessen the risk of a challenging experience of telehealth and encourage practice staff to embrace telehealth and deliver quality, patient-focused healthcare via this alternative medium.

### 6.1 How to manage change

#### Allow time to develop new processes

Implementing a video consultation service is a gradual process. It requires engagement with others, education, and understanding and acceptance from clinicians, staff and patients.

There may be some natural resistance to change. Video consultations present a shift in the way healthcare professionals provide care for their patients. They involve new technology and alterations to workflow. Despite evidence of the benefits, history suggests there will be some resistance to change, as the following story illustrates.

In 1816, French physician Dr Rene Laennec invented the stethoscope. In 1834, 18 years after its invention, the following excerpt appeared in the *London Times*.

*That it (the stethoscope) will ever come into general use, notwithstanding its value, is extremely doubtful because its beneficial application requires much time and gives a good bit of trouble, both to the patient and the practitioner because its hue and character are foreign and opposed to all habits and associations. There is something even ludicrous in the picture of a grey physician proudly listening through a long tube applied to a patient's thorax.*

#### Allocate staff to manage and coordinate video consultations

Engaging an enthusiastic video consultation coordinator can help to integrate video consultations into the primary care setting. The designated coordinator may be the practice manager, administrator or practice nurse. The coordinator ensures minimum disruption of workflow and maximum confidence in the effectiveness of videoconferencing by:

- coordinating bookings and clinician availability
- ensuring equipment is functioning properly
- advance testing of the interoperability of patient-end/distant specialist videoconference equipment
- providing a patient information brochure that prepares the patient for a video consultation
- preparing contingency plans and troubleshooting guides.

#### Staff training

Key to the success and sustainability of telehealth within a practice are staff acceptance and confidence in the benefits telehealth can provide, and competence using the technology. It is important to communicate to staff the reason that video consultations are being introduced and emphasise their value in communication and patient healthcare, not just their diagnostic value.

Adequate training specific to the real (not just theoretical) needs of the practice is necessary before implementation in order to:

- demonstrate the effectiveness of videoconferencing methods
- reduce the resistance to change, especially when early technical challenges are faced
- ease the transition from traditional to virtual services
- ensure that new roles or responsibilities are defined
- ensure that context-specific needs are addressed early.

There needs to be adequate education of health professionals and adjustment to administrative procedures, scheduling and other changes to workflows. Video consulting options should include training sessions for GPs, practice nurses and other practice staff. Consider the following:

- training all staff involved
- appointing one staff member as the video consultation coordinator
- booking procedures and involvement of the relevant staff (ie. video consultation coordinator)
- relevant policies and procedures
- equipment location
- equipment set-up and demonstrations for all staff involved in video consultations.

Practices should also have a documented plan for managing technical contingencies during a video consultation, since these could potentially compromise the effectiveness of the consultation or a patient's safety. For example, a contingency plan may involve having easy-to-read troubleshooting guides for common technical difficulties, completing an interrupted consultation by telephone, and ready access to technical support to fix fundamental problems.

## Resource

For key training components see page 66 of the *Standards for general practices offering video consultations* at [www.racgp.org.au/your-practice/standards/video](http://www.racgp.org.au/your-practice/standards/video).

## 6.2 What to change: workflow and process

### Information for patients

It is essential that patients are aware they will be attending a video consultation with a specialist. Patients should be made aware of this new form of communication, understand the billing process, be provided with etiquette tips, and understand the need to arrive 15 minutes early.

## Resource

A patient information brochure template is available at [www.racgp.org.au/telehealth/templates](http://www.racgp.org.au/telehealth/templates) for practices to adapt and use to provide information to their patients about their video consultation service.

### Booking procedures

As it is likely that three parties need to be coordinated for the consultation (the patient, the specialist and the GP), it is best that this booking is completed by one person who has access to all three at the same time.

### Example

A patient is seen by their GP and during the consultation they are advised they need to see a cardiologist regarding their blood pressure. Once the patient is finished with the GP, the GP walks the patient to the reception and requests that the receptionist book the patient in for a video consultation with the cardiologist.



With the patient still present, the receptionist calls the cardiologist's rooms and books their next video appointment. The receptionist can check that the GP is available and also confirm with the patient.

### Procedures for the video consultation

Prior to the first consultation with a specialist, a test call should be made on each new computer in each new setting. There also needs to be an agreement on how to bill the patient.

Figure 1 demonstrates a flowchart suggesting the workflow for the dual care video consultation.



Figure 1. Procedure for a video consultation between a specialist and a patient, with the clinical support of GP (or their representative) at the patient end

## Resources

Resources such as video consultation etiquette and templates for a booking checklist patient feedback are available to download from [www.racgp.org.au/telehealth](http://www.racgp.org.au/telehealth).

The RACGP *Standards for general practices offering video consultations: an addendum to the Standards for general practices* (4th edition) is available at [www.racgp.org.au/your-practice/standards/video](http://www.racgp.org.au/your-practice/standards/video).

## 7. Site-to-site considerations

### 7.1 Quality assurance

There are many technical, organisational and human factors involved in achieving a successful high quality video consultation. Suitable video consultation technology is only one component.

Quality assurance systems need to ensure the necessary practice environment, equipment, technology and data connections are available to deliver the required consultation.

From a human and organisational perspective, this includes user training, clinical and operational checklists and guidelines, reporting and monitoring mechanisms, and appropriate infrastructure.

#### Resources

The RACGP has produced several standards to support high quality care:

- RACGP *Computer and information security standards*, available at [www.racgp.org.au/ehealth/ciss](http://www.racgp.org.au/ehealth/ciss)
- RACGP *Standards for general practices* (4th edition), available at [www.racgp.org.au/your-practice/standards](http://www.racgp.org.au/your-practice/standards)
- RACGP *Standards for general practices offering video consultations: an addendum to the Standards for general practices* (4th edition), available at [www.racgp.org.au/your-practice/standards/video](http://www.racgp.org.au/your-practice/standards/video)

### 7.2 Security requirements

Maintaining information security is essential and requires planning and some technical understanding of the principles governing internet communication.

Essential computer security is maintained through effective communication, documentation of processes and identifying appropriate training for staff and GPs.

Computer and information security refers to:

- availability of information – it is available and accessible when needed
- integrity of information – it is not altered or destroyed in unauthorised ways
- confidentiality of information – access to information is granted to authorised users with access recorded.

Areas to consider include:

- quality of the videoconference transmission (internet speed)
- videoconferencing interface (software or hardware)
- video consulting management interface (scheduling, call launching)
- security of patient information (encryption and use of secure messaging)
- the physical environment.

Information security should be applied to telehealth in addition to compliance with the RACGP *Standards for general practices* (4th edition) and the *Computer and information security standards*.

#### Resource

Additional MBS guidance relating to security can be found at [www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-secpriv](http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-secpriv).

### 7.3 Privacy requirements

Best practice principles governing internet communication privacy should be applied to telehealth in addition to compliance with the RACGP *Standards for general practices* (4th edition) and the *Computer and information security standards*.

If the videoconferencing facility is located outside a normal consulting room it is worth ensuring that it has adequate patient privacy, both visual and audio.

#### Resources

The following websites provide information on security and privacy:

- National Privacy Principles, available at [www.privacy.gov.au](http://www.privacy.gov.au)
- State and territory privacy laws, available at [www.privacy.gov.au/privacy/other-privacy-jurisdictions/state-and-territory-privacy-laws](http://www.privacy.gov.au/privacy/other-privacy-jurisdictions/state-and-territory-privacy-laws)
- Privacy Victoria, available at [www.privacy.vic.gov.au/privacy/web2.nsf/files/map-of-privacy-and-related-legislation-in-australia](http://www.privacy.vic.gov.au/privacy/web2.nsf/files/map-of-privacy-and-related-legislation-in-australia)
- Additional MBS guidance in relation to security and privacy, available at <http://bit.ly/xVpDMD>
- Australian Government Department of Health 3guidelines on security and privacy published in the *Telehealth Business Case, Advice and Options Final Report*, available at <http://bit.ly/yJTf0A>.

## 8. Internet connectivity

The practice internet connection should be suitable for providing quality video consultations. A good internet connection is required at both ends, ensuring minimal interruptions or disruptions to both video and audio.

You can test your internet connection performance by visiting [www.speedtest.net](http://www.speedtest.net).

The results may look something like this:



Reproduced with permission from Speedtest.net

Figure 2. A screen grab of internet connection performance

### 8.1 Upload and download data speed

Two speeds that are referred to in relation to video consultations are 'standard definition' and 'high definition'. Many hardware manufacturers maintain that a minimum bandwidth to achieve high definition can be achieved at increasingly low bandwidths.

To achieve a high definition connection, an upload and download speed of over 2 Mbps is required. In most circumstances, this is easy to achieve in download speed, but not so easy in upload speed.

For video consultations the upload speed is just as critical as the download speed. A synchronous service, where upload and download speeds are identical, is ideal. However, a business grade, 'symmetrical' line is beyond the budget of most practices.

Depending on the technology and the resolution required, a minimum data speed of approximately 256 Kbps in each direction (upload and download) is generally required. Guaranteed upload speeds may cost considerably more than standard ADSL2 or cable connections.

### 8.2 The National Broadband Network

Fibre optic, cable and wireless internet connections are all part of the National Broadband Network (NBN) roll-out. For those fortunate enough to be in the early implementation areas of the NBN, it will offer a distinct improvement. Very fast data speeds are available with less delay in transmission and high affinity for video communication. However, the least expensive plans offer speeds and monthly data limits about the same as ADSL2+.

#### Resource

Further information on the NBN is available at [www.nbn.gov.au](http://www.nbn.gov.au).

### *8.3 Network and video quality*

The connectivity option will have a large impact on the quality of video and audio transmitted and received. An inadequate internet connection may reduce the user experience in the following ways:

- audio dropouts
- lip sync problems
- pixelation
- frozen frames
- video but no audio
- audio but no video
- total session disruption.

These problems may be caused by slow transmission (known as latency), packet loss (video and audio data being lost) and jitter (variations in the delay in sending information back and forth; faster, higher bandwidths tend to have less jitter).

Something to bear in mind if your practice chooses to use a mobile unit with a wireless connection to the practice router is that video consultations can experience a significant drop in quality of the video (eg. pixelation issues) in some rooms due to distance from the wireless router. It is a small thing, but it is important when selecting appropriate rooms for video consultations.

### *8.4 Current recommendations for video consultations*

For diagnostic or clinical management, UniQuest (available at [www.uniquet.com.au](http://www.uniquet.com.au)), commissioned by the Australian Government Department of Health, recommends the following specifications using hardware based videoconferencing solutions:

- minimum call speed/bandwidth 256 Kbps
- focus: autofocus
- optical zoom ratio: minimum 10x
- standards based far-end control of pan/tilt/zoom
- round-trip latency must be lower than 300 ms to avoid poor performance for video consultations.

The quality of your video consultation is dependent on your internet connection and you should consider the upload and download speeds.

These specifications should be considered, however, it is not always within practice budgets to meet these standards using hardware. Software-based systems on an internet connection (providing more than 256 Kbps upload and download speed) is acceptable for certain diagnosis, management and treatment. This is, of course, a judgement call by the GP or specialist that may be made at the time of connection, especially if the connection becomes inadequate.

## 9. RACGP position on Skype

Is Skype safe and appropriate for a clinical consultation? There is currently no clear evidence to suggest that Skype is unsuitable for clinical use, however, there are issues that GPs and other medical professionals need to be aware of before making the decision to use Skype.

The RACGP recommends that GPs and those providing clinical support on behalf of GPs (ie. practice nurses or Aboriginal health workers):

- register a Skype name that provides some pseudonymity
- avoid exchanging medical content, such as still images or desktop screen shots, during a video consultation using Skype
- always have a back-up mode of communication in case the connection drops out or cannot be made
- do not expect any technical support to be provided by Skype if a connection cannot be made.

In undertaking your initial business/clinical use case assessment, consider Skype as a low cost entry point to the world of telehealth. Given that there are no significant upfront costs and no upfront contracts, the business risk is small. Over time, once the ongoing demand and usage have been quantified, it may be worth considering moving to a professional software or hardware solution to ensure sustainability and quality of service.

### Resource

Further information on Skype including security, reliability and relevant legislation is available at [www.racgp.org.au/telehealth/](http://www.racgp.org.au/telehealth/).

## 10. Video consultation technology solutions

The MBS states that clinicians should be confident the technical solution they choose satisfies the MBS item descriptor and that software and hardware used to deliver a video consultation meet the applicable laws for security and privacy.

### Resources

Further MBS information on technical specifications is available at:

- [www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-techandclinical](http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-techandclinical)
- [www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-guidance](http://www.mbsonline.gov.au/internet/mbsonline/publishing.nsf/Content/connectinghealthservices-guidance).

When considering a range of technology options, no one specification is a determining factor in success. The practice needs to consider the overall use for videoconferencing and the people they intend to video consult with. This includes hardware, software, internet speeds, dedicated video equipment and the internal IT environment of the practice.

A number of examples are provided in *Section 4.1* that may help in deciding what would suit your practice.

### 10.1 Software

There is a growing number of software options, with an increasing number of user functions, including the use of 'invitations'. Invitations may not be the word all the software vendors use, but this generic term will be used in these guidelines. Invitations simply mean that the person who licenses the software can invite another person (or multiple people) to join a videoconference. These invitees are not required to own/pay for any specific type of software. This is a great feature of some videoconferencing software, and one that should be considered if your practice is planning on consulting with a number of different people.

In many cases, when you first use particular videoconferencing software, you are required to undertake some initial installation commissioning and configuration. This will include turning on and adjusting your webcam, testing and familiarising yourself with the video software, selecting the audio-in channel (dedicated microphone or webcam) and audio-out channel (headset, dedicated speakers or webcam), and checking the audio levels.

The RACGP website lists popular videoconferencing software, including their features, costs and the contact details of the vendor. This is not an exhaustive list, and you are encouraged to trial videoconference software until you find the most suitable one for your practice.

### Resource

[www.racgp.org.au/your-practice/e-health/telehealth/technology](http://www.racgp.org.au/your-practice/e-health/telehealth/technology)

## 10.2 Hardware

Hardware videoconferencing is considered the 'gold standard' for video consultations in the hospital sector. This equipment is also useful for education and meetings, however, many GPs find it is easier to use laptop based software in the comfort of their consulting room.

The RACGP recommends that practices seek further guidance on manufacturers' specifications and support from the hardware vendor. Minimum requirements include:

- frame rate: 15–30 frames per second
- round-trip latency: ideally this will be less than 300 ms (this may not always be achievable in remote settings). For very remote locations, where satellite is used, latency will be 250 ms.

### Resource

A list of hardware options for clinicians to consider is available at [www.racgp.org.au/your-practice/e-health/telehealth/technology/hardwaresoftware](http://www.racgp.org.au/your-practice/e-health/telehealth/technology/hardwaresoftware).

## 10.3 Audio quality

The quality of the audio signal is of similar importance to the quality of the video. Different solutions have markedly different audio quality and it is worth paying close attention to this when selecting a solution.

The RACGP recommends that practices test the videoconferencing solution in their own environment to ensure satisfaction. Minimum requirements include:

- audio encoded at a minimum of 16 Kbit/s
- speakers/microphones with echo-cancelling properties should be considered to reduce echo.

Audio quality can be improved by:

- using headphones (although this is not recommended when there are two people in the room, eg. the GP and patient)
- using a high quality webcam with a built-in high quality microphone
- using an echo cancellation box.

When all else fails – revert to the telephone. Although this appears an awkward alternative, it may prove useful. If you are in an area with poor internet coverage, your practice may save some bandwidth by muting the audio. This may increase the picture quality (use a speaker phone at the GP/patient end to assist with communication).



## 10.4 Interoperability

Enabling interoperability between products from different vendors has become very important as health information is exchanged via new technologies. Interoperability is the ability to exchange and use information between two systems. This technical compatibility will be an important factor in the delivery of video consultations.

Practices should pre-test the interoperability of general practice to specialist videoconference systems because without the systems, consultations cannot proceed. Practices are advised to keep a log showing the telehealth system used by participating specialists and confirmation of interoperability testing.

### Resources

For current videoconferencing protocol standards recommended by the Australian Government Department of Health, see *Guidance on security, privacy and technical specifications for clinicians* at <http://bit.ly/xMRH7B>.

## 10.5 Support

Providers of videoconferencing hardware and software should offer and provide prompt support. The type of service and the guaranteed response times should be clearly detailed in the sale agreement or service contract.

Once a practice has decided to embark on video consultations, the telehealth coordinator should have a clear understanding of where and how to seek hardware and software vendor support.

Have your internet service provider and practice's IT support contact details recorded and accessible, including the name of the authorised contact person. Also have the contact details of the company that provided the technology so the staff can assist with your hardware or software questions, as this may be a different telephone number to that of the sales person.

### Resource

The RACGP has set up a telehealth support service to provide general advice. Telephone 1800 257 053, email [telehealth@racgp.org.au](mailto:telehealth@racgp.org.au), or visit [www.racgp.org.au/telehealth](http://www.racgp.org.au/telehealth).

## *11. Practice environment and equipment*

### *11.1 Equipment*

When choosing equipment, consider the manufacturers' specifications for:

- computer software
- dedicated videoconference appliance
- a bundled videoconference system to include codec, monitor, audiovisual peripherals, stand, camera and microphone
- physical space limitations.

### *11.2 Monitors*

The RACGP recommends that practices seek further guidance on manufacturers' specifications and IT support. Considerations include:

- the choice of computer screen should be made pragmatically depending on the circumstances
- at the clinician desktop, large screen displays enable the clinician to see a large image of the patient/clinician and view/edit clinical information.

## *12. Setting up the video consultation software and equipment*

### *12.1 Using the equipment*

Depending on the video consultation software and equipment chosen, the vendor will provide information regarding use of the software, which should cover:

- registering and installing the software
- searching for and adding contacts
- configuring privacy settings
- scheduling consultations
- troubleshooting.

### *12.2 Connecting the camera*

If using an external camera, installation software may have been provided – please refer to vendor instructions. It is advisable to:

- pre-test the camera to ensure it is functioning correctly
- ensure correct camera gaze angle so that eye contact is achieved
- reach an agreed understanding if using a camera with zoom about whether the GP or specialist (or both) will take responsibility for moving the camera.

## *13. Practice facilities*

### *13.1 Room set-up*

Environmental requirements are the same as those for a normal consulting room (ie. a room that is private and large enough for 2–4 people to sit comfortably).

Many GPs and specialists have found it easier to consult using a laptop computer that is separate from their desktop computer. This enables separate access to the patient records and allows notes to be taken during a consultation. This configuration comes down to personal choice.

### *13.2 Facilities for video consultations onsite*

General practices offering video consultation services may need to adapt their practice facilities to provide an appropriate physical environment for telehealth consultations.

The RACGP *Standards for general practices offering video consultations* recommend that practices consider:

- a quiet, fit-for-purpose consulting room where the increased sound from telehealth care consultations will not be overheard by or disturb others
- arrangements to protect the privacy and dignity of patients who may be required to remove clothing for a physical examination (eg. a screen in the room or a separate private area where patients can remove clothing and be suitably covered with a gown or drape ahead of the video consultation)
- plain decor that will not distract from visual images on the screen
- good lighting, where high intensity light behind the patient being filmed is avoided
- ready access to medical equipment that may be needed during a video consultation
- ready access to resources for managing adverse events during a video consultation
- protocols to minimise interruptions (eg. 'do not disturb' signage that indicates when a video consultation is in progress).

### *13.3 Facilities for video consultations offsite*

General practices offering video consultations from sites located away from the practice should ensure that the facilities provide a safe and effective environment for video consultations in line with the elements described above.

## 14. *Standards for general practices offering video consultations*

The RACGP recognises that telehealth provides considerable opportunities to improve health outcomes and access for patients to 'attend' a consultation without some of the personal inconvenience or travel costs involved in a typical physical consultation.

To support the implementation of the MBS items, the Australian Government Department of Health engaged the RACGP to develop and disseminate standards. The aim was to help GPs interpret safety and quality issues in the context of a video consultation between a patient and a specialist at a distant location.

The addendum to the RACGP *Standards for general practices* (4th edition) highlights a range of safety and quality issues of particular significance to general practices offering video consultations. It should be emphasised that all criteria and related indicators in the *Standards for general practices* (4th edition) apply to general practices offering video consultation services – the addendum highlights areas of particular relevance. The potential for initiatives in the telehealth care arena is vast. The addendum, however, relates specifically to video consultations with a specialist at a distant location.

Decisions about whether or not the practice will offer a video consultation service should be made by the GPs in the general practice team. Careful consideration should be given to issues such as:

- patient safety
- clinical needs of patients
- clinical effectiveness
- patient preferences
- location of the practice
- location of telehealth facilities
- availability of Australian registered participating specialists
- access to appropriate training
- professional indemnity insurance as provided by a medical defence organisation, employer or commercial insurer.

### Resources

- New resources, referred to in the addendum to the *Standards for general practices* (4th edition), have been developed to assist GPs and practices in managing video consultations. These include a booking checklist for video consultations, a patient information brochure template, and a factsheet on video consultation etiquette. See [www.racgp.org.au/telehealth](http://www.racgp.org.au/telehealth).
- The addendum to the RACGP *Standards for general practices* (4th edition) is available on the College website at [www.racgp.org.au/your-practice/standards/video](http://www.racgp.org.au/your-practice/standards/video).

## *15. Medicolegal guidelines*

GPs (or other support clinicians) participating in a video consultation should ensure they have professional indemnity insurance as provided by a medical defence organisation, employer or commercial insurer.

## *16. Policies*

When choosing to offer video consultations, practices will need to further develop existing practice policies and procedures related to:

- management of patient health information and the security of health information
- documentation of the video consultation
- provision of clinical handover.

### *16.1 Policy on video recording*

The RACGP recommends that general practices adopt a default position of not recording video consultations, and not authorising patients to make their own recordings of video consultations.

In accordance with the recognised principle of only collecting health information that is necessary, a decision to record images during a video consultation would generally be made by a clinician on the basis of collecting only the information that is clinically necessary for managing a patient. In the same way that a physical consultation is not normally recorded, it is not anticipated that a video consultation would be recorded.

Where a video recording is made, the practice needs to meet community expectations and legal requirements to protect patient privacy. Clinicians need to be mindful of their own privacy in relation to the risk of video recordings being redistributed in the public domain without their consent. Since these scenarios can be problematic and have unintended consequences for all parties, it is suggested that recording be reserved for exceptional circumstances where it is absolutely clinically necessary.

## *Glossary*

**Asynchronous:** A term used to describe store-and-forward transmission of medical images or information because the transmission typically occurs in one direction in time.

**Bandwidth:** The amount of data that can be passed along a communications channel in a given period of time.

**Business grade broadband:** A reliable, high quality network, with reliable and consistent speeds and access to IT support, which meets the requirements of video consultations.

**Codec:** A device or computer program capable of encoding and/or decoding a digital data stream or signal. It enables compression and/or decompression for digital video and audio.

**Connectivity:** The ability to make and maintain a connection between two or more points in a telecommunications system.

**Contention ratio:** The ratio of the potential maximum demand to the actual bandwidth. The higher the contention ratio, the greater the number of users who may be trying to use the actual bandwidth at any one time and, therefore, the lower the effective bandwidth offered, especially at peak times.

**Designated support clinician:** A member of the general practice team (eg. another GP, a practice nurse or a registered Aboriginal health worker) who provides clinical support on behalf of a patient's usual GP at the patient end of a video consultation with a specialist in a distant location.

**Digital certificate:** A mechanism used to verify that a user sending a message or data is who he or she claims to be.

**Distant site:** The distant site is defined as the telehealth site where the provider/specialist is seeing the patient at a distance or consulting with the patient's provider. The site may also be referred to as the consulting site.

**Download speed:** The speed at which data or programs are transferred from a server or host computer to one's own computer or device.

**Dual care:** The separate and concurrent duty of care that belongs to any support clinician providing patient-end clinical support and a specialist during a video consultation where the specialist is at a distant location.

**Encryption:** The process of converting plain text characters into cipher text (ie. meaningless data) as a means of protecting the contents of the data and guaranteeing its authenticity.

**Endpoint:** Used in many standards specifications to describe an entity that can initiate and receive communication. In audiovisual communication, an endpoint is a video system (videoconferencing or telepresence), a telephone handset or a soft client.

**End-to-end integration:** The successful connection/compatibility of two parties from one point to another.

**End-to-end quality assurance:** The maintenance of a high quality service from one point to another.

**Firewall:** A network node set up as a boundary to prevent traffic from one segment crossing over into another.

**Frame rate:** The frequency (rate) at which an imaging device produces unique consecutive images called frames.

**Hardware:** A computer and the associated physical equipment directly involved in the performance of data processing or communications functions.

**Interoperability:** The ability to exchange and use information between two systems. More generally, interoperability is the ability of systems and units to provide services and to accept services from other systems and units and to use the services to operate effectively together.

**Kbit/s and kbps:** The rate at which data is transferred per second.

**Kilobyte (kB):** A measure of digital information.

**Latency:** A measure of time delay experienced in a system, the precise definition of which depends on the system and the time being measured.

**Packet loss:** Occurs when one or more packets of data travelling across a computer network fails to reach its destination.

**Patient end:** In a video consultation between a patient and a specialist, the location where the patient is present.

**Pixelation:** An effect caused by displaying a bitmap or a section of a bitmap at such a large size that individual pixels, small single-coloured square display elements that comprise the bitmap, are visible to the eye.

**Point-to-point (P2P) videoconference:** Peer-to-peer videoconferences use a computer network to connect participants for user communications as well as file or content sharing. P2P conferencing can transmit audio, video, data or any digital format as well as real-time telephony traffic.

**Pseudonym:** An assumed name by which other healthcare providers can recognise and contact you.

**Real-time video:** A picture with more than 24 frames per second, which therefore looks continuous.

**Router:** A device that provides connectivity between networks (eg. between your internal network and the internet). A router forwards data from one network to another and vice versa.

**Soft client:** A software program, such as Skype, installed on a device like a desktop computer or mobile device ('app'). Clients generally interact with a server, or other compatible clients, over a network.

**Software:** The programs, programming languages and data that direct the operations of a computer system. Word processing programs and internet browsers are examples of software.

**Standard:** A statement established by consensus or authority that provides a benchmark for measuring quality, and is aimed at achieving optimal results.

**Symmetrical:** The term symmetric (also symmetrical) refers to any system in which data speed or quantity is the same in both directions, averaged over time. Examples include two-way radio, standard twisted-pair telephone internet connections, cable modem internet connections in which the cable is used for transmission as well as for reception, and full-motion videoconferencing.

**Synchronous:** This term is sometimes used to describe interactive video connections because the transmission of information in both directions is occurring at exactly the same period or in real time.

**Teleconference:** A live meeting among several people who are removed from each other by short or long distances, but who are linked by a telecommunications system and equipment.

**Telehealth:** 'Healthcare at a distance', which involves the electronic transmission of health information and/or images in the delivery of clinical services utilising a range of telecommunication technologies.

**Upload speed:** The speed at which data or programs are transferred to a central computer/device.



**Video consultation:** A consultation conducted by videoconference between a patient and a specialist in a distant location.

**Video consultation coordinator:** The member of the general practice team with primary responsibility for coordinating patient bookings, clinicians' availability and properly functioning equipment.

**Video consultation etiquette:** The professional behaviour that supports quality visual and audio performance during a video consultation.

**Video endpoint:** A videoconferencing system such as a camera and codec, or in the case of an immersive telepresence suite, an entire room composed of multiple cameras and codecs that provide a unified, lifelike experience.

**Voice over Internet Protocol (VoIP):** Transmission technologies that allow the delivery of voice communications over the internet and other packet-switched networks. VoIP allows devices or people using them to communicate with each other. Recently, IP technology has expanded to allow video as well as voice communications.



Healthy Profession.  
Healthy Australia.