

THE FRED HOLLOWES FOUNDATION INDIGENOUS AUSTRALIA PROGRAM

Telehealth Information Sheet 8: What technologies are required to enable telehealth?

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WHAT IS TELEHEALTH TECHNOLOGY?

Any technology that is used to store, share, or analyse health information can be referred to as e-Health. This broad category includes practice management systems and online patient portals. Telehealth is a group of technologies, including both software and hardware, within health IT that is used to provide clinical care, health information, or health education at a distance.

Ophthalmology is particularly suited to telehealth due to its high reliance on visual information for the diagnosis and management of ocular disease¹.

Technology in perspective

Technology is often identified as a key barrier to delivery of successful telehealth services. However, with clinician acceptance the single most important factor identified by Wade², technology must be adequate as a base requirement, but is only part of the story. Investigations by Wade³ found technological considerations to include:

- Technology must be adequate for the activities proposed
- If clinicians want to do telehealth, they will work with the technology (if adequate) they are given
- Clinicians had little influence on the type and quality of the technology they were using
- Internal IT support was much more important than external vendors.



Modes of telehealth

As mentioned back in the first of the telehealth information sheet series, there are two main modes for delivery of telehealth:

1. **Synchronous, or Real-Time:** where participants interact with each other simultaneously, for example by video consultations, telephone, live text transmissions or chat rooms. Scheduling is very important.

2. **Asynchronous, or Store-and-Forward:** where participants send and receive the information, such as still images, patient history and results of diagnostic tests, at different times. As the data is stored, the service can be operated with more flexibility of timing. Examples include sending photographs, emails, or patient data such as blood pressure or blood sugar readings.

Real-time

The Royal Australian College of General Practitioners suggests when assessing the range of technology options for video consultations to consider hardware, software, internet connections and the environment of the practice. They provide resources to assist practitioners decide what will work best for their practice and patients when offering video consultations, such as:

- Popular video conferencing software
- Hardware options to consider
- Guideline on current videoconferencing protocol standards RACGP summary
- Internet connectivity
- Advice on use of Skype for clinical consultations

Store-and-forward

A 2014 review found teleophthalmology is amenable to store-and-forward consultations, where screening for diabetic retinopathy may expose the patient to a new examination, for example retinal photography, but the interaction with the health care provider remains face-to-face with the 'tele' component of the service being transparent to the patient⁴.

Example using both real-time and store-and-forward technology: the Lions Outback Vision Teleophthalmology Service

The use of infrastructure by this service is described⁵ as:

- no minimum infrastructure requirement for referring optometrists - from practices with only a slitlamp to those capable of performing optical coherence tomography, visual fields, and wide angle retinal photography.
- Referrals sent via a secure messaging system on the Lions Outback Vision website, known as 'Oculo' (Centre for Eye Research, Melbourne, Australia), or via fax or email.
- Video conferencing is performed using freely available software such as Skype (Microsoft), and FaceTime (Apple).
- Practitioners are prompted to ensure that these platforms satisfy privacy requirements in their area of practice prior to using them.
- Lions Outback Vision ophthalmologists conduct consultations using their internet connected laptop or smart phone, either from the main clinic site in Perth or from regional areas at the end of an outreach clinic or surgery day.
- A part-time administrative assistant is employed by Lions Outback Vision to coordinate the booking of teleconsultations, and to follow up on outcomes such as surgery bookings following a teleconsultation.
- <https://www.outbackvision.com.au/book-a-consultation/>

A 2014 Lions Eye Institute report categorised the level of telehealth sophistication required for local management as⁶:

- Rudimentary: only teleconferencing equipment
- Basic: (a) plus slit lamp, tonometer and anterior segment camera
- Advanced: (b) plus retinal camera and visual field machine
- State of the art: (c) plus an ocular coherence tomography (OCT) machine

The associated audit showed that if the referrer had state of the art equipment, up to 54% of patients could have been managed locally via telehealth, rather than travelling to Perth.



Further information on technology for telehealth

The Australian College of Rural and Remote Medicine developed a world-leading eHealth and telehealth offer for registered users, members and Fellows, and

maintains an extensive directory of technology products including videoconferencing hardware, desktop and mobile software solutions:

<http://www.ehealth.acrrm.org.au/technology-directory>

Figure 1 Australian College of Rural and Remote Medicine telehealth webpage <http://www.ehealth.acrrm.org.au/>



This information sheet has been prepared by an external consultant in collaboration with the Indigenous Australia Program.

This is a live document and any corrections, additions or other feedback is most appreciated.

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