Telehealth Clinical Practice Guide

2021

Optometry AUSTRALIA

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Optometry Australia has developed this Clinical Practice Guide in consultation with an expert working group comprised of experienced practitioners.

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1. Executive summary

Telehealth enables more people to access eyecare. Telehealth also creates a new and different environment to deliver eyecare and enables the possibility of optometrists providing better care utilising emerging technologies. Whether it is a phone call to follow up a patient, managing a query from a concerned patient through to a systematic service that is offered to patients, telehealth enables engagement with a patient that is not physically with the optometrist. Optometrists already provide this type of care, and by supporting and formalising this care it will become a part of regular practice.

As technology evolves and the expectations of patients and practitioners change it is expected that this will become a larger part of the care that optometrists provide. It is not expected that telehealth will completely replace the need for face-to-face consultations, but it provides another mechanism to improve care and communication with our patients. Embracing changes that come with technology will enable optometrists to continue to provide care that is valued into the future.

This guide enables practitioners to support telehealth and integrate it into routine clinical care. By engaging with patients in new ways optometrists will be able to provide more comprehensive care and allow patients to access our services more readily.

2. Background

This guide fosters the capacity for engaging in telehealth and innovative models of care. This may be directly with patients and/or in collaboration with ophthalmologists and other health practitioners. Being able to provide eye care services via telehealth improves access to care by removing or reducing barriers that exist in face-to-face care. This may be in circumstances where the patient is unable to attend the practice, or where it is safer for the consultation to occur remotely or; for convenience when the consultations are equally effective. Telehealth expands how the community can access care and can be used to improve eye care outcomes. It is not expected that telehealth will replace face-to-face care, however telehealth will become part of normal clinical care that is an adjunct to face-to-face care.

This guide has been developed in consultation with a panel of Australian optometrists with experience in telehealth and supported by a review of literature of current evidence based context. As with all health care provision there is evolution over time in how practitioners deliver care and the technology that enables this, however in telehealth this evolution is particularly rapid. How society connects with each other and how information is transferred has transformed and most of the public now have access to sophisticated, internet connected devices within their homes. Utilisation of technology to transform how optometrists communicate and manage patients is becoming an increasing expectation. The challenge for the practitioner is to utilise these technologies in an appropriate way that maximises the benefits, while minimising the risks of these new care paradigms.

Providing care through telehealth changes the clinical environment and the examination options available to the practitioner, however as with face-to-face practice the optometrist needs to make appropriate clinical judgements. The balancing of risks and benefits for any patient interaction is common between face-to-face care and telehealth and practitioners should make judgements about when, how and with which patients telehealth should be utilised.

3. What is Telehealth?

Telehealth is the use of technology to communicate and provide care without being in the same room as the patient. This can be as simple as discussing the patient's symptoms over the phone and providing support, through to a fully integrated system that allows viewing of photos, videos and scans to enable a comprehensive diagnosis and management. Telehealth encompasses both practitioner-to-patient interactions and practitioner-to-practitioner interactions. Practitioner-to-patient interactions is where the care provider utilises telehealth to deliver care directly to the patient. Practitioner-to-practitioner telehealth also exists, and this is where a practitioner may access expertise from another practitioner via telehealth to aid care delivery. Telehealth is generally used as an adjunct to face-to-face care, both in initial examinations and for subsequent consultations. Providing appropriate clinical care may require a mix of face-to-face and telehealth consultations and this may change how care is provided to the patient. The majority of the literature available regarding telehealth delivered eyecare does not specifically address primary eyecare. The published information about tertiary and disease-specific programs can be utilised to guide the primary care in the provision of telehealth.

Telehealth encompasses a diverse set of circumstances and mechanisms for a practitioner to provide health care. Appropriate use of telehealth would consider the facilities available, the clinical circumstances and the abilities of the patient and the practitioner. The aim would the provision high quality care in a safe, acceptable, and efficient way. Telehealth can be defined by the mechanism of interaction, for example whether the telehealth is delivered in real time with the patient present, or whether data is collected, and the patient isn't present for this. Telehealth can also be categorised by the overall clinical aim, for example whether the telehealth model is aimed to screen a population or evaluate an individual for a disease. These definitions are useful when describing telehealth models and understanding the published literature about the topic.

3.1 Definitions

3.1.1 Tele-optometry

The optometrist provides direct care to the patient through a telehealth medium, often videoconferencing or telephone. The optometrist explores the symptoms, signs and other risk factors with the patient as they would in a face-to-face consultation and utilising available examination tools and clinical judgement manages the episode of care. This may be a stand-alone service, or as an adjunct to face-to-face care.

3.1.2 Tele-ophthalmology

Delivery of ophthalmology services through telehealth to a patient. This is often as a tertiary service following a referral from a primary care provider such as an Optometrist or General Practitioner. The interaction may be directly with the patient or may be in collaboration with the referring health care practitioner.

3.1.3 Real time or Synchronous

Real time communication between patient and health care provider with audio-visual telecommunication. This can be over the phone, videoconferencing or any other medium that allows two-way communication between the practitioner and that patient.

3.1.4 Store-and-forward or Asynchronous

Transmission of clinical data between healthcare provider and patient for evaluation without real time communication. The health care provider evaluates the data remotely after it is collected, then the patient is informed of the outcome and management.

3.1.5 Remote patient monitoring

This is a form of telehealth where data is collected from the patient in their homes, or a convenient process away from the health practitioner. An example would be a person suffering from diabetes having their glucometer able to track and communicate with their primary care physician. It enables the care provider to monitor remotely and intervene when required.

4. Telehealth in Australia and internationally

It has been well reported throughout the literature that telehealth has begun to play a significant role in medicine. Tele-optometry holds promise in both synchronous and asynchronous methods, however, it currently has limited representation in published literature. This may change as the interest in utilising this grows, and practitioners begin to embrace this model of care delivery. Much of the literature available for telehealth eyecare in Australia is in the form of tele-ophthalmology following referral and where there is facilitation of the consultation by the primary care provider. It is expected that as care delivery through telehealth by optometrists increases there will be an increase in the literature describing this.

Telehealth use in Australia was pioneered in areas where remoteness and distance are very significant barriers to care. The majority of the Australian literature has been produced in Western Australia with the support of the Lion's Eye Institute. The models of care provides evaluative consultations by ophthalmologists supported by health care providers in the patients location (generally optometrists and GPs) paving the way for outreach clinic coordination and improved tertiary eyecare access in regional and remote Western Australia.[1, 2] This group addressed the barriers to teleophthalmology by enabling synchronous communication between the patient, optometrist and ophthalmologist. The program began in 2011 and primarily services patients that are in regional and remote settings with over 98% of patients from these locations[2]. Generally, the telehealth consultation was preceded by an optometrist examining the patient and making an assessment that ophthalmology input was required. The optometrist would organise and schedule a time for the optometrist, ophthalmologist, and patient to participate simultaneously in a telehealth consultation. This was using real-time videoconferencing enabling audio and video communication. This greatly reduced the need to travel for these clients and therefore the cost burden for both the patient and the government through travel subsidisation. The total cost-saving was estimated to be 1.1 million AUD per year[3]. While this cost analysis is specific to the Western Australian context and this program it demonstrates that the appropriate utilisation of telehealth can provide cost and time savings for patients and practitioners. While the use of telehealth to enable ophthalmologist input may be a part of the future of care delivery there is significant scope for optometrist to patient care provision that has not been examined in detail in research literature.

Internationally, eyecare through telehealth has been well described and utilised in a variety of ways. These programs can be broadly divided into disease-specific programs and patient specific evaluative programs. There are numerous disease-specific screening telehealth programs around the world with the majority screening for diabetic retinopathy[4]. The Department of Veterans Affairs in the United States began its telehealth programme in

2005 and has now established well defined guidelines and proven the cost-effectiveness as well as broadened the access for patients.[5] Disease-specific evaluative programs differ to screening programs as the patient is known or suspected of having the pathology. They aim to provide diagnosis and assessment of severity to enable management. Disease-specific evaluative programs have been used for glaucoma, emergency/trauma care, retinopathy of prematurity, cataract, non-diabetic retinal disease, age-related macular degeneration and strabismus[4]. Each of these models of telehealth required the acquisition of clinical information from the patient, then assessment of this information by the eyecare practitioner.

Tele-optometry holds promise in both synchronous and asynchronous methods, however, it has limited representation in the Australian and international literature. The challenge for the primary eyecare provider when a patient seeks care for the first time is that they are not differentiated in any way. They can have any number of pathologies, and this provides a challenge in applying information from published literature. It is expected that telehealth will be used in conjunction to face-to-face care in a new care paradigm that provides convenience and safe practice for the patient.

The Allied Health Professions Australia has produced a comprehensive telehealth guide for Allied Health Professionals[6]. This explores many of the challenges faced by health professionals when implementing provision of telehealth services. The Australian Health Practitioner Regulation Agency also has developed guidance for telehealth[7].

5. Clinically Appropriate Telehealth Care

As with all clinical care optometrists need to make professional judgements about when it is appropriate to manage certain patients and presentations via telehealth. The optometrist needs to consider all the risks and compare these to all benefits of providing care by telehealth. This needs to be considered for each patient scenario and the following clinical care model is designed to assist with making these decisions. In many circumstances utilising telehealth reduces the barriers to care and follow up and may result in patients accessing care that would not be able or willing to access face-to-face care. For example, a person may have caring, or work responsibilities causing them to avoid care entirely, and a telehealth consultation would provide them with care that would otherwise not be accessed. This may be initial care for a concern they have, or follow-up care to a previous consultation.

6. Model for Telehealth Consultation

The following diagram is to assist optometrist to provide clinically appropriate telehealth services. It is designed to be able to be applied in each telehealth presentation.

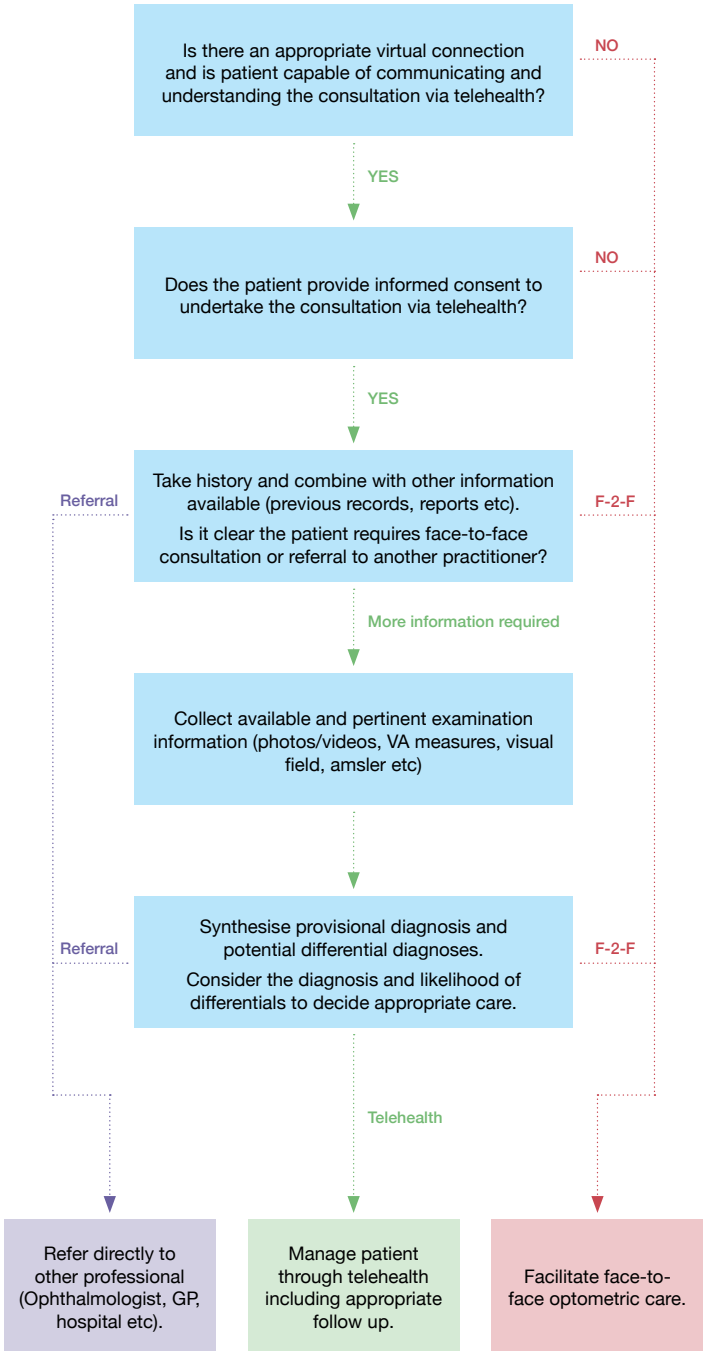


Figure 1 - Model for telehealth consultation. Abbreviation: F-2-F is Face-to-face consultations.

Appropriate Virtual Connection

The optometrist should ensure that there is a secure and reliable connection with the patient whether that is over the phone, videoconferencing software or some other virtual environment. The same requirements for privacy and confidentiality exist whether the consultation is face-to-face or telehealth. This is discussed in greater detail in the practice technology and infrastructure section.

Capability to Communicate and Understand

Telehealth relies on the communication between the practitioner and the patient. As there are often fewer objective measurements that can be taken through telehealth than in face-to-face consultations, communication is key to good outcomes. If the patient is unable to understand or communicate over telehealth it may be inappropriate to provide care in these environments. Issues such as hearing loss, vision impairment or language barriers may be able to be managed more easily through telehealth with the appropriate technology. Notwithstanding this there will be patients that are not capable of engaging in care in this environment, and the optometrist may be required to see the patient face-to-face in these situations. The optometrist may find at any point in the consultation that the patient is not able to undertake the consultation by telehealth and should facilitate face-to-face care.

Patient choice and informed consent

While there are many circumstances where telehealth can provide high quality eyecare it is important that the patient is provided with the option of face-to-face care and is fully informed of the limitations in the use of telehealth. Some patients will prefer face-to-face consultation and this choice should be respected.

Informed consent is a person's voluntary decision about health care that is made with knowledge and understanding of the benefits and risks involved.[8] This includes clinical and financial aspects of care. The optometrist needs to provide information that the patient can understand prior to asking for consent. Consent should be sought and recorded in their clinical record prior to any examination taking place. When gaining informed consent for the use of telehealth it is important to outline that by using telehealth there may be less information available to the practitioner and this could potentially impact their capacity to make accurate clinical judgements.

Taking history and combining with available information

As with face-to-face consultations the clinical history of the patient is often the most important information to guide the examination and management. When using telehealth, the optometrist should collect all the information that is pertinent and available by talking with the patient. As with conventional practice this information combined with information on their clinical records or reports should be used to plan the consultation.

At this point the optometrist may have enough information to deem that face-to-face consultation or referral to another health professional is required, and this should be facilitated.

Collect available and pertinent examination information

The optometrist should work with the patient to gather clinical examination information that may be important for the patient presentation. The amount of information and clinical data available will depend on the patient's capabilities, the technology available and if there is a technician or assistant that is able to help.

For many consultations, photos and videos of the eye may be able to be captured and transmitted to the optometrist. Visual acuity may be able to be measured or approximated and visual field analysis technologies are available that can be undertaken at home.

For telehealth models with technicians or assistants, significantly more information can be gathered. This may enable gathering of equivalent amounts of data as a face-to-face consultation, though this is heavily dependent on the skills and training of the technician and the technology available.

Synthesise provisional diagnosis and potential differential diagnoses

Following history and clinical examination the optometrist should synthesise a diagnosis and potential differential diagnoses. The optometrist must then consider if these diagnoses are appropriate to be managed via telehealth, required face-to-face consultation or referral to another health practitioner. In some circumstances an accurate diagnosis will not be clear. In these circumstances the optometrist should consider the likely risks associated with each of the differential diagnosis. If all likely differential diagnoses are benign and unlikely to cause serious adverse outcome, the optometrist may choose to treat over telehealth.

Manage patient through telehealth including appropriate follow-up

As with all clinical care the optometrist should develop the management in collaboration with the patient. This should include all information the patient requires to implement the management. Appropriate follow up should be included in the management and whether this would be over telehealth or face-to-face.

Patients that require face-to-face optometry care

In circumstances where appropriate management of the patient is not possible via telehealth the optometrist should have a system in place to provide or refer the patient for face-to-face care. This may include referring to another optometrist as appropriate.

The details of those pathways to care will be specific to the location and the healthcare environment around the patient and the practitioner. This should be considered prior to engaging patients through telehealth.

Patients that require ophthalmology or other health practitioner care

Telehealth consultations may result in an optometrist finding that a patient requires care from an ophthalmologist or other care provider. It is important that the optometrist can effectively guide the patient to the care they require. The optometrist should know the local healthcare environment and understand how to efficiently guide the patient to the care they require.

For some consultations it is more appropriate to delay consultations until a face-to-face appointment can take place, or direct that patient to where face-to-face care can be provided. For example, an optometrist may decide that for regular check-ups in healthy individuals without significant risk factors or symptoms, delaying the consultation until face-to-face care is possible is in the best interests of the patient. In other circumstances where a patient has presented with new signs or symptoms it may be in the best interests of the patient for the optometrist to provide guidance, prescribe optical devices, prescribe medicines or provide guidance via telehealth.

Optometrists obligations

Optometrists are bound by their code of conduct.[8] Optometrists are required to provide appropriate clinical care in all consultations whether by telehealth or face-to-face. The decision about whether telehealth care is appropriate should be made in collaboration with the patient on a case-by-case basis.

7. Telehealth Care in Action

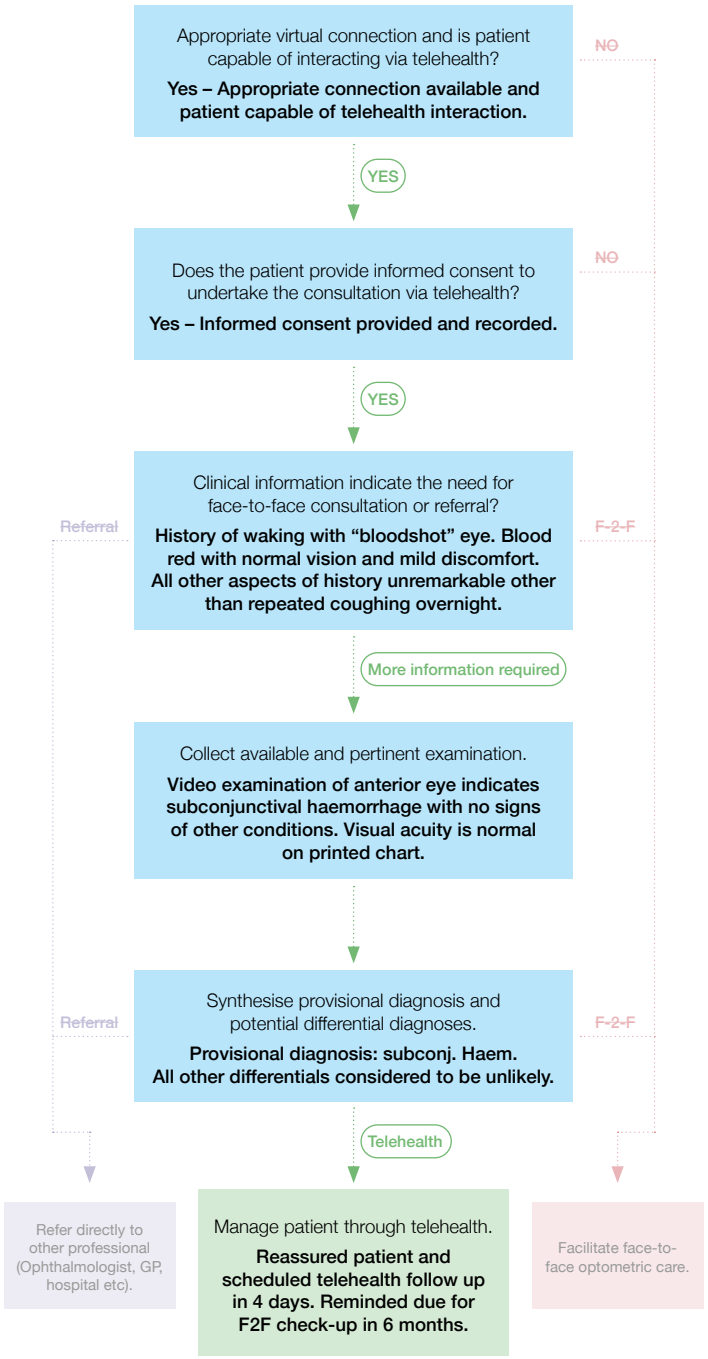
7.1 Initial Care

The range of initial presentations that could effectively be managed through telehealth is dependent on the amount of clinical information that is able to be gathered from the patient. For example, in a model where a health worker or assistant is able to gather clinical data such as visual acuity, pinhole acuity, anterior photographs and retinal photographs in conjunction with synchronous videoconferencing there would be a significantly greater range of presentations that would be able to be effectively managed compared with synchronous videoconferencing alone. The following examples are provided as possible presentations that could be managed by telehealth. This list is by no means exhaustive, and the optometrist should consider if telehealth is appropriate on a case-by-case basis.

Example 1 – Subconjunctival Haemorrhage

The patient accesses optometric telehealth care due to waking with a blood red right eye following repeated coughing overnight. The optometrist is able to undertake a telehealth consultation to ascertain the diagnosis of a subconjunctival haemorrhage. The optometrist reassures the patient and schedules a review for 4 days via telehealth and outlines that the person should return for their regular comprehensive review of eye health face-to-face at an appropriate time.

Below is a representation of the telehealth consultation undertaken.

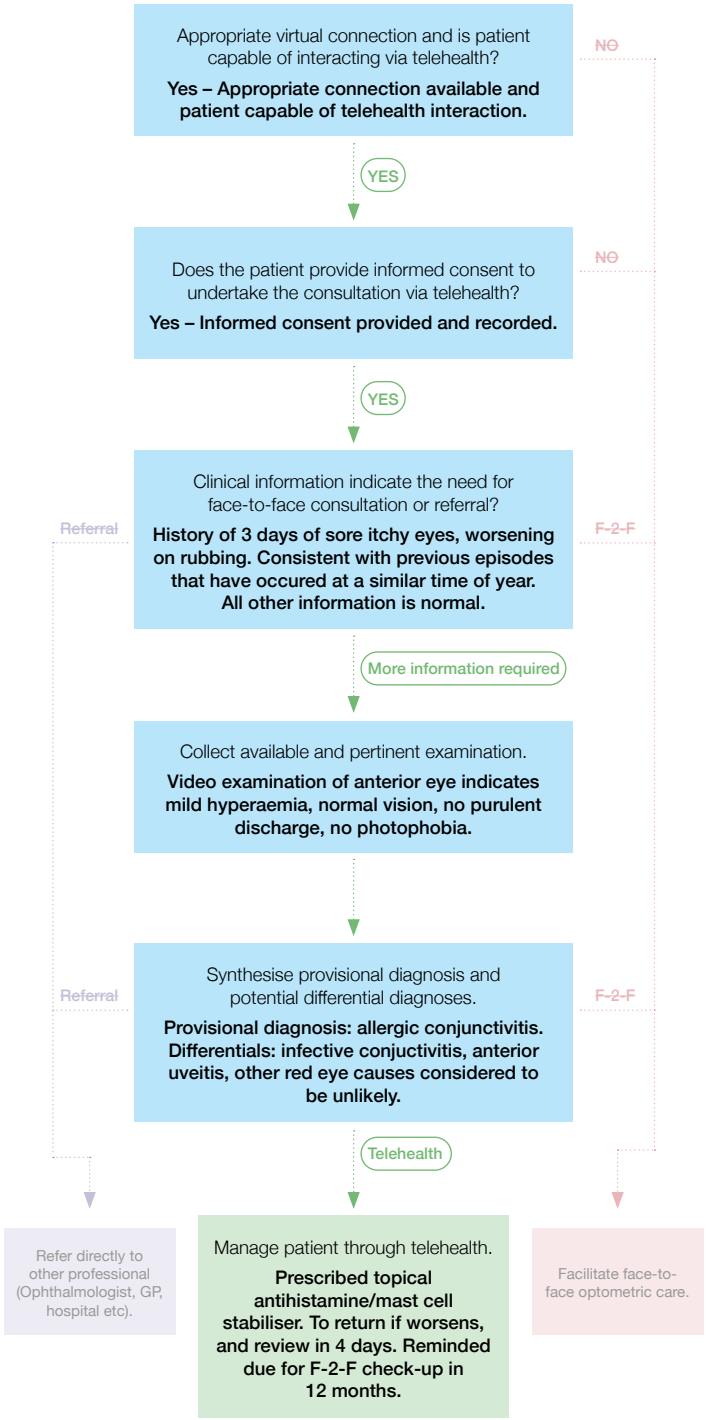


The optometrist considered the inherent limitations of telehealth such as:

- Informed choice by patient to undertake care through telehealth.
- Some patients will find telehealth more difficult and steps taken to ensure the patient is enabled to participate to allow high quality clinical care.
- Extra steps may be required to care to compensate for difference in clinical data available compared with face-to-face examination.
- Professional judgement required to decide risks and consequences of diagnosis and potential differential diagnoses.

Example 2 – Seasonal allergic conjunctivitis

The patient accesses optometric telehealth care due to itchy, mildly red eyes. The optometrist explains the limitations of telehealth and the patient provides consent for the consultation. The optometrist then takes a comprehensive history from the patient and finds that this is a yearly episode of allergic conjunctivitis. The optometrist prescribed a topical antihistamine/mast cell stabiliser and organises a telehealth review for 4 days. At the review, the optometrist outlines the need to continue with comprehensive routine review at an appropriate time.



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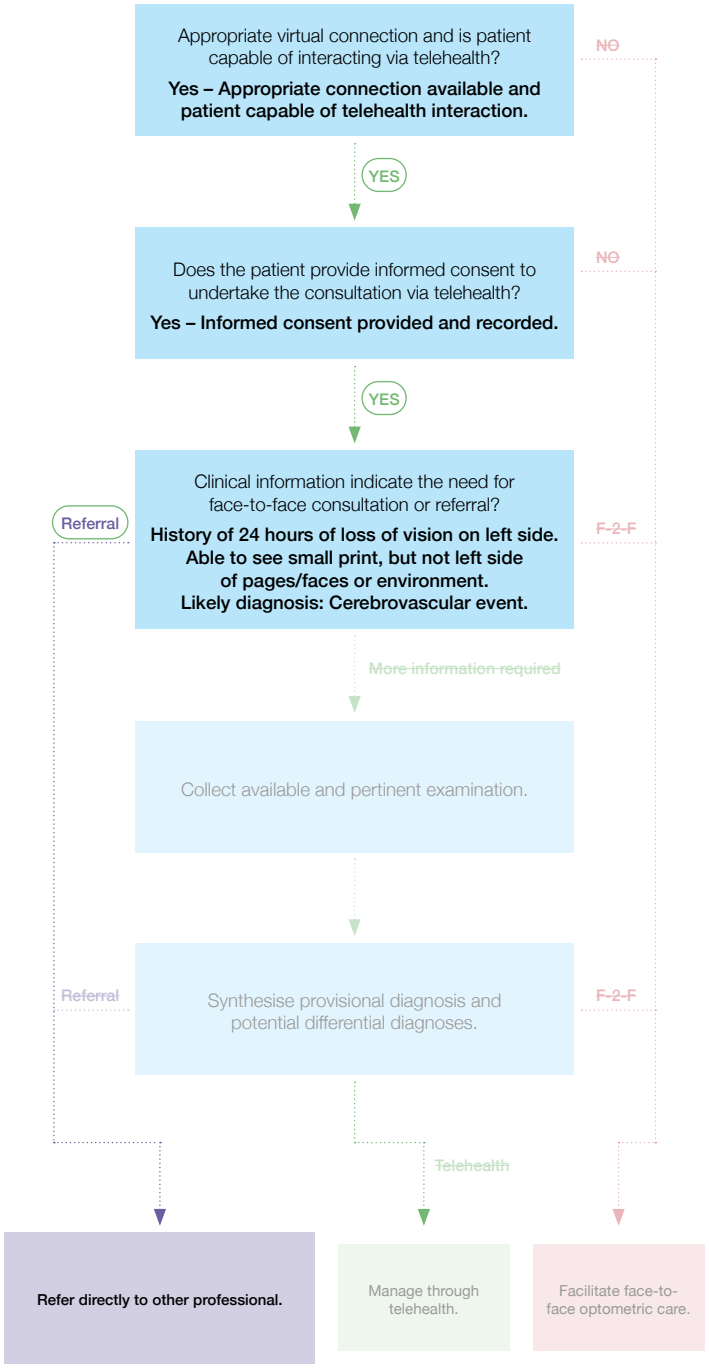
- Professional judgement required to decide risks and consequences of diagnosis and potential differential diagnoses.

Example 3 – Acute visual field loss

The patient accesses optometry telehealth care due to noticing a significant change in vision for the last 24 hours. The optometrist explains the limitations of telehealth and the patient provides consent for the consultation. The optometrist then takes a comprehensive history from the patient and finds that there is a loss of visual field on the left side in both eyes that approaches central vision. The optometrists recognises that this is likely a cerebrovascular accident (CVA) and refers the patient directly to appropriate local care. In this example that was the local hospital. The patient was followed up in the weeks following to discuss appropriate long term eyecare.



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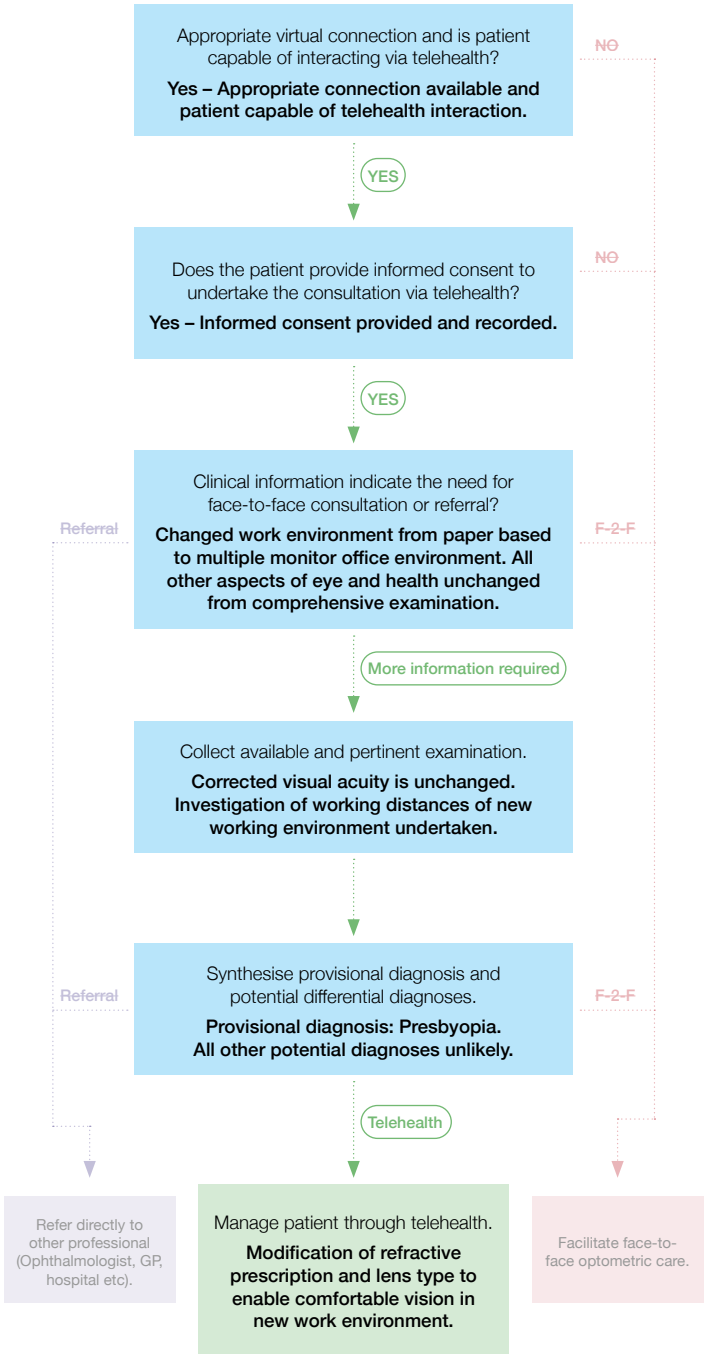
- Professional judgement required to decide risks and consequences of diagnosis and potential differential diagnoses.

7.2 Subsequent or follow-up care

Providing care via telehealth following a face-to-face examination enables the patient to access care with reduced barriers, while the optometrist has significant clinical data on which to base their judgements. The range of conditions that an optometrist is likely to be comfortable managing, at least in part, through telehealth following an initial face-to-face consultation is greater. The optometrist can understand the underlying condition of their eyes and vision enabling informed judgements regarding the management of the patient. The following examples are provided as possible subsequent consultations that could be undertaken by telehealth. This list is by no means exhaustive, and the optometrist should consider if telehealth is appropriate on a case-by-case basis.

Example 1 – Near vision difficulty

The patient contacts their usual optometrist and requires care due to a changing work environment within their regular review schedule. They have changed from a small laptop at work, to a multiple large-screened workstation. The optometrist explains the limitations of telehealth and the patient provides consent for the consultation. The optometrist then takes a comprehensive history from the patient and finds that the patient is needing to lean forward to be able to see the screens well. All other aspects of the patient's eyes and vision are unchanged. As a distance refraction was undertaken at the last appointment it was used in conjunction with updated working distances to calculate an updated spectacle refraction. The optometrist outlines the need to continue with comprehensive routine review at an appropriate time.



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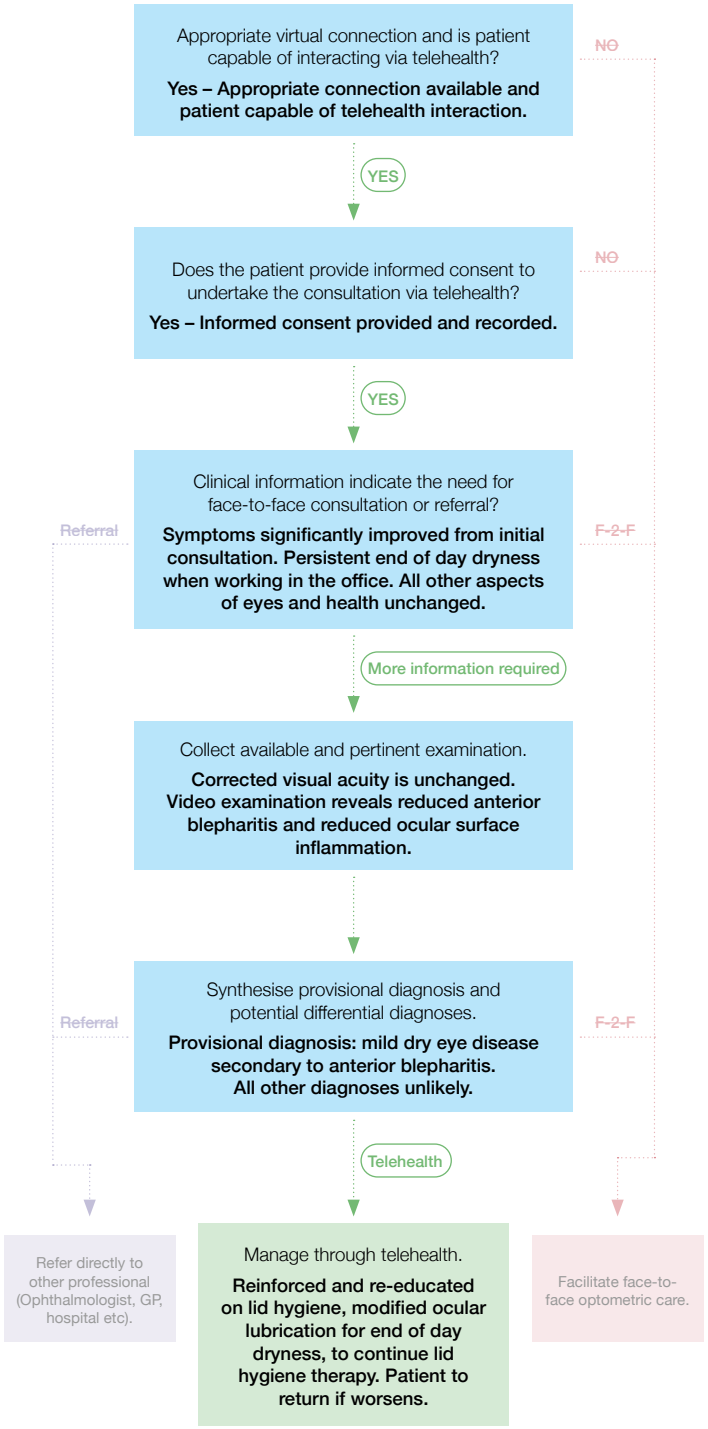
Example 2 – Dry eye review

The patient had a face-to-face consultation and was diagnosed with anterior blepharitis. The optometrist managed the patient with lid hygiene therapy and supportive topical ocular lubrication. A telehealth review was scheduled for 2 weeks. At the telehealth review the optometrist informed the patient of the limitations of telehealth, and a discussion about treatment and symptoms was undertaken. The patient's symptoms had improved, however was having ongoing issues of end of day dry eye symptoms. The optometrist reinforced the lid hygiene regimen and modified the supplementary lubricant used. The patient was reminded of when to return for routine comprehensive review.



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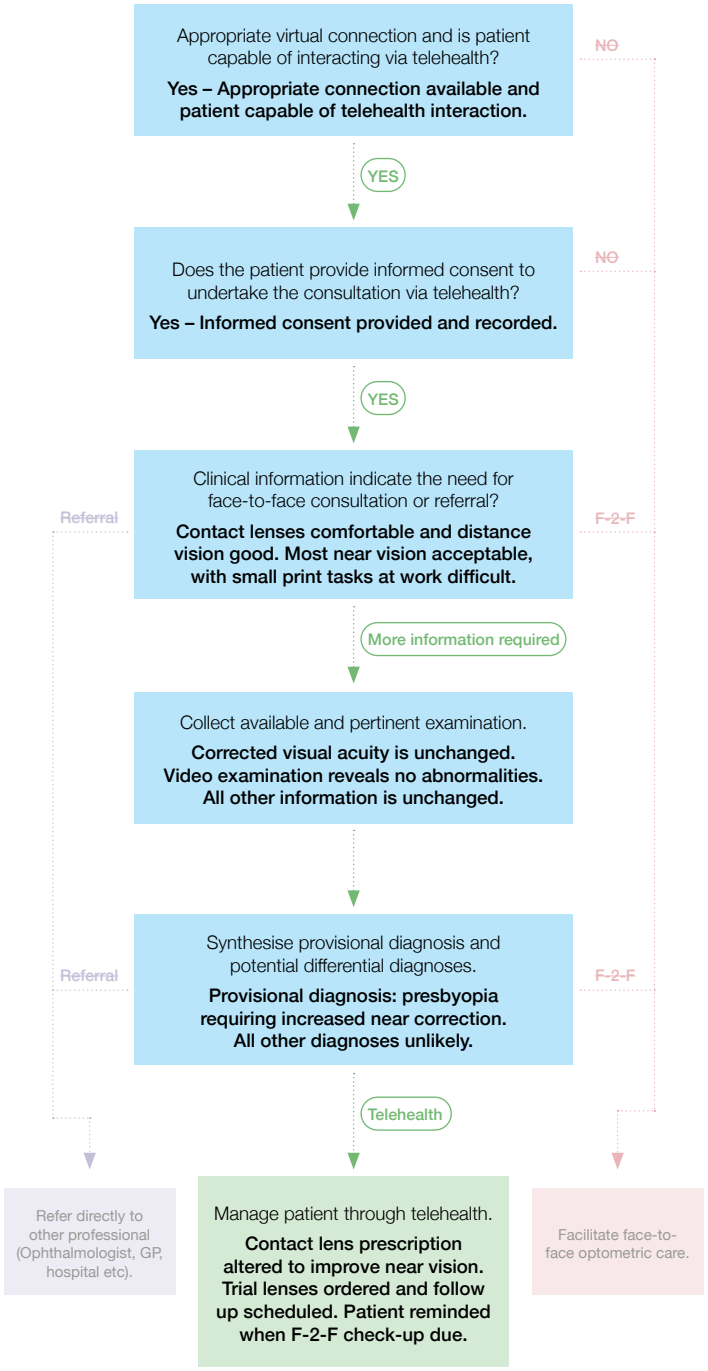
- Professional judgement required to decide risks and consequences of diagnosis and potential differential diagnoses.

Example 3 – Multifocal soft contact lens review

The patient had several face-to-face consultations to fit multifocal contact lenses. The fit of the contact lenses was appropriate, comfort acceptable, physiological response was optimal on slit lamp examination and the patient was competent with the care and handling of the lenses. The patient returned 3 months after the initial consultations for a subsequent telehealth consultation. They were having difficulty with small print at work. At the telehealth review the optometrist informed the patient of the limitations of telehealth, and a discussion about the symptoms was undertaken. Using the refractive results from the previous examination and information about the near tasks provided by the patient the optometrist prescribed a modified prescription that improved near vision in their non-dominant eye, keeping the design and material the same. The optometrist ordered updated lenses to trial and following successful trial was able to order these lenses. The optometrist scheduled a face-to-face review appointment at the appropriate interval.



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- Professional judgement required to decide risks and consequences of diagnosis and potential differential diagnoses.

8. Models of telehealth

It is expected that optometrists will implement a range of telehealth models, with the most common utilising synchronous communication in conjunction with basic clinical examinations that can be performed over telehealth. Telehealth utilised in this way is likely to be used as an adjunct to traditional care where the practitioner gathers clinical data over multiple consultations, some face-to-face and some via telehealth.

A review of models of care in teleophthalmology found that the majority of telehealth services used asynchronous methods (store-and-forward imaging) followed by hybrid models of synchronous and asynchronous methods. A limited number used synchronous alone.[4]

The review noted most services used a technician or primary care provider trained in ocular photography and diagnostic tests to provide the necessary information. Slit lamp imaging and videos were used in most services and OCT to a lesser extent.[4]

In some circumstances an optometrist may be able to utilise the skills of a health worker or technician at the patients' end to gather data for them. This is likely to be supported in remote locations where there are significant barriers to care due to distance, or in circumstances where the person is in a care facility. The following are 2 example models of telehealth implementation in optometry practice.

Model 1 – Synchronous Telehealth Care

"ABC Eyecare" has been providing general optometry eyecare in outer metropolitan Melbourne for approximately 25 years. For many years they had been following up all patients with new optical appliances with phone calls to check how they were going, however at the start of 2020 they decided to expand their offering of telehealth services.

They set up a dedicated telehealth station in one of the consultation rooms and ensured that appropriate hardware and software was in place to provide telehealth services to patients. They have invested in a process of sharing printed visual acuity charts with patients that have scheduled telehealth follow ups. They also have electronic versions that can be shared at short notice if required. They are also utilising the Melbourne Rapid Fields test to enable remote visual field analysis.

The practice had a meeting with all staff to discuss implementation and decided that they would only offer initial assessments in urgent cases, and that the majority of the telehealth consultations would be subsequent or follow up consultations. They undertook to offer patients the option of telehealth for appropriate follow-up consultations. As Medicare currently cannot be billed for optometrist to patient telehealth the practice decided to bill privately inline with the income generated by face-to-face subsequent consultations.

Model 1 – Synchronous Telehealth Care *(continued)*

The practice finds that this added mechanism of care has enabled an increase in patients willing to undertake follow-up care. It has also meant that optometrists are reviewing patients for issues that otherwise they would simply ask the patient to return if they had problems. The effect was increased patient retention.

Model 2 – Hybrid Comprehensive Telehealth Care

Optometrist A provides outreach optometry services to very remote locations 3-4 times per year via the Visiting Optometrist Scheme. The locations that they visit are more than 4 hours drive from the nearest optometrist. The optometrist works with the local health clinic when visiting and has a good relationship with the local health practitioners. The local health practitioners contact the optometrist when ocular issues arise when the optometrist is out of town.

It is apparent that there are eye health needs in the community between visits. This is in the form of new presentations, but also follow-up and monitoring that is difficult with the optometrist only physically present 3-4 times a year.

The optometrist works with the local health service to provide equipment and training to enable ocular examinations via telehealth. The clinic is equipped with a chart, trial frame, trial lenses, autorefractor, retinal camera and tonometer.

The local nurse undertakes training to enable him to accurately use trial frames, trial lenses, autorefractor, retinal camera, tonometer and measure visual acuity. Prior to each telehealth appointment the nurse gathers unaided and aided vision, autorefraction, tonometry and retinal photographs and transmits this to the optometrist. At each consultation, the optometrist explains the limitation of the telehealth services and obtains informed consent. During the telehealth consultation the optometrist and the nurse collaborate to undertake the required testing.

It is found that many initial and subsequent examinations can be performed appropriately with this set up. The patients of the health clinic can receive eyecare year-round, enabling better management of acute and chronic eye issues.

9. Clinical Techniques Over Telehealth

9.1 Visual Acuity

There are multiple potential methods for gaining an understanding of the visual acuity of the patient via telehealth. This can be in the form of a near acuity chart such as the Rosenbaum pocket vision screener[9] or a printed visual acuity chart such as the one available from Optometry Australia.[10] There are also several smartphone apps the purport to measure visual acuity, though these often have variable accuracy and should be used with caution.[11] As all of these options have limitations it should be expected that the results from these are indicative and may not accurately represent visual acuity measured in a clinical environment.

9.2 Visual fields analysis

It has been shown that it is possible to undertake perimetry remotely with the Melbourne Rapid Fields Test that is comparable to in office Humphry field analysers.[12, 13] The device does require the patient to have a compatible iPad or computer, and have software installed. For more information go to https://www.appviewmrf.com/. This examination is approved by the Therapeutic Goods Administration.

9.3 Refraction

Tele-refraction is the use of a smartphone or computer to perform a refraction and issue new or confirm refractive error prescriptions for glasses and contact lenses. There are a number of these programs that exist around the world; however, they are currently not approved for use in Australia by the Therapeutics Goods Administration. Appropriate refractive prescribing combines information about the patient's symptoms and measurement of refractive state but also verbal and non-verbal cues during the refraction. It is expected that standalone tele-refraction programs are not able to appropriately produce spectacle or contact lens prescriptions. There may be devices that enable subjective refraction information in the future, and optometrists may utilise the information provided to make professional judgements about the most appropriate correction for the person.

9.4 Ocular alignment and motility

The store-and-forward method was found to be comparable to face-to-face examinations when the images and videos are taken by a trained technician or health practitioner.[14, 15] It is unlikely a patient would be able to take the photos required to enable diagnosis of strabismus without assistance from a technician. For acute paretic strabismus, motility may be able to be assessed over videoconferencing.

9.5 Anterior Segment

Slit lamp cameras and smartphones are the main methods of assessing anterior segment disease remotely. This includes the assessment from corneal ulceration and opacification to pterygium. While there is some support for the use of phone cameras and videoconferencing to identify anterior eye conditions in published literature[16] this should be used in the context of the patients signs and symptoms on a case-by-case basis.

9.6 Macular Function

The use of an Amsler grid has long been used as a tool for patients to monitor macular function at home. Whether the patient prints an Amsler grid, or utilises one on a screen this may provide the optometrist with information about the macular function of the patient. Appropriate instruction and near correction would be required for accuracy. Free Amsler grids are able to be ordered from the Macular Disease Foundation Australia[17] or downloaded from the Centre for Eye Research Australia.[18]

9.7 Colour vision

There are many online colour vision assessments that are freely available that would enable remote assessment of colour vision. There is a lack of quality evidence of the validity of using these though there is some data to indicate that if performed appropriately it may be utilised as to indicate colour vision status[19]. It would be advised that optometrist consider current online colour vision assessments as indicators only and prior to diagnosis undertaking colour vision assessment with evidence-based tools in controlled environments.

10. Practice Technology and Infrastructure

It is important that optometrists undertaking telehealth consider the environment that they will be delivering care as well as the hardware and software required to communicate. All the privacy and confidentiality obligations are consistent between face-to-face care and telehealth. Optometrist must take reasonable steps to ensure that patient's privacy and confidentiality of information is maintained.

10.1 Environment

Optometrists delivering telehealth require a private, quiet location when undertaking telehealth. The patient has all the same rights to privacy and confidentiality as they do in a face-to-face interaction, so it is important that people not unnecessarily interrupt. It is also important to ensure that consultations are not able to listen in by other parties.

10.2 Hardware

To enable videoconferencing the optometrist will require facilities to capture audio and video. This may be possible through inbuilt hardware in smartphones, improved quality may be gained by using dedicated hardware. The following are considerations

10.2.1 Webcam and monitor

An appropriate quality video capturing device that is compatible with the practices' computer infrastructure should be considered. This enables patients to see the practitioner clearly with a stable picture. Some inbuilt cameras in laptops computers may be appropriate, however this should be confirmed. Practitioners should also consider the monitor that is being used to ensure it is or appropriate picture quality and size.

10.2.2 Microphone or headset

The quality of the telehealth experience for the optometrists and the patient may be improved by utilising a dedicated microphone or headset for the practitioner. Headsets generally enable improved audio capture when compared to inbuilt microphones within phones or laptops. Also, a headset enables clearer audio for the practitioner.

10.2.3 Internet quality and stability

Technical issues during telehealth consultations can be very frustrating for the patient and the practitioner. The practice should seek to ensure there is appropriate quality, speed and reliability of their internet connections to enable consistent and reliable telehealth experiences for the practitioners and patients.

10.3 Software

10.3.1 Security

Optometrists are responsible to ensure that the platform being used can provide the privacy and information security. Optometrists must take reasonable steps to ensure that the software platform utilised meets their privacy obligations in accordance with the Australian Privacy and Health Laws.

This includes considering platforms that provide end-to-end encryption, strong passwords, and two-factor authentication. The platform ideally would also provide an audit trail of user's access to patient information. Servers that are located within Australia provide further protection as they are bound by Australian privacy laws and cloud-based service providers should utilise certified cloud services.

Allied Health Professionals Australia (AHPA) has summarised the security information for a number of popular videoconferencing platform here.[6] Many consumer level platforms such as Skype, WhatsApp or Microsoft teams may be readily access able to the patient, however may not provide the privacy and security require (see AHPA guide appendix B) The choice of software used is dependent on the needs of the practice and their patients. Practices and optometrists should consider trialling different options and ensure a system that will be usable for the optometrist and their patient.

10.3.2 Optometrist-to-patient

When choosing a software platform to communicate with patient it is important to consider that the system is fit for purpose and can provide the practitioner and the patient with the ability to undertake telehealth consultations. It is also important to ensure that the software platform provides the appropriate level of security to ensure that clinical data is not compromised and is not accessible to those not authorised.

The functionality of the software platform should be investigated to ensure it has the functions that are required. Audio and video communication are a minimum, but the practitioner and patient may also wish to share images, letters, scans or other files to facilitate care. These facilities should be investigated and understood by the practitioner.

The software should also be user-friendly, particularly for the patient, as at the point of consultation it may be the first time the patient has accessed the software. It should not require significant time to set up. Ideally the patient should not need to download or create an account to access the telehealth consultation as this is likely to be a significant barrier for many patients.

10.3.3 Collaboration between optometrist and ophthalmologist or other health practitioner

Practitioners may choose to utilise that same technology platform for practitioner-to-patient interactions, and practitioner-to-practitioner interactions however there may be advantages of utilising different software. When performing collaborative telehealth consultations, it is often required to share images, scans or other clinical data while also engaging in videoconferencing. These capabilities should be considered when deciding on software platforms.

Currently the only platform that has been produced for the eyecare professional that is able to share clinical information, and has the capability to undertake videoconferencing is OCULO (https://www.oculo.com.au/)

11. How do I bill for telehealth consultations?

11.1 Optometrist to patient Telehealth

Currently there is no Medicare items that are billable for optometrists engaging directly with patients without an ophthalmologist participating. Optometrists are encouraged to bill consultations privately, provided the patient is fully informed of the costs prior to the consultation taking place. Optometry Australia is continuing to advocate for telehealth services by optometrists to be expanded to enable greater flexibility for optometrists to deliver care.

Optometrists should consider how consultations will be billed both in terms of amount charged, and the infrastructure required. If the optometrist is providing telehealth services from the practice, the standard billing processes may be used. If the optometrist is providing telehealth services from home, or elsewhere, they will need to ensure that they have access to billing facilities. POS terminals such as HICAPS may be able to me moved and plugged into different locations. This should be confirmed with the specific billing hardware and software used in the practice.

11.2 Collaborative care Telehealth with ophthalmologist

Currently there are 4 Medicare item numbers that are available to optometrists for the use of telehealth in collaboration with an ophthalmologist: 10945, 10946, 10947 and 10948. All of these items require real-time video conferencing with an ophthalmologist, optometrist and patient present at that same time. There are also location restrictions. Optometrists should read the Medicare item notes carefully to ensure that billing is compliant.

12. Templates and checklists

Templates are helpful in ensuring consistent delivery of care and provide reminders to practitioners. These are examples than could be utilised and adapted by practices for use.

Prior to telehealth consultation	
Ensure patient understands technology required	
Inform patient how consultation will be billed, and any associated costs	
Coordinate telehealth consultation booking	
Pre-test video conference equipment and connectivity	

During telehealth video consultation	
Introduce yourself	
Check patients' details are correct	
Check that the patient can see and hear you, and troubleshoot if required	
Confirm and record consent to be consulted through telehealth	
Undertake clinical consultation	
Make clinical notes as you would in a face-to-face consultation	
Summarise diagnosis, management, and all follow-up actions	
Ask the patient if they have questions or need anything clarified	

After telehealth video consultation	
Review your notes and ensure they are appropriate	
Implement management and follow-up actions	
Record any technical malfunctions	
Update review schedule	

13. Is Telehealth covered with Optometry Australia's Professional Indemnity Insurance?

Optometrists who are covered by Optometry Australia's Professional Indemnity Insurance are covered to provide telehealth services (NB: jurisdictional limits apply to Australia which means the cover does not include services provided by a practitioner, or to a patient that is, outside Australia), and may choose to do so providing care delivered accords with all other professional responsibilities.

14. Further information and advice

Optometry Australia's advisor helpdesk offers our members dedicated and experienced optometrists ready to provide confidential support.

Email: national@optometry.org.au

Phone: (03) 9668 8500

Operating hours: Monday to Friday, 9.00am to 5.00pm (Sydney/Canberra/Melbourne time)

15. References

1. O'Day R, Smith C, Muir J, Turner A. Optometric use of a teleophthalmology service in rural Western Australia: comparison of two prospective audits. Clinical & experimental optometry. 2016;99(2):163-7. Epub 2016/03/10.
2. Bartnik SE, Copeland SP, Aicken AJ, Turner AW. Optometry-facilitated teleophthalmology: an audit of the first year in Western Australia. Clinical & experimental optometry. 2018;101(5):700-3. Epub 2018/02/15.
3. Razavi H, Copeland SP, Turner AW. Increasing the impact of teleophthalmology in Australia: Analysis of structural and economic drivers in a state service. The Australian journal of rural health. 2017;25(1):45-52. Epub 2016/01/20.
4. Caffery LJ, Taylor M, Gole G, Smith AC. Models of care in tele-ophthalmology: A scoping review. Journal of telemedicine and telecare. 2019;25(2):106-22. Epub 2017/11/23.
5. Cavallerano AA, Cavallerano JD, Katalinic P, Blake B, Rynne M, Conlin PR, et al. A telemedicine program for diabetic retinopathy in a Veterans Affairs Medical Center—the Joslin Vision Network Eye Health Care Model. American journal of ophthalmology. 2005;139(4):597-604.
6. Telehealth guide for Allied Health Professionals. Allied Health Professions Australia; 2020; Available from: https://ahpa.com.au/wp-content/uploads/2020/06/AHPA-Telehealth-Guide_Allied-Health-Professionals-May-2020.pdf.
7. Telehealth guidance for practitioners. Australian Health Practitioner Regulation Agency; 2020; Available from: https://www.ahpra.gov.au/News/COVID-19/Workforce-resources/Telehealth-guidance-for-practitioners.aspx.
8. Code of Conduct for optometrists. Optometry Board of Australia; Available from: https://www.optometryboard.gov.au/policies-codes-guidelines.aspx.
9. DeiCas R, Street DA, Javitt JC. Assessment of visual acuity via a telephone interview. Archives of ophthalmology (Chicago, Ill : 1960). 1992;110(9):1279-82. Epub 1992/09/01.
10. Australia O. Visual Acuity Chart. 2020; Available from: https://www.optometry.org.au/wp-content/uploads/GVFL/Brochure_thumbnails/OA-Distance-VA-chart.jpg.
11. Perera C, Chakrabarti R, Islam FM, Crowston J. The Eye Phone Study: reliability and accuracy of assessing Snellen visual acuity using smartphone technology. Eye (London, England). 2015;29(7):888-94. Epub 2015/05/02.
12. Prea SM, Kong YXG, Mehta A, He M, Crowston JG, Gupta V, et al. Six-month Longitudinal Comparison of a Portable Tablet Perimeter With the Humphrey Field Analyzer. American journal of ophthalmology. 2018;190:9-16. Epub 2018/03/20.
13. Kong YXG, He M, Crowston JG, Vingrys AJ. A Comparison of Perimetric Results from a Tablet Perimeter and Humphrey Field Analyzer in Glaucoma Patients. Transl Vis Sci Technol. 2016;5(6):2-.
14. Helveston EM, Neely DE, Cherwek DH, Smallwood LM. Diagnosis and management of strabismus using telemedicine. Telemedicine journal and e-health : the official journal of the American Telemedicine Association. 2008;14(6):531-8. Epub 2008/08/30.
15. Helveston EM, Orge FH, Naranjo R, Hernandez L. Telemedicine: Strabismus e-consultation. Journal of AAPOS : the official publication of the American Association for Pediatric Ophthalmology and Strabismus. 2001;5(5):291-6. Epub 2001/10/20.
16. Jayadev C, Mahendradas P, Vinekar A, Kemmanu V, Gupta R, Pradhan ZS, et al. Tele-consultations in the wake of COVID-19 - Suggested guidelines for clinical ophthalmology. Indian journal of ophthalmology. 2020;68(7):1316-27. Epub 2020/06/27.
17. Amsler Grid. Macular Disease Foundation Australia; 2021 [April 2021]; Available from: https://www.mdfoundation.com.au/about-macular-disease/age-related-macular-degeneration/detecting-monitoring-amd/.
18. Amsler Grid. Centre for Eye Research Australia; [april 2021]; Available from: https://www.cera.org.au/wp-content/uploads/2020/09/Amsler-Grid.pdf.
19. Kuchenbecker J, Röhl FW, Wesselburg A, Bernarding J, Behrens-Baumann W. Validity of a web-based color vision test for screening examinations of color vision. Der Ophthalmologe : Zeitschrift der Deutschen Ophthalmologischen Gesellschaft. 2007;104(1):47-53. Epub 2006/12/13.