



Infection control and COVID-19 factsheet

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For the latest information on COVID-19 and infection control visit optometry.org.au

1. Introduction

There has been significant disruption to the world, and to the healthcare profession with the COVID-19 global pandemic. This has significantly changed the optometry practice landscape. As the profession has had to escalate infection control from standard precautions to transmission-based precautions, it has afforded an opportunity to reflect on current infection control policies and procedures. This quick-guide aims to provide updated, evidence-based information for optometrists, their staff and their practices on pertinent pandemic infection control procedures.

2. Background

COVID-19 (SARS-CoV-2) is a novel coronavirus that is an enveloped, single-stranded RNA virus believed to spread person to person via respiratory droplets.¹ This occurs when an infected person coughs or sneezes, or when people touch a surface with the virus present from an infected person, then touch their eyes, mouth or nose.² Patients may be asymptomatic and infected, and potentially have viral shedding for 20 days.^{2,3} Symptomatic patients typically present with respiratory illness such as cough, shortness of breath and fever. Other patients may have eye pain, headaches and fatigue. The incubation period averages 5-7 days.²

2.1 Conjunctivitis link:

The American Academy of Ophthalmology acknowledged that “several reports suggest the virus can cause a mild follicular conjunctivitis otherwise indistinguishable from other viral causes, and possibly be transmitted by aerosol contact with conjunctiva”.⁴

Patients who present to optometry or ophthalmology for conjunctivitis, who also have; upper respiratory tract symptoms, fever, shortness of breath or whom have recently travelled, could represent cases of COVID-19.⁵ It is suspected from some reports, that whilst conjunctivitis or red eye is unusual and not part of “classic” COVID-19, up to 1-3% of patients with COVID may have some form of red eye/conjunctivitis.^{5,6}

It is unlikely that a red eye will be the initial symptom of a COVID-19 patient, and it is not currently listed as a symptom by the Australian Department of Health.⁷ Patients are far more likely to present to a general practitioner or emergency department (ED) with respiratory symptoms, but a high degree of suspicion of red eyes is still required.

2.2 Risk to optometrist/staff/patients:

While conjunctivitis is an uncommon event as it relates to COVID-19, other forms of conjunctivitis are common. Affected patients frequently present to eye clinics or an ED. This increases the likelihood that eye-care professionals may be the first providers to evaluate patients possibly infected with COVID-19.⁸

The actual risk of transmission through tears is considered to be low, however the discovery of viral RNA in infected patients^{5,6} means any aerosol-generating procedures and the close proximity that optometrists get to patients increases their risk of contracting the virus. Rigid adherence to triaging, disinfection and appropriate personal protective equipment (PPE) is paramount.

3. Infection control advice

In cases of viral pandemics, transmission-based precautions are necessary to assist in containing the infection and preventing further transmission.^{9,10} Optometry practices should be prepared to:

- 1- Triage patients over the phone or at a safe distance
- 2- Consider utilising telehealth consultation, if appropriate
- 3- Reschedule non-urgent appointments, at the discretion of the optometrist
- 4- Make tissues, face masks and alcohol-based hand sanitiser available in waiting areas
- 5- Perform frequent hand hygiene after contact with respiratory secretions and contaminated objects or materials
- 6- Follow respiratory hygiene techniques (i.e. covering mouth or nose during coughing or sneezing with a medical mask, tissues or sleeve or flexed elbow, followed by hand hygiene)
- 7- Immediately dispose of tissues into a hands-free waste receptacle
- 8- Use appropriate PPE, such as surgical masks, P2/N95 masks, gloves, eye protection and breath shields for the slitlamp
- 9- Use disposable equipment where possible (e.g. single-use tonometer probes)
- 10- Perform systematic and enhanced decontamination of work surfaces after each patient
- 11- Advise staff not to attend work when unwell
- 12- Consider requiring staff to have vaccinations as part of employment¹¹
- 13- Encourage home delivery of spectacle/contact lenses to reduce the number of potentially infectious people visiting the practice

3.1 PPE during a pandemic

During a pandemic, advice around PPE changes quickly and is often contradictory. This occurs because as infection rates rise, PPE shortages occur and should be prioritised to frontline health care workers treating suspected or confirmed cases. The risk to optometrists increases as infection rates rise in the community due to their close proximity to patients, and it is suggested by some associations that face masks should be worn when seeing patients at distances closer than 1.5m.^{1,12,13}

The World Health Organization (WHO) and the Australian Department of Health maintains that wearing a face mask whilst seeing healthy, asymptomatic, low risk patients is unnecessary.^{14,15} Nevertheless, the WHO go on to say; "Wearing a medical mask is one of the prevention measures that can limit the spread of certain respiratory viral diseases, including COVID-19. However, the use of a mask alone is insufficient to provide an adequate level of protection, and other measures should also be adopted".¹⁶

3.2 Hand hygiene

Carefully observe the "five moments of hand hygiene" (available at <https://www.hha.org.au/hand-hygiene/5-moments-for-hand-hygiene>):

- 1- Before touching a patient
- 2- Before a procedure
- 3- After a procedure or body fluid exposure risk
- 4- After touching a patient
- 5- After touching a patient's surroundings

Perform the correct hand hygiene technique, which is illustrated below. More information is available at https://www.who.int/gpsc/5may/Hand_Hygiene_Why_How_and_When_Brochure.pdf.

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

 Duration of the entire procedure: 20-30 seconds



3.3 Cleaning protocols^{9,17-19}

Optometry practices should be prepared to carry out enhanced cleaning and disinfection of the patient environment (e.g. using sodium hypochlorite or an appropriate Therapeutic Goods and Administration [TGA]-listed hospital-grade disinfectant.)^{9,10} Some examples of surface disinfectants are given in Table 1.

Table 1: Surface disinfection options

Disinfectant	Notes
Viraclean ²⁰	A hospital grade disinfectant, is the first product in Australia to receive TGA approval for killing the SARS-CoV-2 virus on surfaces
Clinell	Ideal for use on both surfaces and non-invasive medical devices. TGA registered as a Class IIB Low-Level Instrument Grade Disinfectant, compliant with AS/NZ 4187 Australian Standard. Can be used on frames, including acetate.
Bleach Solution	Mix 5 tablespoons (1/3 cup) bleach per 4.5L of water
Alcohol solutions	Should be at least 70% alcohol
Disinfectant wipes	Use in accordance with Department of Health
Household disinfectants	Mostly appropriate, see manufacturers' instructions

All staff and clinicians should:

- Greet people with a wave, not a handshake
- Practise the five moments of hand hygiene
- Keep social distancing of 1.5m between staff, and between patients

Some further considerations for various areas of the practice are given in Table 2, over the page.

Table 2: Optometry practice considerations

Area	Considerations
Reception	<ul style="list-style-type: none"> – Screen patients before they attend the practice on the phone – Ask patients to use hand sanitiser before entering the practice – Consider social distancing and encourage patients to remain 1.5m from the desk – Keep front desk clear of clutter – Clean EFTPOS terminals with an appropriate disinfectant between patients and encourage contactless payments over cash – Minimise patient use of pens, and if required, sanitise in front of patient before providing the pen and then after use – Keep a daily log of patients/people in the practice for contact tracing, in accordance with state/territory recommendations – Unless the patient is a child or someone who requires a guardian, strongly discourage family or friends attending the appointment
Waiting room ^{17-19,21}	<ul style="list-style-type: none"> – Wipe down all surfaces (door handles, tabletops, light switches, chairs) and front desk morning, midday and evening with appropriate disinfectant – Remove all flowers, tea/coffee facilities and toys – Make tissues and face masks available – Enforce social distancing in waiting areas by removing chairs so no two chairs are next to each other
Consulting room	<ul style="list-style-type: none"> – Clean and disinfect frequently touched surfaces between each episode of patient care e.g.; slitlamp, phoropter, trial frame, chair, keyboard, desk – Whilst taking history and speaking with patient, attempt to remain 1.5m away. Move your chair, computer and keyboard to achieve this – Reduce all non-urgent close contact procedures such as direct ophthalmoscopy and contact lens fitting – Use slitlamp shields to reduce potential droplet transmission – Sinks and basins should be cleaned regularly
Dispensing ^{1,21}	<ul style="list-style-type: none"> – Clean rulers, pupilometers, pen torches and other equipment in front of patient before and after use – Practice selection when trying on frames: patient doesn't touch frame and staff initially collect the frame for the patient to try on. Post trying on frames, separate the touched frames and clean them with a suitable disinfectant to reduce viral load

3.4 Instrument disinfection - Tonometry

Note: If you elect not to perform contact tonometry / gonioscopy etc. on a patient you suspect might have COVID-19 then make appropriate notes on the patient record and ensure you follow-up for retest when they are well.

If tonometry cannot be deferred

Options for measuring IOP include:

- 1- Using a disposable applanation tonometry prism
- 2- Using an iCare tonometer with disposable probe
- 3- High-level disinfection of reusable applanation prisms

A review of the literature^{22,23} suggests current practices, including use of alcohol swabs and hydrogen peroxide, are no longer considered best practice. Possible disinfection options include:

Sodium hypochlorite^{10,22,23}

- 1- Clean with mild pH neutral detergent or soap
- 2- Rinse with sterile water/saline before disinfecting
- 3- Soak in sodium hypochlorite (5000ppm) for 10 minutes
- 4- Rinse with sterile water/saline
- 5- Air dry or dry with sterile, soft disposable cloth

Note: The appropriate concentration of sodium hypochlorite is 5000ppm, approximately 0.5%. Household bleach is 5-6% sodium hypochlorite, so a 1:10 dilution of bleach (1 part bleach, 9 parts water) equals 5000ppm, and this solution should be made daily.

Please note this is 'off-label' use for bleach products which are typically registered with the TGA for surface disinfection.

Tristel Duo OPH

This is a new product using chlorine dioxide as the active agent, approved by TGA for high level disinfection²⁴ of instrument grade surfaces compliant with the AS/NZS 4187 Australian Standard.

- 1- Dispense 2 doses of Tristel Duo onto a Tristel Dry Wipe or directly onto the instrument
- 2- Spread the foam over the surface of the instrument
- 3- Wait two minutes
- 4- Rinse with sterile water/saline
- 5- Air dry or dry with sterile, soft disposable cloth

When in doubt, it is important to refer to manufacturers' instructions regarding specific instruments.

Some sources have suggested caution over micro-aerosol generating techniques such as non-contact tonometry (NCT) being performed during pandemic conditions due to 'splash-back'. Thus, it would be prudent to avoid NCT on patients with conjunctivitis or flu-like symptoms and to follow stringent disinfection protocols at all times.

3.5 Instrument disinfection - Visual field

Infection control practices suggest using an appropriate disinfectant to reduce potential surface contamination on the chin rest, forehead rest, trigger and bowl.^{25,26} However, it may be impractical to clean the interior of the perimeter bowl without damaging the machine and the virus could remain airborne in the enclosed space for an unknown length of time. As a consequence, some hospitals and ophthalmology practices have ceased doing visual field testing unless urgent. Consider having "suspect" or "confirmed" COVID-19 patients wear masks during testing if visual field is unavoidable.

3.6 Instrument disinfection - Contact lenses

There is no evidence to date that contact lens (CL) wear should be avoided by healthy individuals, or that CL wearers are more at risk of a coronavirus infection compared to those wearing spectacles.²⁷ There is no scientific evidence that wearing spectacles or glasses provides protection against COVID-19 or other viral transmissions.^{28,29} It is recommended that optometrists encourage their patients to continue safe CL hygiene procedures.³⁰

Trial contact lenses should ideally be used only once. All trial contact lenses used in patients who are carriers of infectious diseases (for example HSV, hepatitis, HIV, adenovirus or CJD) must be disposed of immediately after use.^{10,31} If it is necessary to reuse trial lenses, in-practice disinfection procedures must be effective against bacteria, viruses, fungi and Acanthamoeba. The following table outlines the steps for cleaning and disinfecting soft, hybrid and Rigid Gas Permeable (RGP) lenses.³¹

Table 3: Contact lens disinfection protocols^{10,31-33}

Cleaning	Rub with a daily surfactant cleaner for RGP lenses or multipurpose solution (MPS) for soft and hybrid lenses
Rinsing	Rinse with sterile saline or MPS for at least 30 seconds
Inspection	Inspect lens for damage/defect and dispose of appropriately if necessary
Preparation	Fill a non-neutralising CL case with 3% hydrogen peroxide
Disinfection	Soak lens for at least 3 hours without neutralising
Neutralisation	For soft and hybrid lenses, refill a neutralising case with fresh hydrogen peroxide and add neutralising tablet/disk. Soak for recommended neutralisation time (e.g. 6 hours)
Rinsing	Rinse with sterile saline (or MPS)
Storing	Store RGP lens dry after wiping with clean, lint-free tissue. Use disinfected tweezers to store soft or hybrid lens in MPS. For soft or hybrid lenses, it is recommended to repeat the full disinfection process every 28 days.

Note: Soft contact lenses can also be sterilised in autoclave at 134°C for at least 3 minutes or 121°C for at least 10 minutes.

References for this factsheet are listed over the page.

4. References

- 1- Chodosh J, Holland, G, Yeh, S. Important coronavirus updates for ophthalmologists: American Academy of Ophthalmology; 2020 [updated 19.04.2020; cited 2020 April 21]. Available from: <https://www.aao.org/headline/alert-important-coronavirus-context>.
- 2- Lauer SA, Grantz KH, Bi Q, Jones FK, Zheng Q, Meredith HR, et al. The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application. *Annals of Internal Medicine*. 2020. doi:10.7326/m20-0504.
- 3- Bai Y, Yao L, Wei T, Tian F, Jin D-Y, Chen L, et al. Presumed Asymptomatic Carrier Transmission of COVID-19. *JAMA*. 2020;323(14):1406-7.
- 4- Seah I, Agrawal R. Can the Coronavirus Disease 2019 (COVID-19) Affect the Eyes? A Review of Coronaviruses and Ocular Implications in Humans and Animals. *Ocul Immunol Inflamm*. 2020;28(3):391-395.
- 5- Guan W-j, Ni Z-y, Hu Y, Liang W-h, Ou C-q, He J-x, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. *New England Journal of Medicine*. 2020. doi:10.1056/NEJMoa2002032.
- 6- Wu P, Duan F, Luo C, Liu Q, Qu X, Liang L, et al. Characteristics of Ocular Findings of Patients With Coronavirus Disease 2019 (COVID-19) in Hubei Province, China. *JAMA Ophthalmol*. 2020. doi:10.1001/jamaophthalmol.2020.1291.
- 7- DOH. What you need to know about coronavirus (COVID-19): Australian Department of Health; 2020 [updated 19 April 2020; cited 2020 April 21]. Available from: <https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/what-you-need-to-know-about-coronavirus-covid-19#symptoms>.
- 8- Seah IYJ, Anderson DE, Kang AEZ, Wang L, Rao P, Young BE, et al. Assessing Viral Shedding and Infectivity of Tears in Coronavirus Disease 2019 (COVID-19) Patients. *Ophthalmology*. 2020. doi:10.1016/j.ophtha.2020.03.026.
- 9- NHMRC. Australian Guidelines for the Prevention and Control of Infection in Healthcare (2019): Australian Government; 2019 [updated June 2019; cited 2020 April 21]. Available from: <https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019>.
- 10- Lian KY, Napper G, Stapleton FJ, Kiely PM. Infection control guidelines for optometrists 2016. *Clin Exp Optom*. 2017;100(4):341-56.
- 11- SAHealth. Policy Directive: compliance is mandatory. Immunisation for Health Care Workers in South Australia Policy Directive SA: Department of Health and Aging; 2017 [updated 01.12.2017; cited 2020 April 21]. Available from: https://www.sahealth.sa.gov.au/wps/wcm/connect/b65b12804f0cbdd29178b7791a12b24c/Directive_Immunisation+for+Health+Care+Workers+in+SA_v1.1_07122017.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-b65b12804f0cbdd29178b7791a12b24c-mMFNdRF.
- 12- RANZCO. Clinical Eye Care 2020 [updated 21.04.2020; cited 2020 April 21]. Available from: <https://ranzco.edu/home/covid-19-information/clinical-eye-care/>.
- 13- The College of Optometrists. COVID-19 College Updates: The College of Optometrists UK; 2020 [updated 17.04.2020; cited 2020 April 21]. Available from: <https://www.college-optometrists.org/the-college/media-hub/news-listing/coronavirus-2019-advice-for-optometrists.html>.
- 14- WHO. Coronavirus disease (COVID-19) technical guidance: Infection prevention and control / WASH: World Health Organisation; 2020 [updated 06.04.2020; cited 2020 April 21]. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control>.
- 15- DOH. Distribution of PPE through PHNs: Tranche 1, Surgical masks and P2/N95 respirators for general practice and community pharmacy: Australian Government Department of Health; 2020 [updated 8.03.2020; cited 2020 April 21]. Available from: <https://www.health.gov.au/sites/default/files/documents/2020/03/distribution-of-ppe-through-phns-tranche-1-surgical-masks-and-p2-n95-respirators-for-general-practice-and-community-pharmacy.pdf>.
- 16- WHO. Advice on the use of masks in the context of COVID-19: World Health Organisation; 2020 [cited 2020 April 21]. Available from: [https://www.who.int/publications-detail/advice-on-the-use-of-masks-in-the-community-during-home-care-and-in-healthcare-settings-in-the-context-of-the-novel-coronavirus-\(2019-ncov\)-outbreak](https://www.who.int/publications-detail/advice-on-the-use-of-masks-in-the-community-during-home-care-and-in-healthcare-settings-in-the-context-of-the-novel-coronavirus-(2019-ncov)-outbreak).
- 17- CDC. Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (2007): Centers for Disease Control and Prevention; 2007 [updated July 2019; cited 2020 April 21]. Available from: <https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>.
- 18- CDC. Infection Control Guidance: Centers for Disease Control and Prevention; 2020 [updated 13.04.2020; cited 2020 April 21]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html>.
- 19- AOA. COVID-19 guidance for optometric practices: American Optometric Association; 2020 [cited 2020 April 21]. Available from: <https://www.aoa.org/covid-19-guidance-for-optometric-practices>.
- 20- Viraclean: Whiteley Corporation; 2018 [cited 2020 April 21]. Available from: <https://www.whiteley.com.au/our-products/viraclean>.
- 21- Mark Wright CB. 3 Actions to Take to Prepare Your Practice for the Coronavirus. *Review of Optometric Business*. 2020.
- 22- Junk AK, Chen PP, Lin SC et al. Disinfection of tonometers: A report by the American Academy of Ophthalmology. *Ophthalmol* 2017; 124(12): 1867-1875.
- 23- Centres for Disease Control and Prevention. Infection Control – Chemical Disinfectants. Available at <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/chemical.html> [Accessed 4 April 2020].
- 24- Australian/New Zealand Standard. Reprocessing of reusable medical devices in health organizations. 2014. Report No.: 4187.
- 25- Farmer T, Mitchell C. Australian Infection Control Guidelines: preventing and managing infection in health care. *Healthcare Infection*. 2010;15(4):101-3.
- 26- CDC. Guide to Infection Prevention for Outpatient Settings; Minimum Expectations for Safe Care: Centre for Disease Control, National Center for Emerging and Zoonotic Infectious Diseases; 2016 [cited 2020 April 21]. Available from: <https://www.cdc.gov/infectioncontrol/pdf/outpatient/guide.pdf>.
- 27- BCLA. Contact Lens Wear and Coronavirus (COVID-19) guidance-ECP: British Contact Lens Association; 2020 [updated 13.03.2020; cited 2020 April 21]. Available from: <https://bcla.org.uk/Public/Consumer/COVID-19--Coronavirus--Contact-Lens-Care-Guidance/Public/Consumer/Contact-Lens-Wear-and-Coronavirus-guidance.aspx?hkey=a6920621-8aa9-4488-8316-84421baee4c0>.
- 28- AOA. Contact lens wear during COVID-19: American Optometric Association 2020 [cited 2020 April 21]. Available from: <https://www.aoa.org/covid-19-patient-resources/contact-lens-wear-during-covid-19>.
- 29- Jones L, Walsh K, Willcox M, Morgan P, Nichols J. The COVID-19 pandemic: Important considerations for contact lens practitioners. *Contact Lens and Anterior Eye*. 2020. doi:<https://doi.org/10.1016/j.clae.2020.03.012>
- 30- CDC. Protect Your Eyes: Centre for Disease Control and Prevention; 2020 [updated 09.04.2020; cited 2020 April 21]. Available from: <https://www.cdc.gov/contactlenses/protect-your-eyes.html>.
- 31- International Organization for Standardization. Ophthalmic Optics; Contact Lenses; Hygienic Management of multipatient use trial contact lenses; 2018 [updated 01.01.2018]. Available from: https://infostore.saiglobal.com/en-au/standards/iso-19979-2018-608919_saig_iso_iso_1396156/.
- 32- AOA. Disinfection of Multi-Patient Contact Lenses in the Clinical Setting: American Optometry Association, Health Policy Institute; 2018 [updated Oct 2018]. Available from: https://www.aoa.org/documents/HPI/HPI_Report_Disinfection%20of%20Multipatient%20CLs%20in%20the%20Clinical%20Setting_2018.pdf.
- 33- Barnett M. Contact Lens Care and Compliance, In-office Contact Lens Disinfection. *Contact Lens Spectrum*. 2020;35.