

In brief

Ocular transmission

26 August 2021

Background

- Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is transmitted person-to-person through close contact, mainly through respiratory droplets.¹ According to the [World Health Organization](#) infection may occur where respiratory droplets containing virus reach the mouth, nose or eyes of a susceptible person.²
- There is some evidence of SARS-CoV-2 detection in [ocular swab samples](#) however the [prevalence is low](#) (0-17%).³⁻⁶ [Evidence is limited and conflicting](#) about whether SARS-CoV-2 can spread through the mucous membranes of the eye.⁷

Ocular transmission

- While [ocular transmission](#) has been proposed as a transmission route for SARS-CoV-2, via the nasolacrimal duct into the respiratory tract, there is no evidence of definite ocular transmission of SARS-CoV-2.⁷⁻⁹
- SARS-CoV-2 can cause ocular symptoms, in particular conjunctivitis, however prevalence is low (between 0-35%).^{3-5, 7, 8} There is a [potential but unconfirmed risk of transmission](#) from conjunctiva.^{9, 10}

Eye protection

- Proper [personal protective equipment \(PPE\)](#) and effective infection control measures in clinical settings are recommended when treating patients with suspected SARS-CoV-2.⁹
- Use of [eye protection](#) and [face shields](#) has been associated with fewer infections and is recommended in addition to face masks.^{1, 11, 12} However, there is [no specific standard for eye protection](#) against SARS-CoV-2.¹³
- Eye protection provides a [physical barrier from droplet spray](#) and can prevent people touching their eyes between hand washing.¹²
- The Clinical Excellence Commission in NSW recommends that eye protection should be worn when [providing direct care](#) for patients with suspected SARS-CoV-2 or close contacts.^{12, 14, 15}
- The US Occupational Safety and Health Administration (OSHA) recommends [goggles as primary eye protection](#) as they form a complete seal around the eyes. Face shields have decreased efficacy with small aerosolised particles and are recommended as secondary protection to use in combination with goggles.¹⁶ Eye protection should be worn in combination with other personal protective equipment and face shields are [not recommended as a substitute for face masks](#).^{17, 18} Most other recommendations do not generally distinguish between the primary and secondary types of eye protection.
- The World Health Organization, Australian National COVID-19 Clinical Evidence Taskforce and Australian Commission on Safety and Quality in Health Care recommend that healthcare workers

wear goggles or face shields to avoid contamination of mucous membranes, especially when performing [aerosol-generating procedures](#), [procedures generating splashes or sprays of blood and body substances](#), or [collecting laboratory specimens](#).^{15, 19-22} The World Health Organization and US Centers for Disease Control and Prevention recommend that goggles and face shields should [cover the front and sides of the face](#) and [extend below the chin](#).²² [Gaps to the sides and underneath of face shields](#) may allow virus droplets to infect mucous membranes, including the eyes.²³

- Advice on safety glasses is conflicting. [Ottawa Public Health guidelines](#) suggest safety glasses do not provide the same level of protection from splashes, sprays and droplets as goggles or face shields and are not generally recommended for infection control purposes.²⁴ However the [European Union standards for personal eye protection](#) state that goggles and safety glasses provided similar protection for the eyes.¹⁸
- The Victorian Department of Health and Human Services published a fact sheet on use of eye protection for healthcare workers. It is advised that if [closely fitted wraparound goggles or safety glasses](#) are used, they should meet Australian standards ([AS/NZS 1337.1:2010](#)).^{12, 25}

Cleaning and disinfecting

- [Reusable eye protection must be cleaned and disinfected](#) between uses according to the manufacturer's instructions. Single use eye protection may be worn for an extended period unless moist, wet or contaminated, and must be disposed of after use.¹⁴ The Victorian Department of Health and Human Services states reusable face shields are preferred over single-use and require a process for appropriate decontamination and storage between uses.¹²
- The [Australian Infection Control Expert Group](#) provides guidance on cleaning and disinfection of protective eyewear in health and residential care facilities, including by individual healthcare workers and mass disinfection of protective eyewear.²⁶

Limitations

There are differences in how the types of eye protection are defined and no clear consensus on cleaning processes.

To inform this brief, PubMed and Google searches were conducted using terms related to ((ocular OR eye) AND (transmission) AND (protection) AND (COVID-19 or SARS-CoV-2)) on 22 June 2021. Search results were limited to systematic reviews. The Critical Intelligence Unit have published an evidence check on [Extended use or reuse of personal protective equipment](#) and maintains a living evidence table on [COVID-19 transmission](#).^{27, 28}

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In brief documents are not an exhaustive list of publications but aim to provide an overview of what is already known about a specific topic. This brief has not been peer-reviewed and should not be a substitute for individual clinical judgement, nor is it an endorsed position of NSW Health.

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Evidence checks are archived a year after the date of publication