



The following information resources have been selected by the National Health Library and Knowledge Service Evidence Virtual Team in response to your question. The resources are listed in our estimated order of relevance to practicing healthcare professionals confronted with this scenario in an Irish context. In respect of the evolving global situation and rapidly changing evidence base, it is advised to use hyperlinked sources in this document to ensure that the information you are disseminating to the public or applying in clinical practice is the most current, valid and accurate. For further information on the methodology used in the compilation of this document—including a complete list of sources consulted—please see our [National Health Library and Knowledge Service Summary of Evidence Protocol](#).

YOUR QUESTION

What are the considerations regarding ophthalmic procedures with suspected or confirmed COVID-19 patients?

IN A NUTSHELL

The evidence falls into two categories: firstly, if there is ocular transmission of COVID-19 and how that can be established¹³; and secondly, if there is guidance available on how to deal with ophthalmic procedures during the COVID-19 pandemic^{1,3,4,5,10}. Several reports suggest that SARS-CoV-2 can cause a mild follicular conjunctivitis otherwise indistinguishable from other viral causes, and could possibly be transmitted by aerosol contact with conjunctiva. Ophthalmologists should follow PPE advice including slit lamp barriers for patients with symptoms of COVID-19.

Ophthalmic practice carries some unique risks and therefore high vigilance and special precautions are needed²⁴. For outpatient care, Lim et al²³ report a stringent screening and triaging process carried out to identify high-risk patients, with proper isolation implemented for such patients. Wu et al¹⁸ also describe infection control measures in ophthalmology settings in East Asia, particularly China. The Royal College of Ophthalmologists recommends cancelling routine clinical activity, allowing resources available in the NHS to be used to treat those identified as being at high risk of serious, permanent visual loss⁴. During the coronavirus epidemic it is vital that other patients and staff are protected. This involves reducing crowding in waiting rooms, preventing symptomatic patients from attending and using personal protection.



IRISH AND INTERNATIONAL GUIDANCE

What does the Health Protection Surveillance Centre say?

[Health Protection Surveillance Centre \(2020\). Use of PPE to support infection prevention and control practice when performing aerosol generating procedures on confirmed or clinically suspected COVID-19 cases in a pandemic situation¹](#)

HPSC guidance states that all staff working in an area where aerosol generating procedures are being performed must wear appropriate PPE. The minimum number of staff required must be present. The guidance includes a table entitled: "Aerosol generating procedures which have been associated with increased risk of transmission of respiratory infection."

*There is no specific guidance provided relating to ophthalmic procedures.

What does the World Health Organization say?

[World Health Organization \(2020\). Report of the WHO-China Joint Mission on Coronavirus Disease 2019 \(COVID-19\)²](#)

The WHO-China Joint Mission on COVID-19 estimated the incidence of conjunctival congestion at 0.8%, based on a study in 55,924 laboratory-confirmed cases.

Other

[Irish College of Ophthalmologists](#)

The Irish College of Ophthalmologists is monitoring closely the advice and information from the Government, the Department of Health and the HSE in relation to the evolving COVID-19 situation in Ireland. COVID-19 update and resources for Ophthalmologists

The ICO has issued a number of press releases with advice for ophthalmologists, the public and eye care patients during COVID-19³.

[Royal College of Ophthalmologists \(2020\) COVID-19 clinical guidance for ophthalmologists⁴](#)

The world is experiencing unprecedented social change as a result of the COVID-19 pandemic. How we respond to the challenges we face will have a long-lasting impact on society. Our members have a combined duty to protect our patients, most of whom are elderly, whilst doing our best to



preserve their vision. The College believes that this is best achieved by cancelling routine clinical activity, allowing resources available to be used to treat those identified as being at high risk of serious, permanent visual loss.

[PROTECTING PATIENTS PROTECTING STAFF](#) sets out our core principles of organising ophthalmology services during COVID-19.

1. All routine ophthalmic surgery should be postponed in NHS ophthalmology departments, private hospitals and independent treatments centres.
2. All face-to-face outpatient activity should be postponed unless patients are at high risk of rapid, significant harm if their appointment is delayed.
3. Ophthalmology Accident and Emergency Departments should stay open with consultant level support for both triage decisions and seeing patients.
4. Routine diabetic retinopathy screening should be postponed.

Specific exemptions: There will clearly be patients who need to be seen and treated urgently. These may include, but are not limited to, those with the following conditions:

- Exudative age-related macular degeneration
- Diabetic retinopathy
- Retinal detachments
- Advanced or rapidly progressive glaucoma
- Uveitis
- Ocular oncology
- Retinopathy of prematurity [screening and treatment]

Clinics and operating lists should be organised to minimise the time patients spend in the department and the number of other patients and staff they encounter. For example, it will be necessary to reduce the number of anti-VEGF injections per list, to enforce staggered arrival times, to use longer acting anti-VEGFs and to treat with ongoing injections with no clinical review.

Further guidance is available on telemedicine considerations⁵. By necessity, healthcare providers are having to accelerate development and implementation of these tools in order to maintain services.



[NHS England \(2020\). Clinical guide for the management of ophthalmology patients during the coronavirus pandemic⁶](#)

In response to pressures on the NHS, the elective component of our work is to be curtailed. However, non-elective patients will continue to need care. We should seek the best local solutions to continue the proper management of these patients while protecting resources for the response to coronavirus ... During the coronavirus epidemic it is vital that other patients and staff are protected. This involves reducing crowding in waiting rooms, preventing symptomatic patients from attending and using personal protection.

[American Academy of Ophthalmology \(2020\). Important corona virus updates for ophthalmologists⁷](#)

Due to the COVID-19 pandemic, the Academy finds it essential that all ophthalmologists cease providing any treatment other than urgent or emergent care immediately.

[American Academy of Ophthalmology \(2020\) Practice Operations and Safety Considerations⁷](#)

Provides practice operations and safety problem-solving considerations shared by Academy and AAOE staff and members aimed at the challenges related to the coronavirus.

The American Academy of Ophthalmology is sharing important ophthalmology-specific information related to SARS-CoV-2.

WHAT YOU NEED TO KNOW

- Several reports suggest that SARS-CoV-2 can cause a mild follicular conjunctivitis otherwise indistinguishable from other viral causes, and possibly be transmitted by aerosol contact with conjunctiva.
- SARS-CoV-2 is susceptible to the same alcohol- and bleach-based disinfectants that ophthalmologists commonly use to disinfect ophthalmic instruments and office furniture. To prevent SARS-CoV-2 transmission, the same disinfection practices already used to prevent office-based spread of other viral pathogens are recommended before and after every patient encounter.



- The Academy and federal officials strongly recommend protection for the mouth, nose and eyes when caring for patients potentially infected with SARS-CoV-2.

[**American Academy of Ophthalmology \(2020\) Returning to Ophthalmology Practice⁸**](#)

While the Academy made a national recommendation to curtail ophthalmic practice, the decisions to reopen more normal practice will be local and regional. They will be based on local and state governments, on public health authorities interpreting local patterns of disease, on testing availability, on institutional policies and ultimately on individual ophthalmologists.

[**American Academy of Ophthalmology \(2020\). List of urgent and emergent ophthalmic procedures⁹**](#)

The American Academy of Ophthalmology has collated these procedures, along with their more common indications, into this single list. This list is not meant to cover all indications or all potential procedures but to include those, in the opinion of the major subspecialty societies listed, that are more commonly performed by ophthalmologists in practice.

[**Oxford University Centre for Evidence-Based Medicine \(2020\). Spreading SARS-CoV-2 through ocular fluids¹⁰**](#)

The death of the Chinese ophthalmologist Li Wenliang in Wuhan recently raised many concerns. The close proximity between ophthalmologists and their patients has raised concerns because they are at risk of infection through transmission by droplets from coughs or sneezes. For asymptomatic patients with no risk factors, the American Academy of Ophthalmologists (AAO) and the UK Royal College of Ophthalmologists recommend generic measures to protect ophthalmologists from infection, and these include scrupulous disinfection practices, protective plastic slit-lamp breath shields, reducing or eliminating conversations with the patient during slit-lamp examination, limiting the time spent with the patient at the slit lamp, and considering whether ophthalmic investigations, such as ocular imaging, are critical to the decision-making process. Both organizations have recommended that non-urgent treatments be cancelled.



POINT-OF-CARE TOOLS

What does BMJ Best Practice say?

[Coronavirus disease 2019 \(COVID-19\)¹¹](#)

Early recognition and rapid diagnosis are essential to prevent transmission and provide supportive care in a timely manner. Have a high index of clinical suspicion for COVID-19 in all patients who present with fever and/or acute respiratory illness and who live in or report a travel history to an area with local transmission or close contact with a suspected or confirmed case in the 14 days prior to symptom onset. Evaluation should be performed according to pneumonia severity indexes and sepsis guidelines [if sepsis is suspected] in all patients with severe illness.

*There is no specific guidance relating to ophthalmic procedures.

What does UpToDate say?

[Office Spirometry¹²](#)

Spirometry and other pulmonary function test maneuvers can promote coughing and aerosol generation and could lead to spread of SARS-CoV-2 by infected patients. In general, patients who have recently had abdominal, intracranial or eye surgery or a pneumothorax should not perform spirometry, although data are limited.

INTERNATIONAL LITERATURE

What does the international literature say?

[Safadi et al \(2020\) Ophthalmology practice during the COVID-19 pandemic¹³](#)

Presents an established practice protocol for safe and effective hospital-setting ophthalmic practice during the coronavirus disease 2019 (COVID-19) pandemic. An evidence-based ophthalmic practice protocol was established and should be modified in the future to accommodate new insights on the COVID-19 pandemic.

[Chen et al \(2020\) \[Case Report\] Ocular manifestations of a hospitalised patient with confirmed 2019 novel coronavirus disease¹⁴](#)

SARS-CoV-2 is capable of causing ocular complications such as viral conjunctivitis in the middle phase of illness. Precautionary measures are



recommended when examining infected patients throughout the clinical course of the infection. However, conjunctival sampling might not be useful for early diagnosis because the virus may not appear initially in the conjunctiva.

[**Lai et al \(2020\) Stepping up infection control measures in ophthalmology during the novel coronavirus outbreak: an experience from Hong Kong¹⁵**](#)

Infection control measures implemented in our ophthalmology clinic are discussed. The measures are based on detailed risk assessment by both local ophthalmologists and infection control experts.

[**Yu et al \(2020\) A comprehensive Chinese experience against SARS-CoV-2 in ophthalmology¹⁶**](#)

Due to the face-to-face communication with patients, frequent exposure to tears and ocular discharge, and the unavoidable use of equipment which requires close proximity, ophthalmologists carry a high risk of contracting SARS-CoV-2. Based on 33 articles published by Chinese scholars, guidelines and clinical practice experience in domestic hospitals, we have summarized the Chinese experience through the lens of ophthalmology, hoping to make a contribution to protecting ophthalmologists and patients around the world.

[**Tahiri Joutei Hassani et al \(2020\) The novel coronavirus Covid-19: What are the ophthalmic risks?¹⁷**](#)

Lu et al have suggested the necessity of performing conjunctival scrapings in confirmed cases and those suspicious for COVID-19. It would also be useful to take samples from patients in quarantine to determine, in patients who are still asymptomatic but will subsequently develop an infection at what point in time the virus appears in their tears and in what quantity. This may allow for a better understanding of the infectious risk via this mode of transmission.

[**Wu et al \(2020\) Characteristics of Ocular Findings of Patients With Coronavirus Disease 2019 \(COVID-19\) in Hubei Province, China¹⁸**](#)

In this study, one-third of patients with COVID-19 had ocular abnormalities, which frequently occurred in patients with more severe COVID-19. Although there is a low prevalence of SARS-CoV-2 in tears, it is possible to transmit via the eyes.



[Seah et al \(2020\) Can the Coronavirus Disease 2019 \(COVID-19\) Affect the Eyes? A Review of Coronaviruses and Ocular Implications in Humans and Animals¹⁹](#)

In this article, the current evidence suggesting possible human CoV infection of ocular tissue is reviewed. The review article will also highlight animal CoVs and their associated ocular infections. We hope that this article will serve as a start for further research into the ocular implications of human CoV infections.

[Romano et al. \(2020\) Facing COVID-19 in Ophthalmology Department²⁰](#)

In this review we present updated literature merged with our experience from hospitals in Bergamo, the epicentre of the COVID-19 European outbreak. Non-pharmaceutical interventions, hygienic recommendations and personal protective equipment to contain viral spread as well as a suggested risk assessment for postponement of non-urgent cases should be applied in ophthalmologist activity. A triage for ophthalmic outpatient clinic is mandatory.

[Korobelnik et al \(2020\) Guidance for anti-VEGF Intravitreal Injections During the COVID-19 Pandemic²¹](#)

The Vision Academy's Steering Committee of international retinal disease experts convened to discuss key considerations for managing patients with retinal disease during the COVID-19 pandemic. After reviewing the existing literature on the issue, members put forward recommendations that were systematically refined and voted on to develop this guidance. Among the recommendations included are:

1. avoiding contamination and treating patients in a limited-resources environment;
2. prioritizing patients according to medical need: assessing the risks and benefits;
3. considerations to reduce exposure during the patient visit;
4. intravitreal treatment regimen considerations;
5. treatment facility recommendations; and
6. considerations for reassuring patients.



[Sengupta et al \(2020\) All India Ophthalmological Society Indian Journal of Ophthalmology consensus statement on preferred practices during the COVID-19 pandemic²²](#)

An expert panel clearly defines a range of activities for Indian ophthalmologists during the ongoing lockdown phase and precautions to be taken once the lockdown is lifted. The document includes guidelines for triage; governmental guidelines on the use of personal protective equipment from the ophthalmologist's perspective; precautions to be taken in the OPD and operating room; and care of ophthalmic equipment. These guidelines will be applicable to all practice settings including tertiary institutions, corporate and group practices and individual eye clinics and should help Indian ophthalmologists in performing their professional responsibilities without being foci of disease transmission.

[Lim et al \(2020\) Sustainable practice of ophthalmology during COVID-19: challenges and solutions²³](#)

Challenges in different care settings in our ophthalmology practice have been identified and analyzed with practical solutions and guidelines implemented in anticipation of these challenges. First, to minimize cross-infection of COVID-19, stringent infection control measures were set up. These include personal protective equipment for healthcare workers and routine cleaning of high-touch surfaces. Second, for outpatient care, a stringent screening and triaging process was carried out to identify high-risk patients, with proper isolation implemented for such patients. Administrative measures to lower patient attendance and reschedule appointments were carried out. Third, inpatient and outpatient care were separated to minimize interactions. Lastly, logistics and manpower plans were drawn up in anticipation of resource demands and measures to improve the mental well-being of staff were implemented.

[Lam et al \(2020\) COVID-19: Special Precautions in Ophthalmic Practice and FAQs on Personal Protection and Mask Selection²⁴](#)

Ophthalmic practice carries some unique risks and therefore high vigilance and special precautions are needed. We share our protocols and experiences in the prevention of infection in the current COVID-19 outbreak and the previous severe acute respiratory syndrome epidemic in Hong Kong. We also endeavor to answer the key FAQs in areas of the coronaviruses, COVID-19, disease transmission, personal protection, mask selection and special measures in ophthalmic practices. Using our protocol and measures, we

have achieved zero infection in our ophthalmic practices in Hong Kong and China.

Produced by the members of the National Health Library and Knowledge Service Evidence Team[†]. Current as at 29 April 2020. This evidence summary collates the best available evidence at the time of writing and **does not replace clinical judgement or guidance**. Emerging literature or subsequent developments in respect of COVID-19 may require amendment to the information or sources listed in the document. Although all reasonable care has been taken in the compilation of content, the National Health Library and Knowledge Service Evidence Team makes no representations or warranties expressed or implied as to the accuracy or suitability of the information or sources listed in the document. This evidence summary is the property of the National Health Library and Knowledge Service and subsequent re-use or distribution in whole or in part should include acknowledgement of the service.

The following PICO(T) was used as a basis for the evidence summary:

P Population person location condition/patient characteristic	PATIENTS UNDERGOING OPHTHALMIC PROCEDURES
I Intervention length location type	
C Comparison another intervention no intervention location of the intervention	
O Outcome	OCULAR TRANSMISSION OF COVID-19 CANCELLATION OF OPHTHALMIC PROCEDURES

The following search strategy was used:

S1	(MH "Coronavirus+")
S2	COVID-19 OR coronavirus OR "corona virus" OR (Wuhan N2 virus) OR (("2019-nCoV" or "2019 ncov") OR "severe acute respiratory syndrome coronavirus 2" OR (("2019" and (new or novel) and coronavirus))
S3	S1 OR S2
S4	(MH "Ophthalmologic Surgical Procedures+") OR (MH "Ophthalmology") OR "ophthalmology"
S5	"eye surgery" OR "ophthalmic surgery" OR ophthal* OR "eye system" OR "visual system" OR ocular
S6	"oculoplastic surgery" OR oculoplast*
S7	S4 OR S5 OR S6
S8	S3 AND S7

[†] Melanie Surkau, Librarian, University Hospital Kerry, Tralee [Author]; Nicola Fay, Regional Librarian, Midland Regional Hospital, Tullamore [Author]; Brendan Leen, Regional Librarian, HSE South, St. Luke's General Hospital, Kilkenny [Editor]



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- ³ Irish College of Ophthalmologists <https://www.eyedoctors.ie/press-releases/>. [Accessed 29.04.2020]
- ⁴ Royal College of Ophthalmologists <https://rcophth.ac.uk/2020/04/covid-19-update-and-resources-for-ophthalmologists/>. [Accessed 29.04.2020]
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