Retinopathy of prematurity (ROP) is a time-sensitive, blinding eye condition of premature neonates who may require regular retinal examinations over many weeks and in some cases may require urgent treatment. Preterm retinopathy presents as an emergent pathology for which diagnosis and treatment cannot be postponed. The AAO has listed it as an urgent and emergent ophthalmic procedure.\(^1\)

Little is known about the perinatal effects of SARS-CoV-2.\(^2\) Based on reports available at the time of this writing, newborn infants appear to be less affected by COVID-19 than adults.\(^3,4\) Current knowledge on neonatal SARS-CoV-2 infection is limited. Neonates have underdeveloped immune systems, and they are considered susceptible to contracting the virus.

Neonates might acquire infection through close contact with virus-infected patients or virus carriers. Current case studies suggest no evidence that COVID-19 transmission occurs from mother to neonate in utero or via breastmilk.\(^5-8\) However, case studies are limited, so caution must be taken.

Caring for preterm infants or neonates is on the list of aerosol generation procedures. The relevant aspects for ophthalmology include noninvasive ventilation (ie, use of continuous positive airway pressure and laryngeal masks), high frequency oscillating ventilation, and high-flow nasal oxygen.\(^9\) When a child is crying, the respiratory inspiration-expiration ratio changes due to the shortening of inspiration and prolongation of expiration, increasing by 255% compared with quiet ventilation.\(^10\)

To make diagnoses, our specialty strongly relies on physical examination performed at a short distance from the patient. The US Centers for Disease Control and Prevention (CDC)at a glance

- Little is known about the effects of SARS-CoV-2 in perinatal populations.
- Neonates who require ophthalmic examination present a unique disease transmission dynamic.
- Transmission risk in this population may be mitigated by following a strict set of procedures.

Recommendations for practitioner and patient safety are rapidly evolving; here is an update on current guidance.

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defines close contact as being approximately 2 m from a patient for a prolonged duration. Any contact longer than 1 to 2 minutes of exposure is considered prolonged until more is known about transmission risks.

Hence, the close proximity between ophthalmologists and premature babies under ventilation or crying during indirect or direct ophthalmoscopy and portable slit-lamp examination may pose a risk of cross-infection in health care providers and patients.11,12

The evidence so far indicates that conjunctival secretions and tears from patients with SARS-CoV-2 infection can contain viral RNA. Health care workers should assume that ocular fluids from all patients are potentially infectious.1

SCREENING GUIDANCE

Equipment Cleaning and Disinfection

For in-office and in-hospital exams, diagnostic equipment and instruments should be cleaned and disinfected between patients. Disposable gloves should be worn and discarded after devices are reprocessed. Examination tables and surfaces in contact with patients should be disinfected. Recommended disinfectants include diluted household bleach (1,000 ppm) and 70% alcohol solution.13-15

Binocular indirect ophthalmoscopes (BIO) and condensing lenses are not in direct contact with the skin or conjunctiva but are exposed to aerosolized particles. Manufacturers’ instructions for cleaning and disinfection should be observed; most recommendations suggest using the same household bleach and alcohol solutions used for surfaces.15

BIO. Wipe surfaces with a soft cotton cloth dampened in soapy water or 70% alcohol solution. Avoid cloths that are excessively moist.

BIO lenses. Clean lens surfaces using a soft cotton cloth and mild detergent. Use clockwise movements to prevent loosening of the ring. For disinfection, 5,000 ppm sodium hypochlorite solution can be used. Soak the lens for 10 to 25 minutes, rinse thoroughly, and dry with a soft cotton cloth.

We do not recommend the use of direct ophthalmoscopes or portable slit lamps.

Retcam (Optos). The lens piece must be cleaned immediately after patient contact; the lens surface can be wiped with a soft tissue and then disinfected with a soft cloth saturated with 70% isopropyl alcohol, rinsed, and dried. Only the 4 mm distal part of the handpiece can be immersed. The rest of the system can be cleaned and disinfected at the end of the session with a soft soap-and-water solution and 5,000 ppm chlorine dilution.

Reusable lid speculums and scleral depressors are considered semicritical items, as they come in direct contact with tears and conjunctiva. They require cleaning and high-level disinfection or sterilization. Use of sterile disposable speculums and depressors is preferred. Disinfection with 70% isopropyl alcohol has failed to eliminate adenoviruses and bacteria, but it is effective against SARS-CoV-2; this can therefore be considered in units where sequential exams are performed with reusable metallic speculums.13,16-18

PROCEDURES FOR PERSONAL PROTECTIVE EQUIPMENT

Certain items of personal protective equipment (PPE), donned and doffed in a prescribed order, are necessary for protection from contact and droplets.

Putting on PPE

Perform hand hygiene with an alcohol-based hand rub, if available, or with soap and water.

Put on a long-sleeve gown. Gowns are used in addition to gloves if there is risk of fluids or blood from the patient splashing onto the health care worker’s body. The same gown can be used when providing care to more than one patient, but only if those patients are in a cohort area and only if the gown does not have direct contact with a patient.

Plastic aprons should be used in addition to gowns if the material of the gown is not fluid-repellent and the task to be performed may result in splashes onto the health care worker’s body.

Put on the appropriate mask. Wear a respirator mask when performing aerosol-generating procedures: N95, FFP2, FFP3, or equivalent.

Put on eye protection. Use a face shield or goggles. A
face shield can be attached with Velcro to the BIO or can be attached upside-down to the neck of the ophthalmologist.

**Put on gloves.** Ensure that gloves are placed over the cuff of the gown.19,20

**Taking Off PPE**

Ensure that infectious waste containers are available for safe disposal of PPE. Separate containers should be available for reusable items.

**Remove gloves.** Dispose of gloves in a proper receptacle.

**Remove the gown.** Ensure that the gown is pulled away from the body during removal and that clothing does not become contaminated. Dispose of the gown safely.

**Perform hand hygiene.** With an alcohol-based hand rub, rub the hands for 20 to 30 seconds. With soap and water, wash the hands for 40 to 60 seconds.

**Remove eye protection.** Remove the face shield and/or goggles.

**Remove the mask.** Ensure that you are taking the mask off by holding the straps; avoid touching the mask.

**Perform hand hygiene again.** Repeat the regimen above (ie, for alcohol-based options, rub hands for 20 to 30 seconds, for soap and water–based options, wash hands for 40 to 60 seconds).21

**ENVIRONMENTAL CONTROLS**

We suggest these steps to control the environmental milieu.

**Screen the neonate** through the closed incubator, as it is translucent. If the neonate is not in an incubator, we suggest the use of an acrylic box similar to the one used by anesthesiologists to intubate patients.

**Limit the time spent with the patient** and consider whether ophthalmic investigations—such as performing ocular imaging rather than physical exploration—are crucial to the decision-making process.

Regarding treatment, we suggest administering antiangiogenic therapy under topical anesthesia, rather than laser application, to limit time exposure.

To avoid contact with the patient’s parents, a teleconference can be conducted to discuss the findings and treatment, if needed, rather than a face-to-face talk.

**STAY TUNED FOR UPDATES**

This article reflects our current knowledge regarding neonatal COVID-19. Because the outbreak and related information are changing rapidly, we highly recommend continuing to watch for updates.


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