

All India Ophthalmological Society - Eye Bank Association of India consensus statement on guidelines for cornea and eyebanking during COVID-19 era

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The COVID-19 pandemic has brought with it the huge burden of mortality and morbidity across the world and the added effects of the mandatory lockdown measures to try and control the spread. A number of aspects of healthcare including eye donation and eye collection require adequate safety precautions in place to keep both the involved healthcare workers and patients safe. This paper highlights the consensus-based guidelines by an expert panel on how to restart eye banking and eye collection services and carry out emergency corneal surgeries during this COVID-19 time. These guidelines will be applicable to all eye banks across the country and should help ophthalmologists and eye banking staff to restart eye banking while safeguarding themselves and their patients.

Key words: Consensus, cornea guidelines, COVID-19, eye banking, ophthalmology, pandemic, precautions, preferred practice

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The COVID-19 pandemic has affected people around the world and the medical fraternity in particular. It has made us change the way we function and in the aftermath of this pandemic, ophthalmologists will require practical guidelines based on advisories from national health departments on how to restart eye banking and cornea-related healthcare across the country.

As per the Ministry of Health and Family Welfare (MoHFW), hospitals can continue emergency services with adequate

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spacing in OPDs and personal protective equipment except in containment zones. Elective and non emergency follow ups and surgeries can be deferred.^[1]

This paper highlights the consensus based guidelines by an expert panel comprising of representatives from the All India Ophthalmological Society (AIOS), Eye Bank Association of India (EBAI), Indian Society of Cornea and Keratorefractive surgeons (ISKRS), Cornea society of India (CSI) and major governmental and private ophthalmological institutions in India. These guidelines will be applicable to all eye banks across the country and should help ophthalmologists and eye banking staff to restart eye banking while trying to ensure the safety of their patients and themselves.

Methods

These guidelines outline the infection prevention and control advice for ophthalmologists and healthcare workers (HCWs) involved in the treatment of patients for ophthalmic care especially with regard to eye banking practices and cornea services. These guidelines are based on the available literature and guidelines issued from the MoHFW, Government of India, and Indian Council of Medical Research (ICMR). With the evolving situation on COVID-19, further updates may be made to this guidance as and when required. An invitation to review these guidelines was sent out by email to eminent ophthalmologists across India, including heads of the major teaching institutions, both in the government and private sectors. The experts suggested several changes in the base document that was collated, and the consensus derived. Disagreements on guidelines were resolved by discussion between members.

Practice Guidelines for Ophthalmologists with relevance to Eye Banking and Cornea

Advisory for resuming the eye banking activities

- All collected tissues should be quarantined for 48 h prior to the release of the tissue for usage for transplantation. Avoid immediate usage
- The Eye Banking activities to be resumed through hospital cornea retrieval programme (HCRP) and to be from a hospital which is declared as non-COVID-19
- Voluntary/Community donation and eye collection is more hazardous for the recovery team and to be put on hold for 2 weeks or until the fresh guidelines are circulated whichever is earlier
- No eye banking activities to be started in the containment areas of red zones. Containment zones shall be demarcated within red (Hotspots) and orange Zones by State/UTs and

- District Administration based on the guidelines of MoHFW
- The Recovery Technician/doctor to use personal protective equipment (PPE) -including N95 mask, cap, face shield/visor, gloves, gown, while recovering the donor tissue for 2 weeks or until the fresh guidelines are circulated whichever is earlier
- The technicians and relevant staff must be given training about the PPE use and other precautions during retrieval to reduce the risk of acquiring or spreading the infection
- Eye Bank Association of India recommends that the collection of a nasal swab of the deceased donor for RT-PCR COVID-19 testing **may** be done at the discretion of the hospital director.

The Eye Bank Association of India recommends that eye banks exclude the following potential donors for ocular tissue collection^[2]

- Tested positive for or diagnosed with COVID-19
- Acute respiratory illness or fever 100.4°F (38°C) or at least one severe or common symptom known to be associated with COVID-19 (e.g., unexplained fever, cough, shortness of breath, diarrhea) with no other etiology that fully explains the clinical presentation [Table 1]
- Individuals who have been exposed to a confirmed or suspected COVID-19 patient within the last 14 days, who have returned from nations which have more than 10 infected patients and those whose cause of death was unexplained should not be accepted as deceased donors.
- As India itself is a country where COVID-19 pandemic is spreading rapidly, any patient who lives or has visited the red zone as defined by the Ministry of Health and Family Welfare vide D.O.No. Z.28015/19/2020-EMR dated 30.04.2020 will be considered as a risk and must be assessed for the clinical symptoms and avoided for eye donation
- Evidence of conjunctivitis
- ARDS, pneumonia, or pulmonary computed tomography (CT) scanning showing "ground-glass opacities" (regardless of whether another organism is present) (Fig. 1- Algorithm to follow for Deceased Tissue Donation).^[3]

General functioning guidelines

- Eye banks should document the risk assessment of the deceased by taking a relevant history from attender or family members and ensure that all staff are aware of the above
- It is recommended that only corneal scleral rim excision be performed and avoid the whole eyeball enucleation
- Use intermediate preservative media for the preservation of corneas
- Donor corneas in intermediate preservation media if not utilized should be shifted to glycerol on the last day of preservation and kept in a deep freezer for future use for tectonic purposes
- Recovery procedures mandatorily require double contact of povidone-iodine to ocular tissue before retrieval^[4]
- The entire disposable PPE kit to be removed immediately after tissue retrieval, properly packaged to avoid cross-infection and disposed off after reaching the hospital as per the guidelines
- As a precaution use double-layered bags (using 2 bags) for collection of waste (blood sample/Cornea) to ensure adequate strength and no leaks^[5]
- Non-disposable parts of the PPE like goggles/visor to be cleaned with spirit or 1% sodium hypochlorite immediately after returning to the hospital

Table 1: COVID-19 symptoms^[2]

COVID-19 Symptoms		
Severe	Common	Less Common
Difficulty in breathing	Fever	Myalgia
Chest Pain	Dry Cough	Fatigue
Confusion	Shortness	Headache
Bluish lips or face	of breath	Hemoptysis
Unresponsiveness		Diarrhoea
		Sore Throat
		Rhinorrhoea
		Wet Cough
		Loss of smell and test

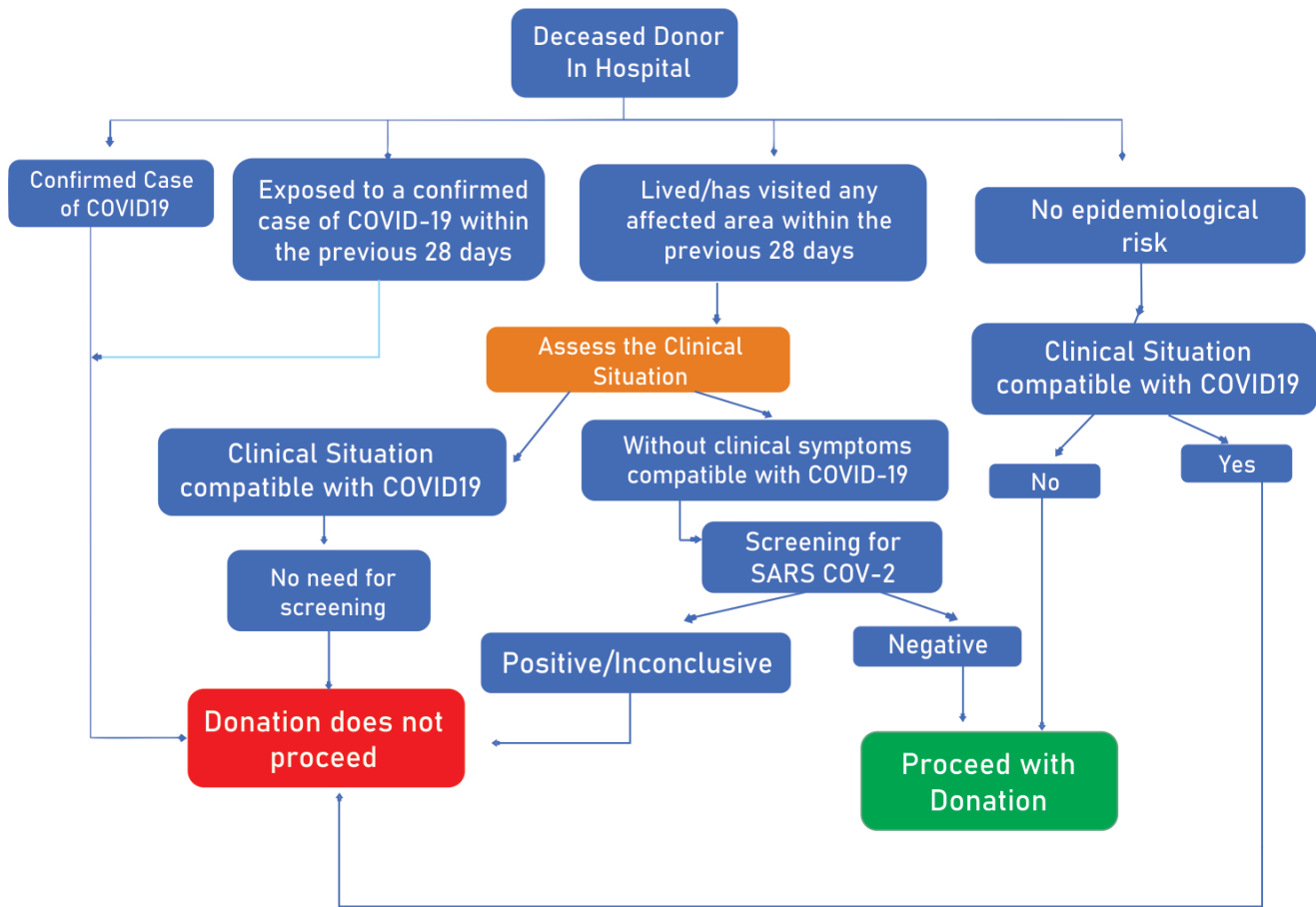


Figure 1: Algorithm to follow for Deceased Tissue Donation

Sequence for safely Putting on PPE



Sequence for safely Removing of PPE

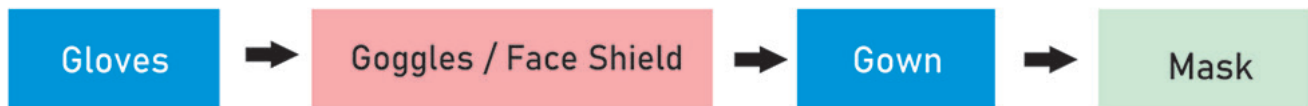


Figure 2: Sequence for safely putting on and removing PPE

- Clean all external surfaces of MK Medium/Cornisol bottles, flask, ice gel packs, instrument tray, stainless steel bin with surgical spirit, alcohol wipes, or freshly prepared 1% sodium hypochlorite after recovery and repeat it at Eye Bank
- All the donor forms and documents are to be exposed

- to Ultraviolet light in the Laminar flow hood for 30 min immediately after the team arrives at the eye bank. (Expose both sides of forms -30 min +30 min)
- The technicians who handled the tissues and materials, to wash hands thoroughly with soap and water for about

Table 2: Urgency wise list of corneal procedures

Emergency procedure	Semi-emergency procedures	Elective procedure
Corneal Tear repair/Open Globe injury: Repair±Anterior Chamber reconstruction±Traumatic cataract Surgery±Anterior Vitrectomy, etc. Lid laceration repair	*Keratoplasty for bilaterally blind/ paediatric	*All keratoplasties
Wound Dehiscence Repair- Post Penetrating Keratoplasty (PK)/Post Therapeutic PK/Post Deep Anterior Lamellar Keratoplasty	Closed Globe injury: Paracentesis/Hyphema drainage, Traumatic intumescent cataract Anterior Lens Capsule tear	
*Therapeutic/Tectonic keratoplasty	Shield Ulcer debridement Supratarsal steroid	All Ocular Surface surgeries
Emergency Perforation repair - Tenons patch/Amniotic Membrane Graft/Tissue adhesive+BCL	Emergency tarsorrhaphy	Corneal collagen cross linking (C3R/CXL)
Ulcers - Corneal scrapings /AC tap /wash/Intracameral Injection/Tarsorrhaphy	Pseudomembrane peeling for Epidemic Keratoconjunctivitis (Precautions to ensure it is not COVID-19 conjunctivitis but adequate protection to be maintained)	Pseudomembrane peeling for Epidemic Keratoconjunctivitis
Broken/Loose suture: Removal Epilation of Trichiatic lashes	Acute hydrops: Intracameral C3F8 injection±Compression sutures	
SubTenon/Peribulbar injection of steroid or IVMP injection if required in Corneal graft Rejection		
Management of Acute Stevens Johnson Syndrome/Ocular Burns as per protocol	Management of Stevens Johnson Syndrome/Ocular Burns as per protocol	
Foreign Body Removal: Surface or Intracameral	Surgery for Ocular Surface Squamous neoplasia (OSSN)	

30 s up to elbow before handling any other work in the eye bank. (Staff should occupy only their dedicated chair and should not sit in somebody's chair)

- Each eye bank should monitor and consult local THOTA/NOTTO/SOTTO/ROTTA/State health authority/NPCB for daily or weekly reports
- Eye Donation Counsellor/Eye Recovery Technicians may be asked to be on call with limited movement in the hospital
- Eye bank-related officials must disclose the history of a hospital visit in the past 14 days (Verify papers for the cause of visit)
- The Eye Banks must follow the instructions of local State Government for starting of services.

Cleaning of the eye bank

- The floor of the eye bank and laboratory areas MUST be cleaned with 1% Sodium Hypochlorite every 2 hourly
- Deep cleaning to be done anytime there is any contamination
- Door handles, side rails on stairs, high touch surface like reception counter, help desk, gate with 1% Sodium Hypochlorite (4 Times/Day)
- Chair in the waiting area (head end, armrest etc.), electronic/IT equipment like monitor, keyboard, mouse, etc. must be done with alcohol swab every 2 h.

Human resource

- Eye banks should consider reorganization of the activities, introducing work shifts and batches and the personnel from one shift to not get in touch with the other shift to minimize the possibility of cross-infection. If a team gets quarantined due to any reason, then the other one can still continue to perform eye banking functions
- PPE at the workplace should include mask (N95/other

approved masks), gloves and visor (face shield) and regular apron. Usage, sterilization/disposal of masks as per protocol for each mask

- All Eye Bank Staff should be provided with sufficient number of masks, gloves, single-use plastic aprons, with hand sanitizers
- Frequent hand washing and use of hand sanitizer are recommended and sanitizer should be readily available with all team members during their duty timings
- Mask is mandatory in the presence of other persons
- Separation of office workstations
- Maintain 1.5 m physical distance at all times
- If staff suspected of contact but asymptomatic, quarantine for a minimum of 14 days and test as per protocols and symptomatology
- Fig. 2- Sequence for safely putting on and removing PPE
- Wash hands or use an alcohol-based hand sanitizer immediately after removing all PPE.

All the staff members are advised to follow the below steps while going back home from eye bank/hospital^[6]

- Ring up home when you start from office
- Someone at home should keep the front door open (so that you don't have to touch the calling bell or door handle) and a bucket of water with washing soap powder or bleaching powder added to it at the front door
- Keep things (vehicle keys, pen, sanitizer bottle, phone) in box outside the door
- Wash your hands in the bucket and stand in the water for a few minutes. Meanwhile use tissue and sanitizer and wipe the items you have placed in the box
- Wash your hands with soap water again

- Now enter the house without touching anything
- The bathroom door is kept open by someone and a bucket of detergent soap water is ready
- Take off all the clothes and soak inside the bucket
- Take head bath with shampoo and body with soap
- Wash your clothes and dry clothes in direct sunlight.

Staff training

A training program May be organized for all the staff of the eye bank, covering all the above guidelines and proper usage of doffing and donning of PPE by the medical director/eye bank manager. Nasopharyngeal swab may be taken by appropriately trained personnel.

Prioritize surgeries as per their level of medical urgency – For corneal transplants: Tectonic and therapeutic corneal transplants to be done on priority over optical and lamellar corneal transplants. Special consents can be added to the preoperative protocol for COVID-19 time. There are a number of other procedures and surgeries which may be required on emergency and semi-urgent basis and can be prioritized and undertaken with necessary care and precautions [Table 2].

Conclusion

The COVID-19 pandemic has had a huge impact on healthcare both by the direct mortality and morbidity associated and the indirect effects of lockdown and social distancing measures to control the infection spread. The death toll around the world has risen steadily and the challenges faced by the healthcare systems is manifold.^[7] Due to the close contact with patients, procedures which generate aerosols and potential risk of presence of virus in tears there was a fear that ophthalmologists and eye-related HCWs are at a slightly higher risk of developing the infection.^[8,9] However there is no proven consensus on this matter.^[10] It is important to use preferred practice guidelines so that we can exert extra care to restart eye banking and do at least the emergency surgeries without facilitating disease transmission and keeping ourselves safe. We hope that these eye banking guidelines are useful to ophthalmologists around the country.

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Conflicts of interest

There are no conflicts of interest.

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Disclaimer

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