



ALL INDIA OPHTHALMOLOGICAL SOCIETY OPHTHALMIC PRACTICE GUIDELINES IN THE CURRENT CONTEXT OF **COVID 19**

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**OPHTHALMIC PRACTICE GUIDELINES IN THE CURRENT CONTEXT
OF COVID 19**

All India Ophthalmological Society

PRELUDE

IN the current COVID 19 situation, Central and State Governments have issued a series of Guidelines primarily focusing on protection of interests of all the concerned and prevention of the spread of Infection. AIOS, in the backdrop of above, has collected and collated expert inputs from various sub-specialities both from India and abroad to generate these Guidelines. This is done with a singular mind to inform and guide Ophthalmic Practitioners in the best interests of doctors, patients, healthcare staff and community in general. Owing to the present context and also the complex nature of the medical profession in terms of unpredictable outcomes, these Guidelines are required to be construed as bona fide opinions of experts. Be that as it may, it is necessary to understand and appreciate that these Guidelines do not substitute or override applicable statutory and ethical mandates.

Similarly, in a given patient care scenario, it is ultimately the clinical judgment or decision of the Physician prevails, which is being taken considering overall circumstances and the patient's underlying condition. These Guidelines present recommendations considering the available information as on date. Needless to mention that as the situation evolves and unfolds, these Guidelines also would warrant appropriate changes.

AIOS appeals to all the Ophthalmic Practitioners to adopt safeguards in the best interest of everyone concerned in the community.

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	Eye Bank Association of India, (EBAI)
	Cornea Society of India (CSI)
	Glaucoma Society of India (GSI)
	Uveitis Society of India (USI)
	Vitreoretinal Society of India (VRSI)
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	Indian Neuro-Ophthalmological Society (INOS)
	Ocular Trauma Society of India (OTSI)
	Vision 2020 NPCB

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Abbreviations

ACAL	Assurance Clinical Administrative Legislative
AIOS	All India Ophthalmological Society
ARN	Acute retinal necrosis
BMW	BioMedical Waste
C/S	Culture Sensitivity
CSI	Cornea Society of India
CT	Computerized tomography
EBAI	Eye Bank Association of India
EDC	Eye Donation Counselor
FFA	Fundus fluorescein angiography
GI	Gastrointestinal
GOI	Government of India
GSI	Glaucoma Society of India
HCQ	Hydroxychloroquine
HCRP	Hospital Cornea Recovery Program
HICC	Hospital Infection Control Committee
ICG	Indocyanine angiography
ICMR	Indian Council of Medical Research
IIRSI	Intraocular Implant & Refractive Society of India
IPD	In-Patient Department
ISCKRS	Indian Society for Cornea and Refractive Surgeons
LRI	Lower Respiratory Tract Infection
MoHFW	Ministry of Health and Family Welfare
NOTTO	National Organ & Tissue Transplant Organisation
OCT	Optical coherence tomography
OPAI	Oculo Plastic Association of India
OPD	Out-Patient Department
OT	Operation Theatre
OTSI	Ocular Trauma Society of India
PPE	Personal Protective Equipment

PRP	Panretinal Photocoagulation
RT-PCR	Reverse Transcription Polymerase Chain Reaction
SARS	Severe Acute Respiratory Syndrome
SOTTO	State Organ & Tissue Transplant Organisation
SS	Stainless Steel
THOTA	Transplantation of Human Organ and Tissue Act
TOCC	Travel/Occupational/Contact/Clustering
U/S	Ultrasound
URI	Upper Respiratory Tract Infection
USI	Uveitis Society of India
UV	Ultraviolet
VRSI	Vireo Retina Society of India

DECLARATION/SCREENING FORM FOR COVID-19 INFECTION

To ensure your safety and the safety of the doctors and hospital staff who are trying to help you with your eye condition and for the safety of the other patients visiting the hospital, as per the guidelines issued by the Ministry of Health and Family Welfare, Government of India and WHO, We need the following particulars before we take you up for consultation/surgery/procedure. Please note that in case of any event in the future, if any of the below-given details are found to be false and not correct, strict action may be initiated against you and your family members as per guidelines and regulations laid down by MH&FW, Government of India.

Name of Patient: _____ Age / Sex: _____

Address: _____

Mobile No: _____. (Verified Y / N)

MRD No: _____

Alt Mobile No: (Verified Y / N) _____

Email _____ Aadhar Card Number _____

S.No.	COVID- 19 QUESTIONNAIRE	Yes	No
1.	Do you or your accompanying relative or a family member staying with you have symptoms of Fever, Cough, Sneezing, Sore throat, Extreme tiredness/body ache, difficulty in breathing, Loss of smell and taste		
2.	Have you or a family member staying with you travelled outside city to any other city/town/place/containment zone/country in past 21 day? If Yes, mention details. Details of place visited: _____		
3	Are you or a family member staying with you a health care worker? If yes, do you work in a hospital where COVID infected patients are treated?		
4	Did you or a family member staying with you have any exposure to a confirmed COVID-19 patient or to a suspicious patient in last 21 days?		

5	If yes, have you downloaded Arogya Setu application on your phone and kept it "ON"?		
6	If no, Has your close family member downloaded it?		
7	Have you or a family member staying with you visited a health care facility in the past 21 days? If Yes, mention purpose _____		
8	Did you or a family member staying with you have a red eye in last 21 days		

Body Temperature recorded:.....

Name and Signature of the patient:

Name and Signature of Accompanying Relative:

Verified by Staff Sign.....

Time.....Date.....

COVID-19 PANDEMIC OPHTHALMIC TREATMENT CONSENT FORM

I understand the novel coronavirus causes the disease known as COVID-19. I understand the novel coronavirus has unknown and long incubation period during which carriers of the virus may not show symptoms and still be contagious. Even though lockdown is lifted, in the wake of the current Coronavirus threat pandemic (present all over the world), I have come to _____ (Name of the Hospital) by my own free will for my Eye Treatment. If I am an asymptomatic carrier (with no discomfort or symptoms present, but the virus still present hidden in my body) or an undiagnosed patient with COVID 19, I suspect it may endanger doctors and hospital staff. It is my responsibility to take appropriate precautions and to follow the protocols prescribed by the hospital staff.

I am aware that I may get an infection from the hospital or from a doctor, or other patients in the hospital even after the hospital has taken precautions, which have been explained to me, as per guidelines prescribed by the Ministry of Health and Family Welfare, Government of India and WHO. This disease spreads by aerosol and is very contagious even though every precaution is taken it will reduce the risk of transmission and will not completely eliminate the risk.

I understand that ophthalmology (eye) procedures(OPD & OT) might create droplets which is one way that the novel coronavirus can spread. The droplets can linger in the air for minutes to sometimes hours, which can transmit the novel coronavirus.

I confirm that I am not in a high-risk category, including: diabetes, cardiovascular disease, hypertension, lung diseases including moderate to severe asthma, being immunocompromised, or over age 60. OR I fall into the following high-risk category (_____) and my doctor and I have discussed the risks, and I agree to proceed with treatment.

I confirm that I am not waiting for the results of a laboratory test for the novel coronavirus.

I verify that I have not been identified as a contact of someone who has tested positive for novel corona virus or been asked to self-isolate by the government.

I also understand that during my treatment and recovery, I can contact this infection outside the hospital premise. I will take every precaution to reduce the risk of transmission from happening, but I will not at all hold doctors and hospital staff accountable if such infection occurs to me or my accompanying persons. In case I or my attendant gets the COVID-19 infection after the visit to the

hospital, I will inform the hospital authorities at the earliest, so that appropriate tracking of the patients/attendants and hospital staff present on the day of my visit can be done.

I verify the information I have provided on this form and in the questionnaire overleaf is truthful and accurate. I knowingly and willingly consent to necessary investigations and treatment completed during the COVID-19 pandemic. I am also aware, if any details provided by me or by my accompanying relative are found to be false and not correct or if I or accompanying relative has hidden facts and other relevant details, appropriate legal action may be initiated against me and my family members as per applicable government rules.

SIGNATURE/THUMB IMPRESSION OF PATIENT

Name _____ Date _____

Mobile No.: _____

Address: _____

Name of the Attendant: _____ Date: _____ Mobile No. _____

Signature of the Attendant

Name of the Doctor/Hospital Personnel _____ Date: _____

SIGNATURE OF THE DOCTOR/ HOSPITAL PERSONNEL

Guidelines for Functioning of Eye Care Facilities under NPCB & VI
By Ministry of Health and Family Welfare
8th May 2020

1. All eye care facilities to carry out routine clinical activities including OPD, IPD and Surgical Procedures, in all areas except the containment areas in red zones
2. But all due precautions for preventing the spread of infection to be taken like Social distancing, wearing of face masks, face shield, Goggles etc. and frequent Hand Wash/Hand rub (as per MOHFW additional guidelines for non-COVID hospitals.
3. Ensure minimum patients at any given time in the premises and maintain social distancing norms of six feet* between the patients.
4. SOPs regarding the above points may be made and strictly enforced.
5. Ensure minimum touch of OPD Cards, Trial Frames, Trial lenses and other paraphernalia being used in the Eye OPD and their frequent disinfection.
6. Ensure patient wears a face covering and uses a hand rub before entering the OPD and does not have symptoms resembling Covid infection.
7. A special consent form should be got filled by the patient before any invasive procedure is undertaken, disclaiming responsibility from the development of future Corona infection in the patient. This fact should be well explained to the patient.
8. No outreach camps to be undertaken. No mobile vans to be sent in the field.
9. Tele - ophthalmology and Teleconsultation practices to be explored and encouraged specially in difficult areas.
10. IEC messages through digital means only
11. No eyeball retrieval from homes, however, HCRP can be continued in Non-Covid dead patients, for the need of corneas for therapeutic purposes only.
12. During surgical procedures, the surgeons and the OT team should follow the guidance and precautions as for other surgeons (as per MOHFW additional guidelines).
13. Pre-surgical Covid test on patients is not mandatory

* **Corrigendum:** Ensure minimum patients at any given time in the premises and maintain social distancing norms of 1 to 2 metres between the patients.

Functioning of Ophthalmology Facilities

Version: 1

w.e.f. May 11, 2020

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and AIOS Governing Council**

- All Ophthalmology facilities to carry out routine clinical activities including OPD, IPD and diagnostic procedures, irrespective of being located in green, orange or red zones except for those eye care facilities that are located in designated containment areas..
- All due precautions for preventing spread of infection to be taken as detailed later in this document.
- Ensure minimum patients at any given time in the premises and maintain physical distancing norms of 1 to 2 meters between the patients. To achieve this, the working timings/days of the Centres should be increased to space out the appointments as per the workload.
- Teleconsultation practices to be utilized as may be required.
- Patient education messages to be disseminated preferably through digital means- displays in waiting areas and through Social media accounts.
- All public marketing activities, and camps/ outreach activities shall remain suspended till local govt allows resumption.
- Eye Banking: Hospital Cornea Recovery Program may be continued in Non- COVID deceased donors, for the need of corneas for corneal transplantation. No eyeball retrieval from homes.

Advise to Staff:

While Going to Work

- Carry minimum number of personal belongings, like laptops, bags, lunchboxes, water bottles, etc. Carry only the bare essentials.
- Since frequent hand washing would be required, it is advisable to remove watch and jewellery worn on hands.
- Wear personal clothing to work. Bring uniform in a washable bag. Those who do not have the uniform, bring a set of personal clothing or extra shirt.
- Wear shoes that can be easily cleaned.
- Wear mask upon leaving your house.

During Work

1. Upon reaching the hospital:
 - a. wash your hands and/or use hand sanitizer,
 - b. get yourself screened at the screening desk for fever,
 - c. change into the set of clothes brought along,
 - d. sanitize phone, ID cards, spectacles, vehicle keys, etc,
 - e. keep the doors of your rooms open to avoid touching the doorknobs and handles,
 - f. wash your hands again before starting work, and
 - g. Wear PPE as may be applicable.
2. Practice physical distancing.
3. Greet your colleagues and patients with Namaste. Avoid handshake.
4. Avoid touching your face and politely remind others too.
5. Observe hand hygiene protocols.

PPE to be Used: (Ref: Additional guidelines on rational use of Personal Protective Equipment setting approach for Health functionaries working in non-COVID areas by Ministry of Health and Family Welfare dated 1st May 2020)

S. No	Category of staff	PPE to be used					
OPD Department							
		Mask	Head Cap	Gloves	Gown	Shoe Cover	Face Shield/ Goggles
1.	Patient Screening Desk##	3 layer medical mask	Yes	Nitrile / Latex	Linen Gown	No	Yes
2.	Pharmacist	3 layer medical mask	No	Nitrile / Latex	No	No	Yes if in open counter
3.	Opticals	3 layer medical mask	No	Nitrile / Latex	No	No	Yes
4.	Front office and Billing	3 layer medical mask	No	Nitrile / Latex	No	No	Yes

5.	Centre Managers, Managers and Operations Executive **	3 layer medical mask	No	Nitrile / Latex	No	No	Yes
6.	Patient Care Coordinators	3 layer medical mask	No	Nitrile / Latex	No	No	Yes
7.	OPD attendants	3 layer medical mask	No	Nitrile / Latex	No	No	Yes
8.	Counselors	3 layer medical mask	No	Nitrile / Latex	No	No	Yes
9.	Optometrist ##	3 layer medical mask/ N95	Yes	Nitrile / Latex	No	No	Yes
10.	Doctors ##	N95	Yes	Nitrile / Latex	No	No	Yes
11.	Imaging Technician ##	3 layer medical mask/ N95	Yes	Nitrile / Latex	No	No	Yes
12.	Security Guards	3 layer medical mask	No	Nitrile / Latex	No	No	Yes
13.	Housekeeping	3 layer medical mask	Yes	Heavy Duty Gloves	No	No	Yes
14.	Visitors / Patient Attendants @@	Face Cover	No	No	No	No	No

IPD Department								
		Mask	Head Cap	Gloves	Gown	Shoe Cover	Face Shield	Goggles
1.	Doctors & Anaesthetist ##	3 layer medical mask/ N95	Yes	Nitrile / Latex	Follow regular OT protocol	No	To be used if indicated depending on the procedure being performed	
2.	Optometrist ##	3 layer medical mask	Yes	Nitrile / Latex	Follow regular OT protocol	No	To be used if indicated depending on the procedure being performed	

3.	Nurse ##	3 layer medical mask	Yes	Nitrile / Latex	Follow regular OT protocol	No	To be used if indicated depending on the procedure being performed
4.	OT Technician ##	3 layer medical mask	Yes	Nitrile / Latex	Follow regular OT protocol	No	To be used if indicated depending on the procedure being performed
5.	Counselor**	3 layer medical mask	No	Nitrile / Latex	No	No	Yes
6.	Housekeeping**	3 layer medical mask	Yes	Heavy Duty Gloves	No	No	Yes
7.	Manager**	3 layer medical mask	No	Nitrile / Latex	No	No	No
8.	Patient Attendants	3 layer medical mask	No	No	No	No	No

Other Department							
		Mask	Head Cap	Gloves	Gown	Shoe Cover	Face Shield Goggles
1.	Office staff (IT, HR, Finance, Accounts, Marketing, etc.)	Face Cover	No	No	No	No	No
2.	Maintenance**	Face Cover	No	Nitrile / Latex/ Heavy Duty Gloves	No	No	No

3.	Quality **	3 layer medical mask	No	No	No	No	Yes when present in patient care areas
4.	Biomedical Engineer**	3 layer medical mask	No	Nitrile / Latex	No	No	Yes when present in patient care areas
5.	Other Support Service Staff **	Face Cover	No	No	No	No	No

NOTE:

- The staff marked with (**) to don PPE's as per area they visit for work.
 - The staff marked with (##)
1. N95 mask is recommended for use in OT when patient being operated is a resident of a containment zone.
 2. Anesthetist and assistant to wear PPE, as recommended in guidelines issued by MoHFW on May 1, 2020, for GA cases as intubation/ extubation can generate aerosols. During intubation/ extubation surgeon and other staff to move out of OT.
 3. Either one of these two PPEs is to be used – Goggles/ Glasses & Face Shield as per the Procedure
 - a. Use of Face Shield is recommended when a splash of Body Fluid is expected.
 - b. Use of Goggles is recommended when performing Aerosol generating procedure.
- For @@ - Attendant / Visitor are allowed only with Elderly / Paediatric Patients. The attendant/visitor are required to wear mask.

Policy for Disinfecting and Reusing Personal Protective Equipment (PPE)

S. No	PPE – Type	Reuse	Disinfection
1.	N 95Mask	ONLY 4 times.	**** Refer to the Disinfection Protocol below.
2.	3 ply Mask	NO	-
3.	Gloves	NO	-
4.	Head Cap	NO	-
5.	Shoe Cover	NO	-
6.	Face Shields	YES	**** Refer to the Disinfection Protocol below.
7.	Goggles	YES	**** Refer to the Disinfection Protocol below.

1. N95 MASKS – ONE MASK TO BE REUSED 4 TIMES ONLY.

- N-95 masks to be issued to all doctors for use in OPD.
- The number of masks to be issued will depend on the duty roster.
- N95 mask can be reused with 72 hours of air drying between uses.
- The reuse can be up to a maximum of 4 times.
 - All the N95 Masks to be labelled with user Name & Numbered 1, 2, 3, etc.
 - On the first working day, the use Mask No 1.
 - After the day end, the mask should be carefully removed, packed in a breathable bag (paper bag can be used) for Re-use purpose.
 - The mask should be left in the breathable bag. **(72 hours of air dry is required between uses. It is Mandatory).**
 - The location for air drying will depend on the convenience of the user and it can be done at your home. Please ensure that it is kept at a location where no one else will be touching it.
 - On the Second working day you should wear Mask No 2 and repeat the steps given above and so on.
- After wearing and removing the masks, sterilize your gloved hands with sterilium.
- After using each mask for 5 working days (one fresh use + 4 re use), bring all masks in a bag and throw them in the YELLOW BIN.
- New set of N-95 masks to be issued and the above-mentioned steps to be followed.

2. FACE SHIELDS AND GOGGLES

- Eyeshields and goggles can be cleaned with 70% alcohol solution/ Alcohol Swab.
- This should be done prior to beginning the work and should be repeated at the end of workday prior to leaving the hospital.
- Please keep these in your possession and avoid mixing it with other staff. Preferable to write your name in one corner for identification.

3. DISPOSAL AS PER Bio Medical Waste (BMW) RULES: DISPOSE EVERY DAY AFTER FINISHING THE WORK

- 3 PLY Masks, Head Caps, PPE Suits, Disposable Gowns in Yellow bin
- Gloves in the red bin

DOS AND DON'TS:

- Please never use OPD PPE for OT WORK. They must be USED for OPD work ONLY.

- PPE should be discarded in an appropriate waste container after use, and hand hygiene should be performed before putting on and after taking off PPE.
- DON'T touch the outer surface of your PPE while working or doffing of the PPE.

After Work

1. Remove PPE. Disinfect (protective glasses and face shields) or dispose as may be applicable according to the BMW Management Rules. Masks and caps in YELLOW and gloves in RED.
2. Change back into the home clothes and place the work clothes in the washable bag brought along.
3. Sanitize phone, ID cards, spectacles, etc.
4. Leave what you can at the workplace. Whatever items are needed daily at the workplace and not needed at home should be left at the workplace.
5. Wash your hands.
6. Ring-up phone when you are about to reach home. Someone at home should keep the front door open so that you do not have to touch any objects like call bell, doorknobs.
7. Again sanitize phone, ID cards, spectacles, shoes, etc on reaching home.
8. Take bath (including head bath) immediately after arriving home.
9. Wash your work clothes along with the bag and change into clean clothes.
10. Practice wellness activity every day.

Other Measures to be observed during Work:

1. All persons to wash hands and/or use hand sanitizers at the entry point to the hospital.
2. Strict enforcement of screening protocols, self-declaration form, and one attendant only policy at the entry point.
3. The Self Declaration/ Consent Form is to be filled and every visit and body temperature to be noted
 - a. All OPD patients.
 - b. All IPD admissions- this form to be included in the MRD file of the patient.
 - c. All staff- daily
4. Arogya Setu app to be downloaded by all staff and patients as mandated by Govt guidelines with location enabled in his/her mobile.
5. A checklist for patients to be pasted near the screening counter for information and education about the measures.

6. All persons inside the hospital to wear masks at all times (refer to the table of recommended PPE). Patients and their attendants to be advised to come wearing masks. In case anyone does not have a mask, the same is to be provided at the screening counter near the entrance.
7. Identify opportunities to modify process flow in OPD to minimize people's movement inside premises and also to reduce time spent during the hospital visit.
8. Physical distancing to be observed at all times and in all areas.
 - a. Cords/ribbons/Tapes to be tied to alternate chairs in the waiting area to ensure that people are seated at least one chair apart.
 - b. Tapes on the floor and physical barriers like queue managers, etc to be used to help people maintain physical distancing.
9. Reducing instances of hand to hand transfer (handing over of bills/ prescriptions)
10. Avoid cash transaction.
11. Preferably no folder to be used or plastic folders may be used for movement of Patient stationery (prescriptions, files, coordination slips, etc.) during OPD and IPD visits so that the same can be easily disinfected with 1% hypochlorite or 70% alcohol solution.
12. Hand hygiene and disinfection protocols to be strictly complied.
13. Equipment maintenance protocols to be continued.

Protocol for Screening and Triaging

The patient screening desk shall be located near the entrance to the hospital and would be the first contact point before the patient reaches the front desk/registration counter.

1. The patient screening desk shall be manned by a nurse and/or paramedical person who shall screen all the patients and attendants. Other staff may assist depending on the requirement.
2. The screening desk shall have the body temperature measuring device, the self-declaration form, hand sanitizer, Yellow BMW bin, spare masks, a register to note down the details of the patients and their attendant.
3. Body temperature of the patient, attendants and staff to be checked. Persons with fever to be advised to seek appropriate medical help and not enter the building.
4. All patients and their attendants to show IDs (Aadhar, Driving License, Voter Card, Passport, etc). The name and address details of the patients and attendants to be noted for future contact tracing if needed.
5. The patient (or attendant on behalf of the patient) shall fill up the self-declaration form.
6. The triaging to be done as follows:

- a. Patients with no fever and negative history of travel, no Flu-like illness and negative history of contact with a known case of COVID-19: to proceed further to the registration counter.
 - b. Patients with fever and/or positive history of travel and/or Flu-like illness and/or contact with a positive case of COVID-19: to be directed to seek treatment at Govt designated facilities for handling such cases.
7. All persons to observe hand sanitization before proceeding further to the registration counter.

PROTOCOL FOR OPD

1. The general instructions are already outlined above.
2. Wear PPE as indicated: surgical mask, goggles/ face shield and gloves.
3. Observe hand hygiene.
4. Slit-lamp should have the barriers/ breath shields.
5. Equipment disinfection protocols to be followed. Ensure proper disinfection frequently, where patient is coming in contact.
6. Speak as less as possible.
7. Ensure safe use of consumables.
8. Ensure proper management of Biomedical Waste as per the BMW Management Rules.
9. Prophylaxis: Staff should refer to ICMR guidelines for indications and dosage.

PROTOCOL FOR DILATATION

1. Avoid touching patient while instilling dilating drops.
2. Instruct patients to pull lower eye lid down by themselves while drop is being instilled.
3. If you have to touch patient, use a bud to pull lower lid down or use disposable gloves.

PROTOCOL FOR REFRACTION

1. Follow general guidelines as already detailed above.
2. Wear recommended PPE.
3. During vision screening and refraction maintain 2-3 feet distance from the patient.
4. If patient has 6/6 and N6 vision unaided or with current spectacles, retinoscopy may be avoided.

5. Follow disinfection protocol.
 - a. Keep a bowl with disinfectant solution and cotton next to the trial set. Used lenses to be disinfected before being returned back to the set. Avoid mixing of unused lenses with used lenses before they are properly disinfected.
 - b. Trial frames, lenses, furniture, etc used by patient to be disinfected immediately.
 - c. Unused instruments, tabletops, computers, etc to be disinfected every 2 hours.
6. Contact Lens:
 - a. Contact lens trial to be avoided unless there is an urgent clinical indication.
 - b. Use fresh contact lens for every patient to check the fits.
 - c. Use regular contact lens disinfecting solution.
 - d. For soft lens, trial use disposable lenses.
 - e. In the case of specialty Contact lenses, the lenses have to be disinfected using 3% H₂O₂ and neutralize with normal saline for 2 hours. Space the specialty appointments in such a way that the same lens would be used after a week or whatever period you feel would be safer.

PROTOCOL FOR OPTICAL SHOP

1. Follow general guidelines as already detailed above.
2. Wear recommended PPE.
3. Maintain a physical distance of 1-2 metre during checking the prescription, ordering of spectacles, money transaction, and delivery of spectacles.
4. Avoid handling the prescription.
 - a. From OPD, a digital copy of the prescription may be sent to the optical shop counter.
 - b. From the patient, prescription may be sent over by email and WhatsApp...
 - c. If hard copy is available with the patient, it may be visualized from a distance.
5. For measuring pupillary distance (PD)
 - a. Ensure that you are wearing the face shield and gloves.
 - b. Ensure that appropriate physical distance is maintained.
 - c. Follow hand hygiene and disinfection protocols.
6. Patient should perform hand hygiene before touching the frames.
7. Request them to shortlist and try on as few frames/sunglasses as possible. Explain that all products worn need to undergo an elaborate disinfection process.
8. Sample frames touched and tried by the patient should be placed in a separate plastic tray, and returned to the display only after disinfection.

9. Sample frames, mirrors, furniture, etc touched by the patient must be disinfected immediately before use by the next patient.
 - a. Spectacle frames: 0.5% Hydrogen peroxide or liquid dish soap and rinse with water.
 - b. Sunglasses: Liquid dish soap and rinsing with water.
 - c. Spectacle lenses: Use Isopropyl Alcohol.
 - d. PD meter/lens meter: Rundown gently with 70% Isopropyl Alcohol. Don't spray.
10. Use tissue paper to clean the frames and dispose it immediately. Cloth cleaning may be avoided to discourage multiple use.
11. Explore the possibility of home delivery of spectacles to avoid frequent visits to the Optical shop.
12. Encourage cashless transactions.

PROTOCOL FOR PRE ADMISSION COVID-19 TESTING

Pre-surgical COVID test on patients is not mandatory as per the guidelines issued by the Indian Council of Medical Research for Rapid Antibody Test in Hotspot Areas on 17th April 2020.

Protocol for Surgery /IPD Procedures

Scheduling of surgery/ IPD procedures can be done while maintaining the OT air-conditioning, disinfection and culture protocols.

- All persons going to OT to wear PPE as recommended.
- Reduce the number of staff going to OT to have less crowding and also economical use of PPE. The suggested bare minimum OT team is one surgeon, one assistant to the surgeon (only if necessary), one anaesthetist, one circulation staff (nurse or OT tech as may be required) and one housekeeping staff.
- Choose the quickest possible surgical procedure. Quick and safe surgery is warranted.
- A gap of at least 20 minutes is to be maintained between two procedures in the same OT for GA cases.
- Surface disinfection of OT table, equipment, trolleys, etc to be carried out between two procedures.
- Ensure safe use of consumables.
- Ensure proper management of Biomedical Waste as per the BMW Management Rules.
- Aerosol generating procedures such as intubation and extubation should be done by anesthetist with recommended PPE use and the surgeon should be outside the OT

during these procedures. Bare minimum staff should be present when the patients are intubated and extubated in the OT.

- Prophylaxis: Staff should refer to ICMR guidelines for indications and dosage.

PROTOCOL FOR DISINFECTION

EQUIPMENT SURFACES THAT TOUCH THE PATIENT

- Clean the patient contact areas on medical equipment with alcohol wipe.
- These include Forehead rest and Chinrest of the following equipment
 - Slit lamps
 - Keratometers
 - Autorefractometers
 - Retina Laser
 - YAG Laser
 - OCT
- These also include the trial lens and frames.
- Change Chin-rest Papers on Slit Lamps in-between every patient.
- Slit-lamp barrier screens to be disinfected in between patients with 70% isopropyl alcohol.

EQUIPMENT AND EQUIPMENT PART THAT COME IN CONTACT WITH THE EYE

- These should be cleaned with alcohol swabs and dried before using for another patient.
- These include
 - Applanation Tonometer
 - Pachymeter probe
 - A scan probe
 - B scan probe
- Lenses that come in contact with the cornea, like Gonioscopes, YAG lenses, etc.
 - Gel is placed on the corneal contact part of the lens, so this must be rinsed off after every use.
 - The lens should be dried with a soft cloth after use.
 - The lens should be disinfected with alcohol before and after use.

Specific Guidelines for Equipment Disinfection

Coordinate with the Biomedical Engineering Team and Quality team to keep update on any particular guidelines that may be provided by the Equipment Manufacturer.

Housekeeping Protocol

The hospital areas shall be classified as follows:

High-risk areas: OT, Registration, OPD, Counselling room, Consultation room, Patient waiting areas, Lifts, Washrooms

Moderate risk areas: Meeting halls, Lounges, Cabins

Low-risk areas: NONE

- Floor of all the high-risk areas **MUST** be cleaned with 1% Sodium Hypochlorite every 2 to 3 hourly and Moderate risk areas 3 times a day.
- Deep Cleaning to be done any time when there is any contamination.
- Door handles, side rails on stairs, bedside rail, high touch surface like- reception counter, help desk, gate with 1 % Sodium Hypochlorite (2 to 3 hourly)
- Chair in the waiting area (head end, armrest etc), Electronic /IT equipment like monitor, Keyboard, Mouse etc must be done with alcohol swab frequently.
- All wheelchair and stretcher trolley must be cleaned with 1% Sodium Hypochlorite solution
- The fogging frequency to be increased for ALL hospital areas. This is to be done at the end of every working day.

Protocol for reporting for Flu-like Symptoms or Confirmed case of COVID-19

Action to be taken on detection of COVID -19 case

When a person is identified or suspected as positive COVID-19 patient:

- Inform the local health authorities about the case
- Assess the clinical status of the patient prior to referral to a designated COVID facility
- Disinfection procedures at the entire facility to be done
- All contacts of this patient (other patients being managed in the same area / OPD consultation room/ward, healthcare workers who have attended to him/her, support staff who may have come in close contact, caretaker/visitors etc.) should be quarantined and followed up for 14 days. Their details of the same to be shared with the local health authorities.

- All close contacts (other HCWs and supportive staff) of the confirmed case should be put on Hydroxychloroquine chemoprophylaxis for a period of 7 weeks, keeping in mind the contraindications of HCQ.

1. When a suspect/confirmed COVID-19 employee is identified

- Any employee developing respiratory symptoms (e.g. fever, cough, shortness of breath) should be considered a suspected case of COVID-19.
- He/she should immediately inform his supervisor/designated authority /HICC. He/she should be isolated and arrangement must be made to immediately refer such employee to COVID-19 designated hospital for isolation and further management.
- He/she should be immediately taken off from the duty roster.
- Rapidly identify other employees and other patients that might have been exposed to the suspect employee and put them under quarantine and follow up for 14 days (or earlier if the test result of a suspect case turns out negative). Their details to be shared with the local health authorities.
- All close contacts (other HCW and supportive staff) of the confirmed case should be put on Hydroxychloroquine chemoprophylaxis for a period of 7 weeks, keeping in mind the contraindications of the HCQ.
- Organization should follow a contingency plan to maintain continuity of operations. Staff rosters may done by dividing into two teams which alternate between reporting to hospital and work from home.
- Ensure that the disinfection procedures are strictly followed.

Once a suspect/confirmed case is detected in a healthcare facility, the standard procedure of rapid isolation, contact listing and tracking disinfection will follow with no need to shut down the whole facility.

2. Follow up actions

When Organization reports a COVID-19 case, the HICC will ensure the following in order to minimize the possibility of an undetected contact/case amongst other patients/HCWs:

- Ensure that active screening of all staff at the hospitals is done daily (by means of thermal screening especially at the start of shift)
- All healthcare and supportive staff is encouraged to monitor their own health at all the time for the appearance of COVID-19 symptoms and report them at the earliest.

- Standard precautions which has already been shared by Govt. of India and Quality team to be followed diligently by all
- Follow all guidelines regarding the triaging of patients



Guidelines for Operation Theatre

Version 1.0

w.e.f. May 11, 2020

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Overview: The main intent of this article is to highlight the important changes to be adopted by ophthalmic surgeons when they recommission their OT after/during the ongoing SARS CoV-2 pandemic. The routine operation theatre aseptic process and protocols are to be followed as usual.

Re-commissioning

- Overhaul cleaning of all OT zones as per protocol followed by the hospital
- Air sampling (open/split plate) for culture sensitivity (C/S)
- Swabs and C/S as per the protocol of the *Health care organization/ Small health care organization/Eyecare organization*

Staff

Consent of staff as applicable to all

Thermo scanning and History to be done for staff

Recovery Room/Pre-Anesthetic room staff attire/Housekeeping staff attire/Physical parameters

- Cap
- 3-ply mask
- Nitrile gloves
- Protective Goggles/face shield
- Linen OT attire
- Separate zoning for staff

CSSD area attire and Physical parameters

- Cap

- 3-ply mask
- Nitrile gloves
- Protective face shield
- Linen OT attire

OT staff and surgeon attire

- Cap
- N 95 mask/ 3-ply surgical masks
- Sterile gloves
- Protective Goggles/face shield depending on microscopic / non-microscope surgery
- Normal OT footwear
- Linen OT attire with surgical gown

Patient flow in OT recovery rooms

- Physical distancing to be followed.
- Floor/Instruments/Furniture to be disinfected by surface mopping
- Linen changed as and when required.

Operation Theatre (Topical/Regional Anesthesia)

- Minimal staff (Surgeon/OT nurse/Anesthetist/Running nurse)
- Segregate Bio Medical Waste at the source with proper colour-coded covers and handled as per guidelines.
- Ensure safe use of consumables
- Surface cleaning of equipment, OT table and floor in between cases and allow appropriate time for the disinfectant to act. (time taken for the disinfectant to act and dry up)

For those who are having HVAC systems Ventilation in OT:

- Air handling units (AHU) can be functional in-between cases
- Temperature and humidity to be appropriate.
- Maximize air changes and fresh air intake as per your HVAC.

For those having Split air conditioners:

- Non - COVID OT can have stand-alone room air-conditioners
- Re-circulate air within a single occupied zone in the OT complex.

- Temperature and humidity to be appropriate
- Clean air filters (indoor AC unit) frequently.

Operation Theatre for GA cases

- Surgical team to enter the OT after intubation and induction of anesthesia
- Anesthetist team to wear PPE which includes a 3 ply or N95 mask, Cap, Sterile gloves, Goggles or Face shield.
- After surgery, the surgical team to wait outside the OT and de-gown only after the patient is shifted to the recovery room safely

Bio-Medical Waste (BMW) disposal:

BMW segregating at source

- Use appropriate color-coded covers
- Follow the current guidelines on the color coding for the biomedical waste disposal.
- BMW should leave the hospital within 48 hrs.
- Soiled Linen should be separated and disinfected as soon as possible.

Instrument cleaning

Instruments should be handled safely by the staff for cleaning. The cleaned instruments are then packed to be autoclaved appropriately.

Patient's attire

Patient attire is as per the protocol followed by the hospital. All patients to wear the fresh 3 ply masks after hand sanitization.

Patient draping during surgery

- Draping of the patient eye should be done with a linen and with an adhesive eye drape.
- The drape should be firmly stuck around the patient eye and the drape should extend all around.
- Care should be taken to ensure that the drained water during surgery is not spilled while removing the drape from the patient.

Guidelines for Cataract Surgery

Version 1.0

w.e.f. May 11, 2020

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Preferred practices pattern for evaluating and managing adults with cataract during the recovery from COVID-19 pandemic

These guidelines outline the infection prevention and control advice for ophthalmologists and health care workers involved in the treatment of patients for ophthalmic care.

They are based on the available literature from India and abroad at this point of time and should be used in conjunction with the guidance received from the Ministry of Health and Family Welfare (MoHFW), Government of India (GoI) and Indian Council of Medical Research (ICMR). Please follow regulations from State governments / local appropriate regulatory authorities

With the evolving situation on COVID19, further updates will be made to this guidance as and when required.

Planning the functioning of ophthalmic setup

It is important to minimize the amount of time the patient spends in the clinic and also decrease the number of visits that patient has to make to the clinic.

1. Identify the minimum number of staff needed to function
2. Identify and delineate areas based on the flow of the patients

The following measures may help in decreasing the waiting time and the number of visits to the clinic:

- Implement physical distancing at all-time points (reception, waiting areas, consultation chamber, pharmacy, optical shop etc.)
- Fix prior appointments, if possible and function with a fixed number of patients per hour to minimize the number of patients and one attendant in the waiting halls.
- One attendant to be allowed per patient. If possible, the attendant may wait outside.
- To take history of any symptoms of active COVID that is TOCC (history of travel, fever, cough, difficulty in breathing, loss of taste, loss of smell) and also of any primary /secondary contacts.
- Emphasize the patient and the attendant are mandated to download the Aarogya Setu COVID-19 tracking App by the Government of India (with location enabled)and register with their mobile number for possible future digital tracking.
- Every patient & attendant should pass through the triage area with norms of physical distancing /appropriate partition and assessed on the risk of being COVID-19 positive. If the patient has any symptoms or signs of COVID-19 they should be referred to the designated COVID hospitals in your area.
- There may be need for multiple stations based on number of patients seen.
- Temperature by non-contact method to be measured for each patient and attendant.
- All elevators to have demarcation lines and ensure patients are standing facing walls.
- Online payment methods to be encouraged to minimize the contact with currency.

Safety precautions to be taken in the clinic

All norms of physical distancing should be maintained.

Patient related

- All patients and attendants should have a mask or equivalent.
- All should use sanitizer at the entry
- Minimize baggage to the clinic
- To be seated in designated seats only
- Avoid talking to other patients/ attendants

Employee related

- All staff should have the mask and the hand gloves on at all time points.
- Keep the doors open to allow free flow of air and minimize the contact with doorknobs.
- Reduce workforce-patient contact time.
- Keep more than one meter away from patients except where clinical examination/investigation/ surgery is performed.
- Avoid/Minimal speaking at the slit lamp.
- Keep the examination brief and pertinent to the decision making required.
- Avoid/ minimize re-examination of patients who have already been assessed.
- Clean all surfaces (chair units, stool, slit lamp, desk, keyboard, computer monitor, trial frame etc.) with appropriate cleaning solution before starting clinics. Same should be repeated after each patient examination. Sodium hypochlorite solution may be used to clean chair, stools as well as desks and alcohol swab for slit lamp, computers and keyboard etc).
- Hand sanitizing protocol to be followed during the examination and also in between patient examinations

Examination protocols

The following safety protocols may aid in decreasing the possibility of developing cross infection.

- **History:**
Maintain distance while talking to the patient and keep the mask on while talking. Minimize the need to touch the documents from the patient.
- **Visual Acuity:**
Distance: When testing visual acuity, one may start from the lowest achievable line to speed things up. Avoid using occluder and request patients to close the non-testing eye

with their palm after using sanitizer. At least one-meter distance from the patient should be maintained while assessing visual acuity.

Near: Hold the near vision chart with gloved hands at appropriate distance instead of the patient holding the chart. One may assess the near vision while standing so that the examiner is at a higher level compared to that of the patient.

- **Manifest Refraction:** Avoid touching the forehead of the patient to measure working distance. The Trial frame, pinhole occluder and all lenses used should be wiped with alcohol swab or appropriately sanitized before bringing the next patient and provide sufficient time to make the surface of these instruments dry.
- **Intraocular Pressure (IOP):** IOP may be performed using Schiotz tonometry or Goldman applanation tonometry (GAT) or such devices to minimize the risk of cross infection. The GAT prism to be wiped with alcohol between every case and with 1:10 sodium hypochlorite at the beginning and end of the day. Refer to the guideline by the Glaucoma Society of India.
- Non-contact tonometry may be avoided as it may generate aerosols.
- Slit lamp examination: The breath shields should be used to minimize the risk of aerosol contamination by acting as a barrier between the patient and the ophthalmic health care professional. All the surfaces should be cleaned before examining the next patient.
- Lacrimal sac evaluation: Take universal precautions while examining the lacrimal sac. In suspicious case of chronic nasolacrimal duct obstruction or chronic dacryocystitis, it is advisable to postpone cataract surgery. Refer to the guideline by the Oculoplasty Society of India
- Fundus examination: Do not use direct ophthalmoscope. Use indirect ophthalmoscope. Indentation to be avoided. Refer to the guideline by the Vireo Retina Society of India
- **Nd:** YAG Capsulotomy: It can be considered wherever necessary. The breath shield should be installed as a barrier between the patient and the ophthalmologist.

Dilatation Protocol

- Avoid touching patient while instilling dilating drops
- Instruct patient to pull lower eyelid down by themselves while drop is being instilled
- If you have to touch patient, use a bud to pull lower lid down or use disposable gloves

Diagnostics in cataract surgery

General Guidelines:

- Patient to be allowed into the room which has diagnostic instruments after wearing mask covering the nose and mouth of the patient.
- Hand sanitizer to be made available in the diagnostic room.
- The patient and technician should sanitize hands before proceeding for the scan.
- All instruments head rest to be attached with a breath shield.
- All instruments in diagnostic area to be cleaned once in the morning before the start of OPD and once in evening after the completion of OPD.
- Minimal touching of surfaces by the patient and attendant in the diagnostic premises.

Ultrasound (U/S) Biometry:

The tip of the probe should be cleaned with alcohol swab after every case and sufficient time to dry should be given. In case of use of immersion scan it may be advisable to use clean fluid and also clean the Prager shell along with the probe.

Keratometry:

To measure the keratometry any keratometer can be used. The breath shield can be customized and placed as a barrier. The joystick, locking screw for the instrument base, head rest, chin rest, handlebar should be cleaned using alcohol swab after examining each patient.

Optical Biometry:

Clean the main instrument panel using a soft, lint-free cloth dampened with alcohol at maximum 70%. All necessary cleaning protocols as per the manufacturer should be followed. Breath shields should be incorporated between the technician and the patient to prevent direct contact with the aerosols generated. Following parts to be cleaned with alcohol swab after every patient: joystick, locking screw for the instrument base, head rest, chin rest, handlebar which the patient holds, keyboard and touch display

Counselling:

Once a patient has been diagnosed with a cataract and scheduled for surgery it would be preferable to complete the discussion and minimise the patient mingling with other people.

One can fix the date, provide pricing details and also give clear instructions for surgery-day protocols.

Confirmatory tests for COVID-19 and chest x-ray may be requested at the discretion of the operating surgeon. The patient may be counselled for surgery and special COVID consents should be taken before the surgery.

Preparedness for opening the operating theatre (OT): Fulfilment of Administrative Clinical and Legislative (ACAL) criteria

Assurance

- Health care facilities may provide awareness to the public of the use of infectious control measures and the safety involved in the elective consultation and surgery.

Clinical

- Personal Protection Equipment: Check for availability and also follow the evolving policies for the health care workers and specific procedures.
- Analyse the patient backlog: Assess the number of patients who have been examined earlier and are due for cataract surgery. Scheduling can be done based on priority and available resources.
- Cleaning protocols: Cleaning in all areas should be addressed based on recommended protocols (e.g., preoperative, anaesthesia room, patient waiting room, OTs, changing rooms etc.).

Administrative

- The risk profiling zones would keep changing and hence monitoring the same would help in changing the hospital protocols.
- Utilization/efficiency: Apart from ensuring the safety of patients and the health care workers the utilization of the OT space and the efficiency of the staff should be monitored to maintain economic stability.
- OT schedules: The schedules may be staggered over a period of time and the team /facility should be ready to accommodate the influx of ophthalmic cases, if any. The scheduling efficiency can be improved by opening up extended hours and weekend working schedules, if required.

Logistics

- Accessibility to patient: Health care facility may engage the patients by being accessible through other technologies such as teleconsultation etc.
- Availability of staff: The entire multidisciplinary cadres (surgeon, anaesthesia, nursing, biomedical, housekeeping) of OT staff should be made aware of the most updated protocols. Mock drills may be done to assess their acquaintance with new protocols before commencing the OT.
- Current inventory: It is important to assess the current inventory and to ensure that all the necessary consumables required for cataract surgery are available and also make sure that a constant supply of these are available.
- Equipment: Most of the equipment (surgical microscopes, phacoemulsification platforms, Femtosecond lasers, etc.) would have been idle for several days and is important to ensure that all these are functioning, as per standards proposed by the manufacturer.
- Operating room: In the absence of any definite evidence for the need to change the operating environment for cataract surgeries, the current OT facility may be continued till definitive guidelines are issued by the GoI. Refer to the guideline by the OT committee.

Flow of patients in the operating room/waiting room

- Patient may be contacted before surgery to understand if the patient or any family members have symptoms of COVID-19 or any history of recent travel to hotspots/containment zone.
- Entry through triage area for temperature check
- Only one attendant is allowed.
- Patients should change into OT clothes before entering the OT.
- Both patient (triple layer mask) and attendant to wear mask/equivalent all through and sanitize hands
- Ensure safe distancing at all time points
- Space out surgeries

Cataract Surgery

Cataract surgery including phacoemulsification has not been proven to be an infective aerosol generating procedure till date. (Email communication with James Chodosh).

Operating Room:

PPE to be worn by the surgeon/ assistant/ scrubbing nurse

- N 95 mask/ triple layered mask to be used at all times
- Surgical scrubs, cap, footwear cover
- Sterile gloves to be used while operating
- Protective goggles and/or glasses to be used during surgery
- Sterile linen gown/disposable gown should be used during the surgery.

Anesthesia

Use Topical anesthesia or block anesthesia, as appropriate.

Local anesthesia

- Use gloves and PPE recommended in the OT
- Mark the eye
- Instill topical anesthetic drops , 5% povidone iodine eye drops (2 minutes contact time) in the eye to be operated.
- Apply povidone iodine to the operating eye and the adnexa
- Care to prevent spillage of body fluid on surgeon / anaesthetists / staff or floor
- Peribulbar anesthesia/retrobulbar anesthesia can be given
- If the number of patients is limited, the peribulbar anesthesia/retrobulbar anesthesia may be administered directly on the operating table.

During Surgery:

- Scrub and put on sterile linen gown /disposable gowns and gloves.
- Instill povidone iodine 5% in the operating eye (2 minutes of contact time) before applying sterile drapes as it inactivates any virus in the tear film.
- Drape the eye appropriately; taking care that the draining pouches is open and not leaking.
- Viscoelastic may be used frequently over the cornea as this may avoid need for frequent instillation of balanced salt solution/ ringer lactate over the cornea.
- Handle equipment carefully so as to avoid injury with sharps to self and others.
- Avoid spillage of body fluid or blood particularly when squirting ringer/viscoelastic from syringes

- Assisting team must handle patient with gloved hands wearing the mask and a linen gown.
- Sterilized phacoemulsification tip and sleeve should be used for each case
- Avoid delivering of ultrasound energy when the phaco probe is not in the anterior chamber
- Ensure that all the fluid is collected in the pouch and not spilled on the floor
- All sheets on the operation table should be changed in between patients and the tables should be sanitized using appropriate disinfectants.
- At the conclusion of the surgery discard used disposable instruments following biomedical waste policy.

Postoperative care and follow up

The postoperative care can be customized case to case basis at the surgeon's discretion

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Guidelines for Refractive Surgery in COVID Era

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Preferred practice patterns for operating room and managing operating instruments during Covid -19 global pandemic

Covid -19 outbreak has posed as an extraordinary threat affecting global health. To address this issue in order to avoid unwanted exposure certain guidelines are curated in conjunction with the protocol received from Ministry of Health and Family Welfare (MoHFW), Government of India (GOI) and Indian Council of Medical Research (ICMR) and after discussing with fellow ophthalmologists all over India. These instructions need to be followed in stepwise pattern throughout to ensure complete safety

Measures followed while entering the hospital

- Before scheduling the patient for any surgery, patient and his/her family members should be thoroughly questioned about the presence of any COVID-19 symptoms and history of recent travel to hotspots/ containment zone
- Pre-op COVID testing should be done as per rule by government and the cost can be owned by the patient/doctor which is to be discussed
- One attendant per patient should be allowed. This prevents unnecessary overcrowding in the waiting room.
- Temperature by non-contact method should be used both for the patient and the attendant
- All patients and attendants should have a mask covering nose and mouth of the patient and should sanitize hands on entering OPD & OT

- The patient and the attendant are explained the current scenario and mandated to download the Arogya Setu Covid – 19 tracking App with their mobile number for future digital tracking and enable the access of their location in the mobile.
- During the movement in all areas like reception, waiting area, pharmacy shop social distancing should be strictly followed
- Online payment methods to be encouraged to minimize the contact with currency

1. Refractive surgeries

Refractive surgeries are elective procedures and are included in the non-urgent category of the recent COVID 19 related ophthalmic guidelines published by the Indian journal of Ophthalmology.¹ Studies have reported that the prevalence of SARS-CoV-2 in tears is low.² Also, the excimer laser ablation of the cornea in a human immunodeficiency virus (HIV)-infected or herpesvirus-infected patient posing a health hazard to the operating surgeon is extremely unlikely.³ Refractive surgeries being a day care procedure, if performed with proper protocols and safety precautions can be considered to be safe. Excimer laser procedures might generate aerosols and hence due precautions should be taken to maintain safety. Therefore, it is at the surgeon's discretion to start the refractive procedures.

Pre-operative Workup

While performing refraction, avoid touching the forehead of the patient to measure working distance. The Trial frame, pinhole occluder and all lenses used should be wiped with alcohol swab appropriately sanitized before bringing the next patient and provide sufficient time to make surface of these instruments dry.

Intraocular Pressure (IOP): Non-contact tonometry -should be avoided as it may generate aerosols.

IOP may be performed using Schiotz tonometry or Goldmann applanation tonometry (GAT) or such devices to minimize the risk of cross infection. The GAT prism to be wiped with 70% isopropyl alcohol between every case and with 1:10 sodium hypochlorite at the beginning and end of the day. Refer Glaucoma guidelines.

The breath shields should be on the slit lamp to minimize the risk of aerosol contamination by acting as a barrier between the patient and the ophthalmic health care professional. The chinrest, the head band, the hand rest and both the surfaces of breath shield should be cleaned before examining the next patient.

Corneal topography is the most important investigation in the pre-operative work-up of a refractive surgery. It is a quick, non-aerosol generating and non-contact procedure entailing a negligible risk of transmitting the virus to the patient. Additionally, applications of breath shields and cleaning of the device by alcohol in-between two patients should be followed to be extra-precautious. Also, wearing of mask during topography by the patient to be deemed mandatory. The examiner must give clear, concise instructions to minimize touching the patient for positioning.

Ultrasonic Pachymetry can be done - As per A Scan guidelines listed in cataract surgery guidelines.

OT etiquettes to be followed

- Ensuring your safety – use of personal protective equipment according to the general OT guidelines
- N 95 mask/ triple layered mask, surgical scrubs, cap, sterile gloves, protective goggles and sterile linen gown/disposable gown should be used while operating.
- Staff members equipped with the necessary protective items
- Avoiding over-crowding and practice social distancing in waiting area as well as inside the OT
- One patient (wearing appropriate protective gear) at a time in the waiting area
- Changing into OT dress and keeping your clothes in a plastic bag to avoid contact with any surface.
- Regarding an additional consent form for surgery- to follow general ophthalmic surgery guidelines

Intra-operative precautions

- Under aseptic conditions: well draped patient with adequate exposure of the surgical area
- Drying ocular surface properly using sterile dry swab before starting the surgical procedure to avoid pooling of secretions and tears.
- Drying of the surface is essential to prevent the aerosols from collecting in the fluid.
- Swabs collected in a dry sterile pouch
- Immediate disposal of cone and tubing after sanitizing it
- Ensure drying cul-de-sac throughout the procedure to avoid coming in contact with aerosols from splashing of secretions
- Use povidone iodine eye drops diluted in lubricating eye drops.
- Minimal ocular surface wash from a distance

- The refractive suite be covered with screens that can be easily sterilized without damaging the surface of the machine.
- At the conclusion of the surgery discard used disposable instruments following biomedical waste policy.
- Use proper technique for removal and disposal of the gloves and the gown .
- Preparing for the next patient- Cleaning patient interface in between.

Postoperative care

The routine post-operative instructions and medications to be followed. One can consider an early tapering of steroids. Avoid NCT, in case wherein it is imperative to check the IOP, consider using the GAT after following sterilization guidelines as mentioned above. One may also consider keeping the post-operative follow-up visits beyond day one to minimal.

2. Corneal Collagen Crosslinking (KXL)

The decision regarding performing KXL will depend on the clinical stage of the keratoconus, and the clinical judgement of the treating surgeon.

Pre-operative and operative precautions to be taken are similar to the ones outlined for the refractive surgery.

Intra-operative precautions and OT etiquettes to be followed

Only one patient per OT rule to be followed. Prefer a bandage contact lens over the use of pad and bandage. Remove the bandage contact lens and dispose it taking proper precautions. The KXL equipment for administering the UVA light should be cleaned with solution as per manufacturer's recommendation.

Cleaning of instruments and machines

It should be followed according to the manufacturer's guidelines of each machine in order to avoid inadvertent damage by the cleaning solutions.

3. Implantable collamer lens

Implantable collamer lens implantation has not been proven to be an infective aerosol generating procedure till date. Refer Cataract surgery guidelines.

Pre-operative Precautions

To be followed as in refractive surgery section mentioned above

OT etiquettes to be followed

- PPE to be worn by the surgeon/ assistant/ scrubbing nurse
- N 95 mask/ triple layered mask to be used at all times
- Surgical scrubs, cap.
- Sterile gloves to be used while operating
- Protective glasses with a side protective patch to be used during surgery
- Sterile linen gown/disposable gown should be used during the surgery.

Anesthesia

- Use Topical anesthesia or block anesthesia, as appropriate.

Intra-operative precautions

- Use gloves and PPE recommended in the OR
- Mark the eye.
- Instill topical anesthetic eye drops, 5% povidone iodine eye drops (2 minutes contact time) in the eye to be operated.
- Povidone iodine paint applied to the operating eye and the adnexa
- Care to prevent spillage of body fluid on surgeon / anaesthetists / staff or floor
- Peribulbar anesthesia/retrobulbar anesthesia can be given using proper precautions .See OT guidelines
- Sub tenon or intracameral anesthesia can be given during the procedure
- If the number of patients is limited, the peribulbar anesthesia/retrobulbar anesthesia may be administered directly on the operating table.

During Surgery:

- Scrub and put on sterile linen gown /disposable gowns and gloves.
- Instill povidone iodine 5% in the operating eye (2 minutes of contact time) before applying sterile drapes as it inactivates any virus in the tear film.
- Drape the eye appropriately, taking care that the drainage pouch is open and not leaking.
- Viscoelastic may be used frequently over the cornea as this may avoid need for frequent instillation of balanced salt solution/ ringer lactate over the cornea.
- Handle equipment carefully so as to avoid injury with sharps to self and others.
- Avoid spillage of body fluid or blood particularly when squirting ringer/viscoelastic from

- syringes
- Assisting team must handle patient with gloved hands wearing the mask and a linen gown.
- Ensure that all the fluid is collected in the pouch and not spilled on the floor
- All sheets on the operation table should be changed in between patients and the tables should be sanitized using appropriate disinfectants.

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Guidelines for Cornea and Eye Banking during COVID Era

Version .1

w.e.f. May 11. 2020

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Disclaimer: The current outbreak is unpredictable. If widespread community-transmission occurs, healthcare infrastructure and capacity issues may have a further impact on donation and transplantation. These recommendations will be regularly updated to account for the changing epidemiology and new information regarding treatment and testing. All transplant units and eye banks must be aware of national and local government guidance. These guidelines to be used in conjunction with guidelines from appropriate State Authorities.

No suit or legal proceedings shall lie against any person for anything done or intended to be done in good faith under this suggestions/advisory unless proved otherwise.

Introduction:

As per the Ministry of Health and Family Welfare (MoHFW) – all medical activities as deemed required by the hospital can be carried out by all hospitals except in containment zones. COVID testing for pre-operative patients is not mandatory but can be done as per the hospital policy and anaesthetist /doctor discretion even if the patient is asymptomatic. Prioritize surgeries as per medical emergency – 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 time

Advisory for resuming the Eye Banking Activities

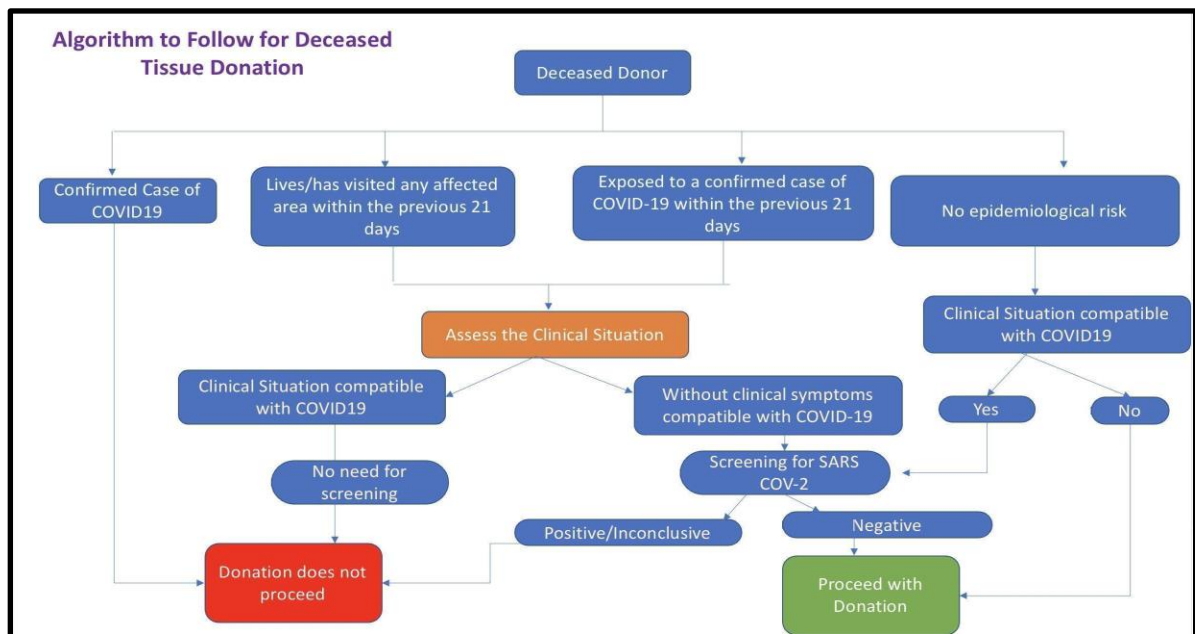
- The Eye Banking activities to be resumed through hospital cornea retrieval programme (HCRP) and to be from a hospital which is declared as non-COVID
- No eye banking activities to be started in the containment areas of Red zones. Containment zones shall be demarcated within Red (Hotspots) and Orange Zones by State/UTs and District Administration based on the guidelines of MoHFW
- Voluntary / Community donation 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
- The Recovery Technician/ doctor to use 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 infection
- Eye Bank Association of India recommends that the collection of a nasal swab of the deceased donor for RT-PCR COVID19 testing can be done and sent to the laboratory immediately.
- All collected tissues should be quarantined for 48 hours prior to the release of the tissue for usage for transplantation. Avoid immediate usage

The Eye Bank Association of India recommends that eye banks exclude the following potential donors for ocular tissue collection:

- 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, diarrhoea) with no other etiology that fully explains the clinical presentation
- Individuals who have been exposed to a confirmed or suspected COVID-19 patient within the last 14 days, who have returned from nations with more than 10 infected patients and those whose cause of death was unexplained respiratory failure should not be accepted as deceased donors.
- As India, itself is a country where COVID 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)

Algorithm to follow for Deceased Tissue Donation (Ref: SPANISH RECOMMENDATIONS TO MANAGE ORGAN DONATION AND TRANSPLANTATION REGARDING THE INFECTION ASSOCIATED WITH THE NEW CORONAVIRUS (SARS-CoV-2) PRODUCER OF COVID-19 dated 27th March 2020)



COVID19 Symptoms:

COVID19 Symptoms		
Severe	Common	Less Common
Difficulty in breathing Chest Pain Confusion Bluish lips or face Unresponsiveness	Fever Dry Cough Shortness of breath	Myalgia, Fatigue Headache, Hemoptysis Diarrhoea, Sore Throat Rhinorrhea Wet Cough Loss of smell and test

*Close contact is defined as a) being within approximately 6 feet (2 meters) of a COVID-19 case

for a prolonged period of time; close contact can occur while caring for, living with, visiting, or sharing a health care waiting for area or room with a COVID-19 case; *or* b) having direct contact with infectious secretions of a COVID-19 case (e.g., being coughed on)

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 utilised 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
- 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 precaution use double-layered bags (using 2 bags) for collection of waste (blood sample /Cornea) to ensure adequate strength and no leaks
- Non-disposable parts of the PPE like goggles/visor to be cleaned with spirit or sodium hypochlorite immediately after returning to the hospital
- Clean all external surfaces of MK Medium/Cornisol bottles, Flask, ice Gel packs, Instrument tray, SS Bin with Surgical spirit, alcohol wipes or freshly prepared sodium hypochlorite after recovery and repeat it at Eye Bank.
- All the donor forms and documents are to be exposed to UV light in the Laminar flow hood for 30 minutes immediately after the team arrives at the eye bank. (Expose both sides of forms -30min + 30min)
- The technicians who handled the tissues and materials, to wash hands thoroughly with soap and water for about 30 sec 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/ROTO/State health authority/NPCB for daily or weekly reports
- EDC/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

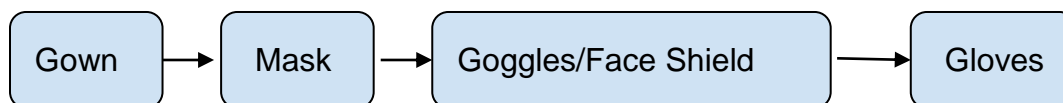
Cleaning of the Eye Bank

- 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 two hourly

Human Resource:

- Eye banks should consider reorganisation of the activities, introducing work shifts and batches and the personnel from one shift to not get in touch with the other shift to minimise the possibility of infection. If a team gets quarantined due to any reason than the other one can still continue to work eye banking functions.
- PPE at the workplace should include mask (N95)/other approved masks, gloves and Visor (face shield) and regular apron. Usage , sterilisation/ disposal of masks as per protocol for each mask.
- All Eye Bank Staff should be provided with sufficient number of mask, 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 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

Sequence for safely putting on PPE



Sequence for safely Removing of PPE



All the staff members are advised to follow below steps while going back home from eye bank/Hospital as per the guidelines of Ministry of Health and Family Welfare dated 7th April 2020 :

- 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 in 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 a shampoo and body with soap
- Wash your clothes and dry clothes in direct sunlight

Staff training: A training program is to be organized for all the staff of the eye bank, covering all the above guidelines and proper usage of doffing and donning of PPE and collection of nasal swab prior to resuming eye donation program by the Medical Directors/eye bank manager.

Urgency Wise List of Corneal Procedures:

Emergency procedure	Semi-emergency procedures	Elective procedure
Corneal Tear repair/ Open Globe injury: Repair ± A/C reconstruction ± Cataract Sx ± Ant Vit, etc. Lid Repair	*Keratoplasty for bilaterally blind/paediatric	*All keratoplasties
Wound Dehiscence Repair- Post PK/Post ThPK/DALK	Closed Globe injury: Pracentesis/Hyphema drainage, Traumatic intumescent cataract ALC tear	

*Therapeutic / Tectonic keratoplasty	Shield Ulcer debridement Supratarsal steroid	All Ocular Surface surgeries
Emergency Perforation repair - Tenons patch / AMG / Glue+BCL	Emergency tarsorrhaphy	C3r
Ulcers - Corneal scrapings /AC tap /wash / Intracameral Inj /Tarsorrhaphy	Pseudo membrane peeling for EKC (Be sure its not COVID EKC)	Pseudo membrane peeling for EKC
Broken/Loose suture: Removal Epilation	Acute hydrops: C3F8 injection ± Compression sutures	
SubTenon/Peribulbar injection of Kenacort in Graft Rejection Or IVMP injection in Rejection		
Mx of Acute SJS/ Burns as per protocol	Mx of SJS/Chemical Burn as per protocol	
Foreign Body Removal: Surface or Intracameral		
	Sx for OSSN	

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Guidelines for Glaucoma Management during COVID times

Version 1.0

w.e. f. May 11th, 2020

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We are all going through a complex and unique situation, where it is difficult to take decisions and manage the patients the way we used to do earlier. Now as we are learning to live with the pandemic we need to device guidelines that allow us to take optimum care of the patients along with minimizing the threat of COVID spread. It is important to prevent blindness from glaucoma and equally important is the responsibility to safeguard public health and mitigate the spread of this virus. These guidelines are based on the available information about COVID. However, these would keep evolving pretty fast as we keep getting wiser about handling the situation.

To resume elective procedure and medically necessary procedures, following prerequisites to be kept in mind as per WHO guidelines¹ and are common for all ophthalmology patients

1. Authorization for resumption of elective procedures by state govt. guidelines
3. Hospital's preparedness for resuming facilities and updating infection control protocols and staff training in general and for COVID in specific.
4. Arrangements for COVID screening prior to surgery, social distancing, regular disinfection.
5. Patients coming for an appointment should be asked prior to entering the waiting room about respiratory illness/Fever and whether they or a family member reside or have travelled to the containment zone area in the past 14 days. If they answer yes to either question, they should be sent to Covid care centre or dedicated Covid hospitals.²
6. Patients & attendant need to wear a three ply / cotton mask throughout their stay in the eye care facility
7. All the instruments are well functioning and systems in place for sanitizing them in between the patients

8. Doctors, optometrist, and para medical staff have adequate PPE: like N95 or equivalent masks, Face/ Eye shields and gloves etc.
9. Availability of slit lamp breath shields and explaining patient about minimum talking during examination
10. To plan much lower patient load than pre-COVID times to avoid crowding of waiting rooms. Preferable to give appointments with staggered timings to patients to avoid crowding and prevent long queues and inconvenience to patients. Allow only one attendant per patient inside the premises.

However, these can be adapted according to the requirement of the clinic/hospital/ institution and state authority guidelines

Prioritizing the care for outpatients is important to reduce the load on the clinics

1. Clinical prioritization into high risk, medium risk and low risk using tele-triage, medical records, performa etc. and then give appointments accordingly
2. Tele consult, virtual/video consultation, network of local ophthalmologist, opticians or optometrists services can be used for low risk patients to avoid crowding in the hospital/clinics.
3. Based on treating hospitals ability to deal with the number of patients and treating physician's discretion, the priorities for medical treatment and frequency of follow up can be decided.

Prioritization plan for surgery is based on the discretion of the treating Ophthalmologist

As we are slowly resuming our normal practice we should prioritize scheduling surgeries that require immediate attention, and then shift to urgent, semi urgent and routine surgeries based on health care facility situation and also state government guidelines.^{3, 4} However, the surgeries to be avoided in containment zones.

Guidelines for glaucoma management are in many ways similar to the general guidelines for Ophthalmology patients. The guidelines as regards specifics to glaucoma are mentioned below

A. Clinical examination: When and how, this includes

General guidelines:

- Keep patient in the clinic as minimal time as possible. Let the attendant into the examination or diagnostic area only if there is a need.
- Only one test to be performed in the diagnostic lab at a time.
- Receive the patient records with gloved hands and give them back after reviewing, do not place them on your tables.

- If you are using electronic medical records, ensure hand sanitization or sanitising the gloves before touching the keyboard or mouse.
- All cleaning of surfaces and equipment to be done with gloved hand.
- Avoid BCL Insertion or removal, suture removal If possible. If need to be used avoid placing forceps on table, take necessary precautions

1. IOP measurement

- **Goldmann applanation tonometer:** Use of single-use, disposable tonometer tips if available to prevent cross contamination.⁵

For disinfection the GAT prism, the prism is kept in 0.5% bleach /Sodium hypochlorite (1 Part of 5% Sodium hypochloride : 9 Parts distilled water) or 3% Hydrogen peroxide for 5 min, then washed with distilled water, dried and then mounted at the beginning and at the end of the clinic on daily basis. However Bleach is available in various concentration ranging from 2-10%, hence dilution can be done accordingly to make it 0.5% solution. The wipes dipped in 70% Isopropyl alcohol (IPA) solution or alcohol wipe commercially available with 70% IPA) can be used to clean the tips in between the patients. Since alcohol will not effectively sterilize the tip against adenoviruses and HSV, additional use of Sodium hypochlorite at the start and end of the day will help effective disinfection against adenovirus, HSV, Coronavirus and other viruses commonly associated with nosocomial outbreaks in eye care.⁶

- **Noncontact tonometers (NCT) should be avoided** as they create micro aerosols which can disperse the virus and hence increase chances of spread of the virus.^{3,7}
- **Icare:** For screening with disposable probe, and use a fresh probe for each patient.
- **Tonopen:** With disposable sleeves. Fresh sleeve to be used for each patient
- **Perkins:** To be used in pediatric patients, if tonopen and I care not available and should be used with adequate precautions and tip cleaned similar to the GAT
- The **Schiotz tonometer** should be dipped in a 1:1000 merthiolate solution and rinsed in saline/distilled water prior to use⁸. Heating the base of the instrument with the flame of a spirit lamp for 10 seconds and allowing sufficient time for cooling before use⁸. Either of these procedures are followed at the beginning and the end of the clinic on a daily basis. Cleaning the foot plate and test cornea with alcohol swab (70% IPA) (allowing sufficient time for drying of chemicals) between the patients.

2. Gonioscopy:

- To be done as per discretion of Ophthalmologist with appropriate precautions
Gonioscopes can be cleaned (Volk guidelines) in running water with soap solution, dried

and wiped with wipes or cotton or gauze soaked in 70% IPA, and dried after every use before placing them in the boxes.⁹

- 0.5% (5000 ppm) household bleach. Soak the lenses for minimum of 10min (1 Part of 5% Sodium hypochloride : 9 Parts distilled water in ambient/ room Temp 62°– 72°F (16.67° – 22.22°C). (Volk guidelines) ⁹

3. Fundus evaluation

- Using 90D or 78D with slit lamp biomicroscopy, and fundus photographs
- Indirect ophthalmoscopy using 20D in Covid positive cases
- Avoid using direct ophthalmoscopes as it requires very close proximity to patients face and mouth.
- Disinfection of lenses 90D/78D/20D/ Laser lenses – 0.5% (5000ppm) household bleach. Soak the lenses for a minimum of 10min (1 Part 5 % Sodium hypochloride : 9 Parts distilled water in ambient/ room Temp 62°– 72°F (16.67° – 22.22°C). (Volk guidelines)
- 2% Aqueous Solution of Glutaraldehyde. To avoid surface damage to contact lenses, never clean the contact elements with alcohol, peroxide or acetone

Koepe and goniotomy lenses can be sterilized with ethylene oxide, prior to use in surgery.

A WORD OF CAUTION:

Use of higher concentration of more than 0.1% of house hold bleach is detrimental for the surfaces. Hence, regular use of this disinfectants should be avoided for sensitive instruments.

B. Investigations:

1. Visual Fields: Keeping in mind the lesser possibility of disinfecting the perimetry bowl, visual field test should be performed

- Only if necessary for diagnosis, planning or changing management
- Tab based perimetry or VR perimetry can be used if possible

Disinfection of perimeter (Recommendation from Carl Zeiss)¹⁰

- 70% IPA to wipe all patient and technician interface surfaces e.g. eyepatch, chinrest, headrest, trial lens holder, trial lens, patient response button
- To clean the bowl of perimeter please follow manufacturer's guidelines as they vary with different companies (Quick-start guide from Zeiss and Octopus)

- Chin rest and forehead rests can also have paper cover, which can be discarded after each patient

However, the manufacturer's guidelines should be followed for each perimeter. Also 3 layered masks to be worn by the patient and can be sealed by micropore/ tape above the nose to prevent spread of aerosols from the patient's breath into the perimeter bowl.

- 2. Imaging and fundus photography:** Imaging preferable over visual fields for suspects and glaucoma patients, as it would have lesser chances of cross contamination, sanitization is easier, and the test is faster. The patient should be wearing a 3 layered mask with tape while performing the test.

Disinfection of OCT, fundus photography machine and others imaging machines

- 70% IPA to wipe all patient and technician interface surfaces e.g. eyepatch, chinrest, headrest. The lens to be wiped with soft cloth, non fibre using ethanol (according to manufacturer's advice in manuals) between patients to avoid contamination.

- 3. Ultrasound biomicroscopy (UBM):** To be used only if mandatory and required to decide the management of a condition that is vision threatening. Always use gloves while performing the UBM. Best to use disposable tips where possible, can also use a cut glove to cover the tip of the probe and dispose after every use. Otherwise the UBM cups can be sterilized by ETO and should be changed after every patient. The probe can be cleaned with 70% IPA, or covered with a disposable glove that can be discarded after each use.

C. Lasers: Indications to be decided by Ophthalmologists discretion

Use of gloves, masks with tape, Slit lamp breath shield, appropriate disinfection of Abraham lens and laser need to be kept in mind.

D. Surgical Procedures

Level of urgency as per discretion of the treating surgeon/ hospital/ state authorities guidelines. Preferable to operate under LA with day care and procedures that require less postoperative follow up can be chosen based on the treating physician's discretion

General guidelines for Operating room are similar to any ophthalmology OT

To conclude, the barrier and disinfection systems to be kept in mind at each step.

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Guidelines for managing uveitis patients during COVID 19 Era

Version 1.0

W.e.f May 11th, 2020

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Modification of the OPD Protocols

1. Triage the patients in OPD and if anyone has a history of contact or travel or with symptoms such as cough/fever/myalgia/loss of taste or smell/headache/vomiting, then to be referred to a COVID clinic for further evaluation
2. Any new patient of uveitis has to be examined in the clinic for making a diagnosis, with due precautions in place
3. Prefer tele consultation for patients on follow up and have been stable on last two follow ups or for monitoring of the blood reports in order to avoid frequent visits to the clinic
4. Fewer patients seen per hour with only one accompanying attendant
5. Punctuality of the appointments to be honored both by patients and doctors to optimize throughput time from the clinic
6. To maintain social distancing in waiting area
7. Universal precautions to be followed in OPD- face mask/gloves/head cover/face shield
8. To avoid contact instruments such as applanation tonometer or clean after each use
9. Sterilization of the head rest and chin rest of the slit lamp after each patient and cleaning of 20 dioptre lens with soap and water after each use
10. Minimal talking to the patient in OPD
11. Cleaning of the clinics as frequently as possible

Guidelines for diagnostic procedure:

Non-invasive

- **Optical coherence tomography (OCT)**- may be performed with cleaning of the chin rest and head rest with alcohol swab after each patient who is wearing a face mask while sitting on the machine with no talking and not touching any part with hands. The lens of the machine may be protected from droplet contamination by putting a cling film over it which is changed after every patient or the lens is cleaned as per the recommendation of the manufacturer.
- **Fundus photo or Autofluorescence**-maybe performed if essential, with cleaning of the chin rest and head rest with alcohol swab after each patient who is wearing a face mask while sitting on the machine with no talking and not touching any part with hands. Lens is cleaned as per the recommendation of the manufacturer.

Invasive

- **Fundus fluorescein angiography(FFA) and indocyanine angiography(ICG)**- best avoided
- **Anterior chamber tap**- to be performed with an informed consent and under strict aseptic precautions, betadiene 1 % eye drops to be instilled in the cul de sac.¹
- **Diagnostic Vitreous biopsy**- for vision-threatening conditions to be performed with informed consent and under strict aseptic precautions. All universal precautions to be followed in the operation theatre as per the recommendation.²

Management of uveitis

A. Anterior uveitis: Topical steroids may be started or continued at the discretion of the treating doctor

B. Intermediate uveitis/posterior uveitis/panuveitis

Guidelines for a new patient of uveitis:

- To prefer local therapy in the form of posterior sub-tenon triamcinolone or intravitreal dexamethasone implant over systemic corticosteroids.
- Intravenous methyl prednisolone is best avoided and one should prefer local therapy (periocular or intravitreal steroids) alone or in combination with lower doses of systemic steroids.

- Avoid starting high dose oral corticosteroids or immunosuppressants in high risk patients defined as the following: age ≥ 70 years, severe chronic lung disease (e.g. asthma, bronchiectasis, cystic fibrosis, COPD, etc.), severe heart disease, CD4 count < 200 , history of diabetes/hypertension/smoking/cardiovascular event.
- Any one eyed patient or with a vision-threatening condition requiring the initiation of corticosteroids or immunosuppressants may be started on the treatment at the discretion of the treating doctor and after evaluation by a physician.
- Strict vigilance has to be kept on the blood counts of the patient with a special precaution to maintain white blood count is kept above > 4000 per microliter.

The COVID pandemic is not a contraindication for the initiation of immunosuppressants. Patients need to be explained regarding the additional risk of secondary infections at the time of start of the therapy including the following precautions:

- Hand and personal hygiene.
- Avoiding crowds and working from home.
- To have the face mask on at all times.
- If they are sick with fever, malaise then should contact the infection control specialist and if advised then to consider stopping the therapy.

Guidelines for uveitis patients on maintenance therapy

On Corticosteroids

- Patient is stable then one may consider a gradual taper and stopping of the drug or maintain at a low dose $< 10\text{mg/day}$. However if there is a high risk of recurrence at it might be vision threatening then one may continue at the same dosage (as per the discretion of the treating doctor).
- Strict monitoring of blood sugar and blood pressure is recommended.
- In case of any illness or symptoms suspicious of COVID then to be referred to an infection control clinic.
- In a case of recurrence then to prefer local therapy (sub-tenon or intravitreal) over systemic corticosteroids.

On Immunosuppressants

- If the patient has been stable for the last two visits and one was considering the stoppage of the drugs then it may be done at the discretion of the treating doctor however they do not need to be discontinued due to COVID pandemic.

- Patients on immunosuppressants are already primed to monitor their blood counts regularly, however we may need to reiterate the importance of the same again.
- Strict vigilance has to be kept on the blood counts of the patient with a special precaution to maintain white blood count is kept above >4000 per microliter and tele consultation may be useful for the same.
- A patient on immunosuppressant if develops symptoms suspicious of COVID infection , then needs to be referred to an infection control specialist and if they feel necessary to stop the ongoing medication, it may be done at their discretion.



COVID 19 Retina Practice Guidelines

Version 1.0

w.e .f. May 11th, 2020

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The position on COVID-2019 is dynamic and constantly changing. We will keep updating the advisory as required. In light of the potential peril, extra caution is being exercised. The stringent measures may be relaxed later or revised as more knowledge comes to light.

The Corona virus disease 2019 (COVID-19) pandemic has thrown up several challenges that healthcare systems and the world, in large, and are struggling to deal with. The All India Ophthalmological Society (AIOS) – Indian Journal of Ophthalmology (IJO) recently published a consensus statement on preferred practices during the COVID-19 pandemic and has offered directions that may prove useful in the post-lockdown period too.¹ These guidelines are being suggested to help restart and conduct Retina services in this new environment. Needless to say, these would be keep evolving and one needs to follow their respective state's prevalent ruling at any given point in time. At the moment of writing, the Ministry of Health and Family Welfare (MOHFW) has declared that all medical activities, as deemed essential, by a hospital can be carried out by all hospitals except those in containment zones.

Advisory for resuming Retina Practice

The use of teleconsultation is encouraged to maintain communication, prioritize patients and affix appointments to avoid crowding in the clinic. Patient details, prior to patient's arrivals, can thus be used for new patients. On arrival, patients should be asked, prior to entry, about

- if they have tested COVID positive
- fever, respiratory illness or any of the COVID related symptoms,,
- if they or their family members have been in quarantine

If they answer affirmatively to these questions, they need to be referred to a COVID designated hospital. The urgency of the need for an examination may be the discretion of the retinal specialist.^{1,2}

Once the Patient is assessed and considered safe for an ophthalmic examination, the patient

may be allowed to proceed to the OPD area, ensuring adherence to all the stringent norms for OPD patient flow listed in the AIOS-IJO Consensus statement.¹

Ensure that patients wear masks covering their face and nose, at all times, while in the hospital. In order to avoid crowding, it is prudent to give appointments with staggered timings. Only one attendant per patient needs to be permitted within the premises. All the norms of social distancing need to be strictly followed.

Preferred protocols for Retinal examination

All precautions regarding the breath shield, disinfection of slit lamp and lenses to be followed as per AIOS-IJO recommendations.¹ Home dilation, where possible for review patients may be advised. Non touch techniques, Retinal examination during this period may be essentially the same different except for a few precautions:

1. Contact lens examination of the fundus to be avoided if possible.
2. A face shield mounted on the indirect ophthalmoscope or on the examiner's head is recommended in addition to the personal protective equipment (PPE). The indirect ophthalmoscope mounted shield with a cut out for the eye piece, offers better visualization of the fundus. Patient should wear a mask during the examination, with the upper border taped to reduce the risk of patient's breath contaminating the examiner's hands.
3. Alcohol sanitization of the hands prior to wearing the indirect ophthalmoscope and also prior to removing it is recommended.
4. Scleral depression is best avoided unless essential in a given case. A cotton-tipped applicator maybe an alternative.
5. Talking during fundus examination is to be avoided.

General Functioning Guidelines for Imaging and Procedures

A. Retinal Imaging

1. The following guidelines may be considered¹⁻³ Clinicians should exercise prudence while deciding about investigations. Essential and critical investigations may preferably be only resorted to.
2. Noninvasive Investigative modalities that are less time-consuming or have no patient contact are preferred. Optical coherence tomography (OCT) and optical

coherence tomography angiography (OCTA) can be used as an alternative to dye-based angiography.

3. Indocyanine Green Angiogram ICG, a long procedure, may be avoided if possible.

B. Retinal Lasers

A prioritised list of indications for Retinal lasers have been detailed in **Table 1**^{1,2}

Laser Delivery Modes, Protocols

1. Non- contact laser delivery systems to be preferred over slit lamp for non –macular lasers.
2. If both are available, then multispot laser is preferred over single spot laser to make the process faster and with lesser number of sittings.
3. A drop of povidone iodine may be instilled in the conjunctival cul de sac after removal of the contact lens.
4. The laser contact lenses or 20 diopetre lens to be washed with soap and water after every use or may be dipped in sodium hypochlorite (0.5%) solution

C. Intravitreal Injections (IVI)

The Indications are stratified in **Table 1**. In addition to the standard practices being followed in the COVID era, all processes need to be in sync with the consensus statement by AIOS.^{1,3}

1. The injections should be given with patient wearing a mask, draped and the person injecting should wear gown, N95, face shield (PPE) or as per their institute's protocol.
2. Between the injections 10-15 minutes time can be given during which scrubbing can happen.
3. Only the injection for that patient must be loaded on the table and not all the injections for the day.

Follow-up after Intravitreal Injections

Patient can be asked to give a call the day after injection. In case the patient is comfortable, they may be called after 4-8 weeks depending on the clinical situation. Patient should be able to contact the facility at any time if they have issues.

D. Cleaning and maintenance of Equipment and lenses:

Contact Lenses for Laser and Examination: While they are preferably avoided, if they are essential, the contact surface of the lens should be washed with detergent and running water for 20 seconds prior to applying it on the cornea, repeating the washing after the examination. The lens can be disinfected by immersing the contact surface in 0.5% sodium hypochlorite for 10 minutes after washing. Laser lenses may be covered with cling film that can be removed at the end of procedure.

Lens for Indirect Ophthalmoscopy & slit lamp biomicroscopy : The condensing lens may be washed with soap and water or wiped with 95-99.9% isopropyl alcohol between patients. Some manufacturers have prohibited the use of alcohol to clean their lenses. Shanmugam et al, to reduce the risk of damaging the lens, have modified it by mounting it on to a custom designed holder with a clear plastic barrier at the end facing the patient. (https://www.youtube.com/watch?time_continue=1&v=BC8DCTDkcog&feature=emb_title). This plastic barrier and the lens mount may be wiped with alcohol in between examinations.

Slit Lamps, Lasers, OCT and OCTA : Wrapping a cling film over the lens can protect the lens of these equipment from droplet contamination. The surface of the film can be cleaned with an alcohol based disinfectant or is changed after every patient. The lens of the machine may be cleaned by the technique recommended by the manufacturer.

Fundus Cameras: Cling film causes compromise in image quality and thus fundus cameras can be left uncovered. The rest of the device is covered with cling wrap to permit frequent cleaning.

Cleaning of the forehead band, chin rest, lens, the handles and the table which comes in contact with the patient needs to be done regularly between cases.

Touch Screen Devices: All touch screen devices function fairly well with a cling wrap

B scan probe – Needs cleaning with alcohol wipes between scans. Patients should wear caps.

Electrophysiology - Use of disposable electrodes of the non-contact lens type; cleaning of equipment between patients,

Vitreo-Retinal Surgery in COVID era

It is emphasized that best practice protocols in VR surgery will be influenced by the practice situation of each facility and surgeon. The Indications for different vitreoretinal surgeries are indicated in Table 2. A few concerns around restructuring retinal surgical practice in this era are detailed below.

1. Preoperative COVID Testing :

Preoperative COVID testing is not mandated . If a patient is proven COVID positive case, or has a very strong suspicion of being so, based on history or symptoms, the patient should be referred to a COVID designated centre. As regards asymptomatic and regular cases, it would be safe to assume that every surgical patient is a potential COVID spreader and all necessary precautions be taken.

2. Operation Theatre Specifications :

- a. **OT designation and flow:** It would be useful to have a specifically designated surgical OT with a donning and doffing area near the OT. The donning could be done in the regular washing area but will need adequate space. For surgeries under GA, the surgeon should not enter the OT until the patient is fully stabilized on the anesthesia circuit and the surgical team is adequately protected.¹⁷
- b. **OT Air conditioning:** Switching off air conditioning or more practically keeping the air conditioning operational with increased rate of air changes and increased ratio of fresh air mixing in the AHUs should suffice. Negative Pressure OTs are not deemed mandatory. Positive pressure OTs may continue to be used if it is difficult to convert to a negative pressure facility. Negative pressure OTs can be created by use of dampers, altering fan speeds and other engineering modifications.⁴ If an exhaust system is added, the exhausted air should be expelled after passing through a HEPA filter.^{5,6}

2. Patient related Protocols:

Patients for surgery under local anesthesia should wear a surgical mask. If they are uncomfortable, any device that keeps the drapes away from the nose can be used. Under General anesthesia, the anesthesia circuit isolates the respiratory tract.

- 5% Povidone iodine should be instilled in the conjunctival sac 5-10 minutes before the surgery and also used for prepping as it is virucidal , disinfecting the ocular surface and conjunctival cul-de-sac in 15 seconds.²¹

3. Personal Protective equipment (PPE):

- i. The donning sequence is different from the usual PPE wear in wards and clinics by the need to wear the N95 mask, boot covers and goggles before handwashing so as to maintain sterility.
- ii. Coveralls are quite difficult to wear in a sterile manner, hence gowns need to be worn along with N95 masks, goggles, a hood and boot covers. Face shield may make visualization through a microscope difficult during surgery; therefore, goggles

are preferred and must be worn before the hood. If the hood is worn first, it would ride over the eyes - the goggles do not push it back. As an alternative, a coverall can be used, and a sterile gown worn over it.

- iii. The doffing sequence is similar to standard protocols, though goggles can be reused after decontamination. N95 masks if reused on the same day must not be touched or worn again between cases. If an N95 with a respiratory valve is used, it should be covered with a surgical mask to decrease the surface contamination.

4. Sterilisation Protocols and Re-use Practices :

Conventional preset institutional protocols, complying with the manufacturer's recommendations, regarding sterilization of the instruments should be followed.

- It is preferable not to re-sterilise or reuse residual silicone oil and perfluorocarbon liquids
- It is advisable to use a fresh bottle of Ringer Lactate or BSS/BSS Plus for each case
- It needs to be ensured that all surgical consumables – (the cutter, tubing, cassettes etc) should be absolutely sterile and all steps to prevent cross-infection between successive cases need to be strictly adhered to.

5. Surgical technique modifications:

- a. Draping: The draping needs to be done appropriately ensuring watertight sealing to minimize chances of aerosol dispersion from nasal and oral cavities.
 - b. Valved Vs Non-valved cannulas: Valved cannulas are preferred, as much of the fluid spills and bubbling during fluid air exchange may be avoided. Spillage of fluid or air over the surgeon and assistant(s) especially with IOP controlled machines or a high bottle height can be caused by non-valved cannulas.
- If only valved cannulas are available, reduce the bottle height or intraocular pressure during instrument exchange to reduce leakage from sclerotomies.
 - a. Diathermy : Diathermy is known to cause aerosolization, and a suction tubing may be used to evacuate the smoke from the surgical field.⁸
 - b. Scleral Buckle Vs Vitrectomy: Scleral buckling involves more tissue contact and diathermy and hence more likely to cause exposure than vitrectomy.

Prevention of fluid spill, high pressure bubbling at the ports or the flute needle during Fluid air exchange are to be cautioned watched out for during

vitrectomy. Passive rather than active aspiration would be safer in this regard. Reduced instrument exchanges is also preferable.

- c. In this period experienced surgeons should perform the surgeries. As the crisis abates, trainee surgeons may also operate.

6. Resource management:

- a. It is preferred to have only one case operated in an OT at a time.
- b. As supplies may be limited in this period, it would be prudent to manage one's inventories carefully.
- c. Extra items should be stored safely in the OT itself to reduce movement of the circulating nurses to and fro from the stores. Extra items may be kept in a common Ziploc bag or a transparent box so that the external surface of the box may be cleaned after the procedure. Each item does not then need to be separately cleaned if the box remains closed during the surgery.

The guidelines for management of Retinopathy of prematurity (ROP) and Oncology have been suggested in their respective publications and society updates.⁹⁻¹²

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Table 1: Urgency Wise List of Medical Retina Procedures:

Emergency procedure (< 1 Week)	Semi-emergency procedures (1-3 Weeks)	Elective procedure (≥ 4 weeks)
<ul style="list-style-type: none"> • Active CNV, PCV,NVG needing Intravitreal AntiVEGF treatment (Treat and extend to maximum interval possible). • Intravitreal Injections in One Eyed patients with severe vision reduction with Diabetic/other causes of Macular Edema • Active PDR requiring treatment (PRP laser or intravitreal-anti VEGF) • Malignant hypertensive retinopathy • ROP screening and laser and anti-VEGF treatment • Barrage lasers for HSTs, Macula threatening RDs • Lasers for extra foveal CNVMs 	<ul style="list-style-type: none"> • Macular edema requiring treatment • Acute CSCR • Stable neovascular AMD where the routine Intravitreal injection has been deferred due to lock down • CNVM on Treat & Extend regime • Acute CSCR 	<ul style="list-style-type: none"> • Stable Macular Edema (DME, BRVO, CRVO) on followup AntiVEGF therapy • Stable CNVM on followup AntiVEGF therapy • Chronic or stable CSCR • Low-risk DR screening • Macular telangiectasia • Screening for macular drug toxicity • Retinal dystrophies • Hypertensive retinopathy (non-malignant) • Non-neovascular (dry) AMD • Angioid streaks • Choroidal folds

Table 2 : Urgency Wise List of Vitreoretinal Surgeries:

Emergency procedures (Few Days)	Semi-emergency procedures (1-3 weeks)	Elective procedures (≥ 4 weeks)
<ul style="list-style-type: none"> • Acute retinal detachment • Suspected retinal tears • Open globe injuries: Including IOFB • Acute endophthalmitis • Vitreous hemorrhage (dense, requiring vitrectomy) • Dropped nucleus requiring vitrectomy/lensectomy • Submacular hemorrhage requiring vitrectomy • Aqueous misdirection requiring vitrectomy • Complex surgery post-operative (minimize visits) • Diagnostic vitrectomy for infectious or oncological causes • Surgery for ROP • Drainage Surgery for appositional choroidal detachments suprachoroidal hemorrhage or flat anterior chamber 	<ul style="list-style-type: none"> • Acute full-thickness macular holes • Severe vitreomacular traction syndrome • Myopic traction maculopathy with foveal detachment • Exposed scleral buckles at risk of infection • Heavy liquid removal 	<ul style="list-style-type: none"> • Epiretinal membranes • Silicone oil removal (unless developing complications such as emulsification) • Secondary Intraocular lens procedures • Symptomatic vitreous opacities

Disclaimer:

The current outbreak is unpredictable. If widespread community-transmission occurs, healthcare infrastructure and capacity issues may have further impact on donation and transplantation. These recommendations will be regularly updated to account for the changing epidemiology and new information regarding treatment and testing. All transplant units must be aware of national and local guidance for managing patients with COVID-19. No suit or legal proceedings shall lie against any person for anything done or

intended to be done in good faith under this suggestions/advisory unless proved otherwise.



Guidelines for Oculoplastic Surgery during the COVID-19 Pandemic

Version 1.0

w.e.f May 11th, 2020

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I. Introduction

Oculoplastic surgeries include emergency surgeries for traumatic conditions and infectious disorders as well as elective aesthetic procedures. Globally the COVID-19 pandemic has brought elective procedures to a standstill. Currently guidelines globally recommend only performing emergency procedures during the pandemic, especially during the lockdowns imposed in many countries. We need to incorporate evidence-based screening and protective measures into our practices while offering this emergent medical care to patients. The purpose of this document is to compile evidence-based guidelines for surgical procedures for oculoplastic surgeons which can be put into practice during the COVID-19 pandemic. These sets of recommendations will form the foundation upon which further suggestions may be based on, in the future, so oculoplastic surgeons can begin performing elective surgeries at a later point in time. The recommendations in this document should be adopted for the next few months till the pandemic completely subsides. This document must be viewed in light of local policy – which may vary in every city/state and availability of the resources must also be taken into consideration. New evidence about the virus and the disease are continuously emerging, hence these guidelines are subject to changes as the disease pattern changes and our knowledge about COVID-19 and its impact on ophthalmology and oculoplastic surgery, in particular, increases.

II. Clinical Examination:

The basic rules of social distancing shall be followed at all times. The details of cleansing, sanitising the OPD and the waiting area have been described in detail by Sengupta et al (Indian J Ophthalmol 2020;68:711-24). For the physician and the assistant in the patient

examination area in the clinic there has to be an emphasis on the use of **surgical** gloves, a respirator/mask and face shield. In addition, the patients should also wear a mask at all times. Prior to entering the doctor's examination room, the patient must be instructed to wash his/her hands. The clinical examinations should be done in well ventilated rooms with good air circulation. A detailed clinical history should be elicited including history of fever, cough & cold, or contact with COVID-19 positive patients or if the patient resided in a containment zone. A COVID-19 questionnaire may be used for this purpose. **(Table 1)** In the clinic, ensure that no accompanying person is allowed entry into the waiting room or the examination room except for vulnerable patients; such as children, elderly above 65 years of age and non-ambulatory patients among others. One attendant for female patient is allowed. Patient should be asked to give all the history and symptoms prior to examination and should be requested not to talk while examination. Based on the hospital infrastructure, the number of patients seen in a day should be limited and the appointments should be spaced out to allow for social distancing.

If the patient has symptoms suggestive of COVID-19, the ophthalmologist may request for pre-operative COVID-19 testing, keeping in mind local municipal and state guidelines for testing; or carry out any further treatment at a higher centre that is equipped to handle cases of COVID-19. It is also recommended that any surgical procedure on a previously diagnosed case of COVID-19 be done in a hospital that has dedicated COVID-19 care facilities including inpatient care, operating room and intensive care facilities for COVID-19 patients. If testing facilities are not available and the patient requires emergency surgery, surgery may be performed with personal protection equipment (PPE) assuming that the patient has COVID-19.

During examination, lacrimal syringing should be avoided as it is an aerosol generating procedure. Where possible, fluorescein dye disappearance test may be performed which can be interpreted accordingly for further management. Routine nasal endoscopies prior to any lacrimal surgery is best avoided while the pandemic lasts.

Table 1: COVID-19 Questionnaire:

COVID-19 QUESTIONNAIRE			
HISTORY	QUESTION	YES	NO
Occupation	Was the patient working at a grocery shop/ bank/ hospital/ etc. which potentially involves exposure to large group of people in the last 28 days		
Travel	National travel (Inter-district or Inter-state) particularly to hotspot areas or international travel in past 28 days		
Family	Any travel by family members to hotspots (Inter-district or Inter-state) or international travel in past 28 days		
	Any history of symptoms (URI/LRI/FEVER/DIARRHOEA) in past 28 days		
	Any family member on COVID Duty (Police/Army/Doctor/Drivers etc.) living in same house		
Contact	Any contact with suspected or diagnosed COVID Case in the past 28 days		
Symptoms (Current or in last 28 days)	Fever		
	LRTI symptoms - Cough/ Expectoration/ Breathlessness		
	URTI Symptoms - Sore throat/Nasal block/Rhinorrhoea/Cough		
	GI Symptoms - Diarrhoea		

III. Surgical Procedures:

Surgeries have been classified based on their urgency. This classification offers a broad time line but is not absolutely binding and may be modified based on individual or institutional discretion.

Level A – Emergency / Urgency – The need to operate within 4-72 hours.

Level B – May be deferred for up to 4 weeks with or without conservative management.

Level C – May be deferred beyond 6 weeks without adversely affecting the outcomes.

Procedures commonly performed in oculoplastic operating rooms have been classified using this risk stratification and tabulated as follows:

a. Risk stratification for Orbital Surgeries

Level A	Level B	Level C
<ol style="list-style-type: none">1. Canthotomy and cantholysis for sight-threatening orbital haemorrhage.2. Drainage of an orbital or periorbital abscess.3. Exenteration for life-threatening infection.4. Orbital biopsy (incisional or excisional) for life or sight-threatening conditions.5. Repair of orbital and other facial fractures fracture in presence of oculo-cardiac reflex.6. Evisceration/Enucleation for severe, untreatable infection, malignancy.	<ol style="list-style-type: none">1. Optic nerve sheath fenestration for progressive visual loss.2. Orbitotomy for malignancy or sight threatening tumour/ other lesions.3. Thyroid Eye Disease: Orbital decompression in case of optic neuropathy or uncontrolled orbital congestion.4. Orbital fracture repair with symptomatic residual entrapment.5. Plaque brachytherapy.	<ol style="list-style-type: none">1. Orbital decompression for aesthetic rehabilitation.2. Socket Reconstruction.

b. Risk stratification for Eyelid and oculofacial plastic surgery

Level A	Level B	Level C
<ol style="list-style-type: none">1. Periocular malignancy (biopsy-proven or suspected) including locally advanced disease with features such as orbital invasion	<ol style="list-style-type: none">1. Entropion in the presence of progressive sight-threatening corneal exposure/disease2. Botulinum toxin	<ol style="list-style-type: none">1. Other eyelid malposition's like long standing congenital or acquired ptosis,

2. Severe unilateral ptosis in an infant 3. Eyelid lacerations including canalicular lacerations 4. Tarsorrhaphy in cases of impending corneal compromise	injections for severe blepharospasm and other facial dystonia 3. Lid reconstruction	ectropion and dermatochalasis 2. Benign periocular tumours like chalazion, papilloma 3. Upper & lower blepharoplasty 4. Aesthetic procedures and surgeries like browlifts, facelifts, thread-lift, aesthetic fillers and botulinum toxin injections for aesthetic indications
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c. Risk stratification for Lacrimal procedures

Level A	Level B	Level C
1. Congenital Dacryocystocele with airway compromise 2. Lacrimal Abscess 3. Pediatric Acute Dacryocystitis 4. Acute lacrimal drainage trauma (canalicular lacerations, NLD injury in complex facial trauma) 5. Lacrimal Sac Malignancy (biopsy proven or suspected) including locally advanced disease with features of orbital or intranasal extension.	1. Inflammatory secondarily acquired nasolacrimal duct obstruction (SALDO) with exacerbations (ex - autoimmune disorders) 2. Infectious canaliculitis 3. Post-traumatic SALDO without complex facial trauma 4. Biopsy proven benign lacrimal sac mass 5. Stent extubation. 6. Idiopathic canalicular	1. Primary Acquired Nasolacrimal Duct Obstruction (PANDO) 2. CNLDO (exceptions in levels A and B).

	inflammatory disease (ICID) 7. Lacrimal sac diverticulitis	
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IV. General guidelines for oculoplastic surgery:

1. Avoid general anaesthesia (intubation, extubation) whenever possible.
2. PPE for all medical and non-medical personnel involved in the surgery.
3. Only the essential anaesthetic, surgical and allied health staff should be present inside the operating room.
4. Surgeon and surgical assistants should be outside the operating room during
 - a. intubation and extubation
5. Use of aerosol protection devices is advisable during intubation and extubation to limit spread of aerosols away from the patient.
6. Avoid monopolar cautery for cutting/coagulation. Instead, Use a cutting blade for skin and mucosal incisions whenever possible.
7. Use bipolar cautery for haemostasis in the lowest power setting.
8. Practise minimal handling of tissues especially mucosal surfaces.
9. Avoid repeated irrigation and suctioning of tissues.
10. Avoid / minimize drills, oscillating osteotomes and other powered instruments.
11. Consider closed reduction if fracture is stable for zygomatico-maxillary complex (ZMC) fractures. Avoid intra-oral incision, if possible.
12. Self-drilling screws are preferred over self-tapping ones that require pre-drilling.
13. To plan orbital decompression surgery avoiding endo-nasal endoscopic approach and only utilising an orbital approach so that there is minimal to no breach of sinus mucosa. Consider a temporising procedure of shorter duration initially – a later procedure can be planned.

These guidelines will help oculoplastic surgeons offer emergent care to their patients who need it. As mentioned earlier, as our understanding of this virus and the disease transmission process increases with time, it is expected that these guidelines may change. It is evident that some areas in India are more affected by the outbreak as compared to others and expectedly, there is variation in the recommendations by the local health authorities. All clinicians must tailor the guidelines mentioned in this document, especially when it comes to COVID-19 testing, based on the prevailing rules and regulations put in place by local/state/municipal authorities.

**Guidelines for examination of patients in Paediatric Ophthalmology
And
Neuro ophthalmology sub-specialty during COVID Pandemic
Version 1.0
w.e.f May 11th, 2020**

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About the Document:

The document is meant to be a guide for ophthalmologists dealing with pediatric cases and neuro-ophthalmology cases during the COVID-19 Pandemic. The content of this document is merely to help establish best practices for safety of patients, staff and treating ophthalmologists.

The document has been divided into six sections; section 1 refers to emergency cases pertaining to paediatric ophthalmology and neuro-ophthalmology where treatment should not ideally be delayed. Section 2 encompasses general guidelines which hold true for all ophthalmology patients. Section 3 covers specific guidelines for examining and managing eye disease in children. Section 4 covers specific guidelines for managing neuro-ophthalmology conditions. Section 5 lists conditions which are amenable to teleconsultation by following established regulations. Section 6 consists of basic operating theatre practices which should be followed keeping in view the need for general anesthesia in paediatric eye surgery.

The content of this document has been generated based on inputs from experts in the field of paediatric ophthalmology, strabismus and neuro-ophthalmology and may be modified over time based on new evidences.

Section 1

List of emergency/ urgent conditions in paediatric ophthalmology and Neuro ophthalmology requiring examination/ management (medical/surgical):

This list is not comprehensive and treating ophthalmologists may decide on a case to case basis.

1. Pediatric cataract / congenital cataract in amblyopic age group/ Traumatic cataract
2. Buphthalmos /Paediatric glaucoma
3. Strabismus surgery for torn or lost extra-ocular muscle/ post injury
4. Optic nerve sheath decompression or fenestration for progressive vision loss due to persistent disc edema
5. Complaint of recent / sudden loss of vision/ fields in one or both eyes
6. Complaint of recent onset diplopia or acute onset of squint / nystagmus/ ptosis/ head posture
7. Traumatic head & eye injuries
8. Probing of the naso lacrimal duct obstruction in case of dacryocystocele
9. ROP screening / treatment
10. Retinoblastoma and other ocular tumors
11. Retinal detachment
12. Breakage/Loss of glasses of child with high/pathological refractive error
13. Acute Red eye/purulent discharge
14. Acute dacrocystitis , preseptal cellulitis/ Orbital cellulitis

15. Unexplained headache / Acute headache referred to rule out papilledema

Section 2

General examination guidelines for ophthalmology patients

1. Pre-registration patients/ attendants should be screened for symptoms/ signs of infection along with history of contact
2. Examine single patient at any time in the room with staggered timing to avoid crowding in the waiting area.
3. Wear gloves, N95 masks, aprons and protective eyewear for examination. Disinfect gloves after each examination.
4. Rooms and instruments should be thoroughly disinfected after each patient encounter.
5. Wear disposable gloves when cleaning and disinfecting surfaces, and discard the gloves after use. Slit lamps, including controls and accompanying breath shields, should be disinfected after each patient, particularly wherever patients put their hands and face.
6. Cleaning at regular intervals and at the end of the day.

All other guidelines for running ophthalmology OPD and standard operating procedure as described in AIOS Operative Guidelines for COVID-19 to be followed.

Section 3

3.1 Special aspects for examining children:

- Children may get scared of doctors in masks, so an attractive mask may be useful
- Children wear masks which are ill fitting and ineffective or may not wear masks at all, so self-precaution is imperative esp less than 2 years children
- Children always need 1 maybe 2 attendants with them, hence a higher chance of exposure is likely; allow mother or father only if possible
- Children may not follow social distance protocols and OPD etiquette, so parents to be cautioned
- Children are more likely to be asymptomatic virus shedders, especially as prolonged shedding in nasal secretions and stool has been shown in children who have no symptoms, hence COVID symptomatic screening may be falsely negative
- There is also a report of the possibility of asymptomatic disease and potential transmission via infants, hence doctor must take adequate self-precautions even with infants and neonates
- A crying child may be aerosolizing the virus particles which may stay in the air longer and travel greater distances, so treat this exam as a potential aerosol generating procedure. Extra care needed for ROP screening.
- To avoid crowding the waiting room with dilating patients (for retinal exam or for refraction), ask the parents to instill drops at home and return (can plan the next visit same day or next). If cannot return, ask them to instill in the car and come back in 1 hour.

3.2 Additional aspects:

- Infected children are usually asymptomatic. Be sensitive for complaints of: fever, dry cough and fatigue; occasional gastrointestinal symptoms, including abdominal discomfort, nausea, vomiting, abdominal pain and diarrhea. Defer examinations if suspect.
- Require the parent, and if possible the child, to wear a mask (is mandatory >2 years).
- Basic history taking can be done on phone so that time in examination room can be minimized. Similarly after the examination is over, only 1 attendant should remain in the room to understand the advice/ management. It is at this time that the child often runs around handling things in the clinic which can be minimized by sending the child out under supervision

- Ask patients and attendants to sanitize their hands before and after leaving exam rooms.
- Close play areas for children in clinics; Remove all soft toys and toys that cannot be wiped clean. play area and baby care room- disinfection protocols to be followed.
- Hand out of sweets or candies to be stopped
- Examination under sedation may be preferred to examination under anaesthesia (where possible)

3.3 Guidelines for pediatric ophthalmology patients:

New patients:

1. Parents should be advised not to bring special kids and low vision kids because they are high risk especially as evaluation takes a long time.
2. Ask the parent or the caregiver to compare the vision of a preverbal child in either eye applying a patch/cover the eye with the hand on the other eye and compare at home.
3. For an older child visual acuity on the chart may be noted / app based vision screeners are available. Parent may be asked to close one eye of the child.
4. In case of strabismus, old/current pics of the child can be shared the pediatric ophthalmologist on phone or email (avoid exchanging mobiles and other gadgets)
5. Previous documents / records can be sent by whatsapp / e mail so that there is no need for carrying actual documents for the appointment
6. Retinoscopy to be avoided for preverbal child. Use hand held automatic refractometer and for an older child automatic refractometer used to perform refraction under cycloplegia.
7. Over-refraction with glasses on is preferred to look for change in power and only if significant discrepancy should a full refraction and acceptance be done.
8. Photoscreeners can be used
9. Based upon the AR readings the glasses can be prescribed and acceptance may be avoided
10. Try and obtain a good photograph of the child, preferably the photograph can be sent to the doctor by a social media platform rather than exchanging the mobile phones and devices.
11. Fundus examination with an indirect ophthalmoscope / 90 D examination or a fundus photograph may be preferable to a direct ophthalmoscope examination
12. In case of suspected posterior segment disorders, OCT may be used for screening (where possible)

13. In case of recently diagnosed and amblyopia, part-time occlusion may be started and followed up on a monthly basis. Full-time occlusion should be avoided. Periodic self-checking of the eye undergoing occlusion should be advised to prevent occlusion amblyopia.
14. Avoid starting penalisation in young kids.

Old/ follow-up patients:

1. Encourage teleconsultation
2. For older children maintaining the visual acuity as per the previous visit and pre verbal children the old glasses maybe continued for next 3 to 4 months
3. Cycloplegic refraction for new glasses prescription may be avoided unless complaint of significant drop in vision from previous records
4. For preverbal children with strabismus - the information regarding the fixation preference from the parents and caregivers to be obtained, photographs with flash maybe requested from parents and caregivers so as to know the fixation preference. If the child is having similar fixation preference as before then the old glasses/amblyopia therapy should continue
5. For operated strabismus patients a digital photograph with flash maybe sought for and alignment be assessed, if all is well then the consultation visits to be avoided (can use 9 gaze app)
6. For follow-up patients of amblyopia, maintaining similar visual equity the prescribed pattern of patching maybe continued
7. IOP in children: Avoid unless essential. Avoid NCT as causes aerosol generation; consider using rebound tonometer and clean after each use.
8. Avoid checking stereopsis and colour vision as charts cannot be disinfected and have to be handled by the patients.

Section 4

Guidelines for Neuro-ophthalmology cases:

1. Visual acuity may be noted on the chart / app based vision screeners are available
2. Pupil reflex / RAPD assessed using distance direct ophthalmoscopy
3. Fundus photographs, OCT and indirect ophthalmoscope may be utilized to assess pathology rather than direct ophthalmoscope
4. While observing patients with cranial nerve palsies, patient must be taught to keep the head straight and look at a fixed distance so that increasing double vision can be perceived and a neuro imaging can be advised in suitable time
5. Acquired strabismus can be evaluated using clinical photographs taken by the attendant using phone and flash which can be sent electronically.
6. Investigations for systemic disorders (FBS, BP monitoring, Lipid profile) can be advised and evaluated remotely for screening for etiology.
7. Traumatic neuropathy needs IV steroids but first rule out high risk features for COVID19 (physician consult before giving steroids)
8. Visual fields: Fields do only if essential; Most cases can be evaluated by confrontation fields. All patients must wear masks during perimetry; clean chin and forehead rest with alcohol swabs; have a gap between patients. Can use light soap water to clean the dome.
9. For tele-consultation, visual fields may be done with the help of certain App's available with help of another attendant at home.

Additional aspects:

1. Ophthalmologists must be cautioned about the report of optic neuritis/ cerebral vasculitis in covid patients.
2. Frequent cross-consults from other departments such as neurology, medicine and neurosurgery are received by neuro-ophthalmologists and there is a need to take adequate protection when visiting or examining these patients as they may be carriers of Novel SARS-COV2 or have manifestations secondary to infection.

Section 5

Telemedicine

Advice on telemedicine / phone should be considered for following conditions:

1. Refraction / Amblyopia follow up
2. Conjunctivitis management
3. Post op squint
4. Paediatric oculoplastic/adnexal cases
5. Non-specific headache, mild to moderate
6. Orbicularis myokymia
7. Asthenopia
8. Vernal keratoconjunctivitis
9. Post op cataract in older children
10. Resolving cranial nerve palsies
11. Review of all the reports
12. Follow up of old optic neuritis or optic atrophy cases
13. Follow up cases of pituitary adenoma with no new complaints

Any other cases which the ophthalmologist deems appropriate for tele-consultation may be added to this list on a case to case basis.

Section 6

OT issues:

- a. Follow guidelines formulated by the OT guidelines committee
- b. PPE essential for GA (anaesthetist / surgeon)
- c. For GA cases lasting more than 30 minutes, it is advisable to have a pretesting for COVID-19.
- d. Sterilise the circuits used in the GA machine
- e. Do not use spontaneous ventilation and preferably use closed circuits
- f. Can use LMA or ET tube
- g. Presurgery: CxR and Covid are not mandatory investigations as of today
- h. Have a dedicated Doffing and Donning area, if possible
- i. During intubation only anesthetists and technician and patient should be inside the OR, after intubation Scrub nurse can go in and drape and prepare, finally followed by the surgeon. Any trainees should watch from outside or viewing box
- j. Avoid cautery (risk of aerosol) and separate cassette to be used for all cases

Guidelines for the management of Ocular Trauma during the COVID-19 Pandemic
Version 1.0
w.e.f May 11th, 2020

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Coronavirus 2019 disease (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The guidelines presented in this document focus only on surgical procedures and subsequent follow-up visits and are based on the available literature on COVID-19, guidelines issued by other societies and other branches of medicine. The necessary precautions to be followed as a routine in the outpatient department as per AIOS guidelines released along with.

1. Preoperative assessment:

A. History:

When evaluating a case of ocular trauma, all precautions must be taken, assuming that the patient is a case of COVID-19. This would involve having basic protective gear including but not limited to the facemask, face shield and gloves. In addition to ophthalmic history and assessment, a general medical history would also have to be elicited using the COVID-19 questionnaire (see below). If the patient has symptoms suggestive of COVID-19, the ophthalmologist may request for pre-operative COVID-19 testing, keeping in mind local municipal and state guidelines for testing; or carry out any further treatment at a higher centre that is equipped to handle cases of COVID-19.

It is also recommended that any surgical procedure on a previously diagnosed case of COVID-19 be done in a hospital that has dedicated COVID-19 care facilities including inpatient care, operating room and intensive care facilities for COVID-19 patients.

COVID-19 QUESTIONNAIRE			
HISTORY	QUESTION	YES	NO
Occupation	Was the patient working at a grocery shop/ bank/ hospital/ etc. which potentially involves exposure to a large group of people in the last 28 days		
Travel	National travel (Inter-district or Inter-state) particularly to hotspot areas or international travel in the past 28 days		
Family	Any travel by family members to hotspots (Inter-district or Inter-state) or international travel in the past 28 days		
	Any history of symptoms (URI/LRI/FEVER/DIARRHOEA) in the past 28 days		
	Any family member on COVID Duty (Police/Army/Doctor/Drivers etc.) living in the same house		
Contact	Any contact with suspected or diagnosed COVID Case in the past 28 days		
Symptoms (Current or in last 28 days)	Fever		
	LRTI symptoms - Cough/ Expectoration/ Breathlessness		
	URTI symptoms - Sore throat/Nasal block/Rhinorrhoea/Cough		
	GI Symptoms - Diarrhoea		

B. Testing for COVID-19

It may not be possible to have all patients undergo RT-PCR for COVID-19 pre-operatively. At present, the testing facilities for COVID-19 are not available freely across the country and therefore requests for COVID-19 test may have to be made judiciously. The guidelines for testing for COVID-19 are not uniform across the country and vary as per state and local municipal guidelines. It is advised that testing be performed pre-operatively in cases of ocular trauma, as per the local guidelines.

In a patient suspected to have COVID-19, the surgery can be deferred till the results of COVID-19 tests are obtained, if delaying surgery does not affect the outcome. Or else, in such cases, one may choose to operate with full precautions, assuming the case to be positive for COVID-19.

C. Basic Guidelines for Ocular Trauma Surgery during the COVID-19 pandemic:

- a. Avoid general anaesthesia (intubation, extubation) whenever possible
- b. PPE for all medical and non-medical personnel as per the Government of India guidelines dated 1st May 2020
- c. Only the essential anaesthetic, surgical and allied health staff should be present inside the operating room.
- d. Surgeon and surgical assistants should be outside the operating room during intubation and extubation
- e. Use of aerosol protection devices is advisable during intubation and extubation to limit the spread of aerosols away from the patient.
- f. Avoid monopolar cautery for cutting/coagulation.
- g. Use a cutting blade for skin and mucosal incisions whenever possible.
- h. Use bipolar cautery for haemostasis only in the lowest power setting.
- i. Practise minimal handling of tissues especially mucosal surfaces such as conjunctiva
- j. Avoid repeated irrigation and suctioning of tissues while dealing with orbital trauma
- k. In the case of orbital fractures, avoid/minimize drills, oscillating osteotomes and other powered instruments which are aerosol-generating.
- l. Consider closed reduction if the fracture is stable for zygomatico-maxillary complex (ZMC) fractures. Avoid intra-oral incision, if two-point fixation (rim and ZF) is sufficient for stabilization.
- m. Pole to pole surgeries (multi-speciality surgery) should be done in the same setting – to avoid repeated exposure to anesthesia.
- n. If a planned second surgery is to be done, it should be at least 14 days after the primary procedure and treat the case as a new patient in terms of the pre-operative work up

D. Risk stratification for ocular trauma surgery

This classification offers a rough guide but is not exhaustive and may be modified based on individual/institutional discretion on a case-to-case basis.

Level A – Emergency / Urgency – The need to operate within 4-72 hours.

Level B - May be deferred for up to 4 weeks with or without conservative management.

Level C – May be deferred beyond 6 weeks without adversely affecting the outcomes.

Using this classification, common surgeries that have to be performed for ocular trauma cases have been classified as follows:

Level A	Level B	Level C
Open globe injury (penetrating, perforating and globe ruptures).	Tectonic corneal and scleral grafts	Enucleation / Evisceration for phthisis bulbi
Deeply embedded corneal foreign bodies	Traumatic cataracts in adults without endothelial touch, secondary glaucoma, etc	Aesthetic/functional keratoplasty
Intraocular foreign bodies		
Retinal detachment / tear		
Vitrectomy for trauma-related complications*		
Paracentesis for vision-threatening hyphaema		
Chemical and Electrical Injuries		
Repair of orbital and other facial fractures fracture in presence of oculocardiac reflex.		
Orbital haemorrhage requiring canthotomy /aspiration		
Intravitreal injections for traumatic endophthalmitis		

*Intraocular infection, vitreous hemorrhage, retinal tear, IOFB, misdirected aqueous/ciliary block glaucoma, malignant glaucoma, vitreous prolapse, tube shunt blocking filtration
(Modified from: Hegde R. Sundar G. Guidelines for the Oculoplastic and Ophthalmic Trauma Surgeon during the COVID-19 era – An APOTS & APSOPRS Document)

E. Follow-up:

Routine follow-up on post-operative day 1 can be conducted by the operating surgeon as before. Subsequent follow-ups at day 3 and day 7 post-operatively need to be scheduled at the discretion of the operating surgeon. It is advisable that as few post-op visits as possible, without compromising on the outcome of the treatment. The operating surgeon may

defer/reschedule the post-op follow-up visits taking into consideration the type of surgery, the type of intraocular foreign body (organic vs. inorganic) and the presence of complaints. Tele-consultation and engaging the referring surgeon (if any) for interim visits may be useful in minimising visits to the hospital.

Ocular emergencies cannot be deferred indefinitely and need to be tackled immediately in most cases. These guidelines will serve as a good resource such that ophthalmologists can resume offering healthcare services to patients in need of emergent care without compromising on safety; their own and the patients’.



**Guidelines for Community Eye-Health
And
Vision Center Guidelines during Covid-19 Pandemic in India
Version 1.0
w.e.f. May 11th, 2020**

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Introduction

The COVID-19 pandemic has taken tragic proportions and has disrupted lives globally. In the wake of governmental lockdowns, primary eye care workers need practical and actionable guidelines based on advisories from national health authorities on how to deliver services during nationwide lockdowns and after these are lifted. The GoI has mandated a country-wide total lockdown of all non-essential services from March 25 to May 3, 2020, following which the government has partially relaxed the restrictions to slowly and systematically bring ease in routine life. In this document, All India Ophthalmological Society attempts to develop a guideline for community eye-health programs based on consensus discussion between Vision 2020, NPCB&VI, Community Ophthalmology experts from RPCentre and major NGO representatives.

Zoning of areas during the lockdown

GREEN ZONES:

They can be defined as those districts having zero confirmed cases of coronavirus in the last 21 days.

RED ZONES/Hotspot district:

Districts with several active cases, high doubling rates of confirmed cases will be classified under Red Zones.

ORANGE ZONES:

Those zones which are neither red or green will be called Orange Zones

Containment zones will be demarcated with red zones and orange zones by district administrations by taking into account the factors such as: mapping of cases and contacts, geographical dispersion of cases, and contacts. The boundary of the containment zone could be a residential colony, mohalla, municipal wards, municipal zones, gram panchayat, a cluster of villages, blocks, etc.

According to Home Ministry, GoI guidelines, OPDs, medical clinics shall be permitted to operate in red, orange, and green zones with social distancing norms during the lockdown.

Zone wise recommendation of services/activities

Activities	Green Zone	Orange Zone	Red Zone	Containment Zone
Vision Centres ¹ (Primary Eye Care)	Advisable.	Advisable.	Advisable.	No Vision Centre
Transport facility for camp patients	Advisable.	Not advisable	Not advisable	Not advisable
Mobile Van Clinics ² (Mobile Vision Centres)	Advisable.	Not advisable	Not advisable	Not advisable
Comprehensive Eye Camps	Advisable to postpone for 2 months in all Zones			
Refraction Facilities	Advisable. Optometry and Opticals guidelines to be followed.	Advisable. Optometry and Opticals guidelines to be followed	Advisable. Optometry and Opticals guidelines to be followed	Not advisable
Tele-Ophthalmology	Advisable, as per MoHFW guidelines.	Advisable, as per MoHFW guidelines.	Advisable, as per MoHFW guidelines.	Advisable, as per MoHFW guidelines.

1

Tele-education/ Tele-counselling	Advisable	Advisable	Advisable	Advisable
Reach-in Cataract Surgeries³	As per AIOS guidelines for Cataract Surgery	As per AIOS guidelines	As per AIOS guidelines	Not advisable

²Many hospitals provide mobile eye care services or refraction clinics from secondary level hospitals. These are important for increasing the coverage of primary eye care services including refraction to populations in remote areas and underprivileged communities but these are not vision centers as they are not a permanent static facility existing within the community.

³Cataract Surgery Guidelines

1. Free cataract surgery patients may be admitted from vision centres and also walk-in patients at base hospital as previous NPCB guidelines.
2. Guidelines for social distancing and PPE to be followed
3. Pre-surgery COVID testing at discretion of operating surgeon/hospital policy.No separate guidelines for high volume/cost-effective surgeries, general COVID guidelines to be followed.

Vision Centres

In view of Government directives to reopen non-essential services in a graduated manner, it is deemed appropriate to re-open Vision Centres at this stage in the community. Primary eye-care services are also expected to cater to primary needs of the community, for preventing over-burdening the secondary and tertiary level hospitals that are already reeling under a crunch of human resources and finances, owing to the global pandemic.

Services to be provided by Vision Centres during the Pandemic

Essential	Desirable
Early detection of eye problems	Surveillance and VC based screening
Treatment of common eye problems	Edging and spectacle fitting
First line management and timely referral of eye emergencies	Follow up; Motivation and counseling
Vision testing and refraction	Assist in community based rehabilitation
Dispensing spectacles	Rehabilitation of visually impaired

Refer and triage individuals needing surgery or specialist attention to the higher center in a graded manner	
Post-operative follow up (preferably through Teleconsultation/ASHA)	

Services which should be postponed at Vision Centre owing to the pandemic

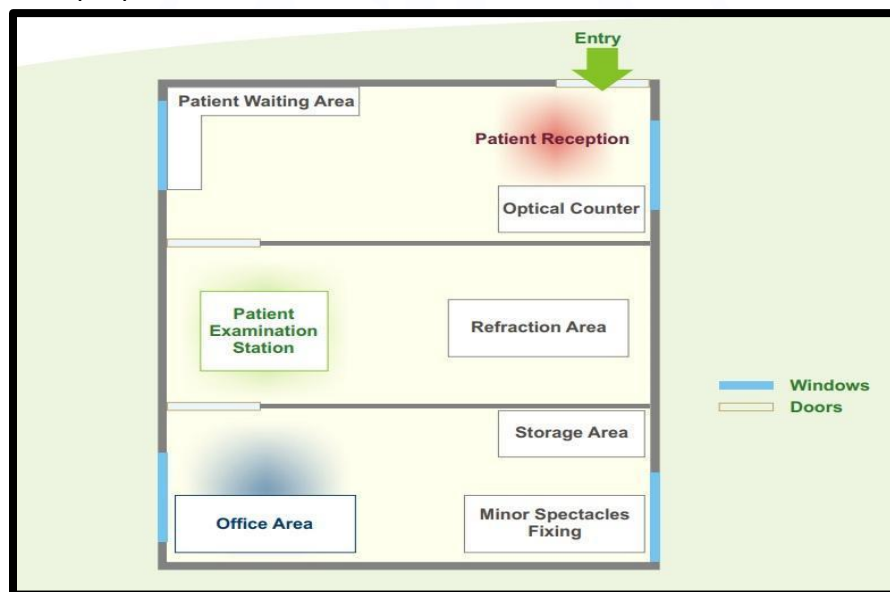
Essential
Training of school teachers and preliminary screening by teachers
School eye screening
Community gathering for IEC activities (Health education)
Screening camps for cataract, Diabetic retinopathy and other ocular morbidities

Social Distancing in Vision Centres

There should be adequate space for patient consultation, refraction, and dispensing spectacles and distance of 1 metre should be ensured at all times. The first room should provide for the patient reception and waiting area and the spectacle dispensing unit (preferably 10' x 8'). A separate area should be available for patient examination and refraction. (preferably 10' x 8'). A private space should be provided for the office and spectacles workshop (preferably 6'x 6').

The vision center should ensure social distancing at each step: patient reception, optical counter, patient waiting area, client examination station etc. Unidirectional flow of patients should be ensured, i.e., entry and exit must be different if there are two doors.

One such lay out is proposed below



Point of entry screening and check-in

- Every vision center to set up an entry control and screening facility at the point of entry.
- PPE in the form of surgical caps, surgical scrub suits, three-ply surgical masks/N95 masks and gloves must be provided to the HCW at the point of entry.
- There should be a security barrier at the entry point so that only the patient and one attendant, if required, can enter the hospital.
- If there are >3 patients at a time, they should be asked to wait in a designated open area.
- At all times, a distance of one meter must be maintained between each patient and between the patient and the VC staff (except for the HCW who performs point of entry screening).
- **Symptom screening:** History of fever, cough, breathlessness, loss of smell or acute conjunctivitis in patients or attendants or family members in the last 2 weeks
- **Fever screening:** Body temperature screening with an infrared non-contact thermometer. Anyone with temperature of 98.6 F (37 C) must be immediately escorted to an isolated waiting area and seen by an optometrist in complete PPE in a pre-designated examination room. In the absence of an ophthalmic emergency, the patient should be referred to a Physician or a COVID-19 Treatment Centre as appropriate.
- Once entry screening is passed, the patients and their attendants should be provided with three-ply surgical masks and hand sanitizers (at least 70% alcohol-based) to disinfect their hands before they enter the waiting room. Surgical masks should be worn by everyone who enters the hospital. There should be mandatory hand sanitization at the point of entry
- **OPD Card Handling**
 1. All OPD cards will have to be with optometrists. It will be handed over after the final prescription, so avoid handing over OPD card to patients in between.
 2. Try to minimize people touch / handle / hold the OPD card, trial frames, lens, etc.
 3. Restrict registration to 50 to 60 most needy patients

- A daily list of all HCW, patients, their attendants and other hospital visitors with their verified mobile number and verified ID proof should be maintained (for contact tracing if necessary, in the future).
- The patient and the attendant are mandated to download the Aarogya Setu COVID-19 tracking App by the Government of India and register with their mobile number for possible future digital tracking of warranted.

Waiting hall guidelines

- Maintain a one meter distance at points where a queue is likely to form.
- Seating to be arranged in a manner that patients should remain at least 1m from each other.
- All optometrists and FAs/MSWs/HCWs must be instructed to clean and disinfect (using the standard procedure as recommended by the manufacturer) their equipment such as lenses, indirect and direct ophthalmoscopes, pen, and torches, and other such items.

Precautions during performing refractions

- Protections for head, mouth, nose, and eye (with a surgical cap, three-ply surgical mask, goggles/face shield) for the examiner and a three-ply surgical mask for the patient.
- Masks should be changed every 6 hours or immediately when contaminated/wet.
- Speak as little as possible. The patient should also be informed not to speak during the examination. Refraction can be performed using autorefractor or a streak retinoscope where mandated.
- Trial frame and the metal rim of the lenses used should be cleaned with alcohol-based sanitizer after examining each patient. Isopropyl 70% or ethyl alcohol 70% can be used to wipe down metallic surfaces.
- Avoid contact lens trial unless therapeutic-NOT TO BE DONE IN VC.
- Optical dispensing and Pharmacy services should be available, but with 1-meter distancing protocol using distance separators and PPE for the staff (hand sanitizers, three-layer surgical masks and gloves).
- Avoid retinal examination, e.g. using fundus photography.
- In case of urgent ophthalmic problems in a patient who is at high risk for COVID-19, eye care is best provided in the multispecialty hospital setting.
- In case of urgent ophthalmic problem in a patient with documented COVID-19 or a person under investigation, the patient should remain in the multispecialty hospital setting, ICMR-Gol guidelines should be followed, along with transmission precautions for treating optometrists, including full-body protection (PPE or an HIV kit).

- Patients with conjunctivitis should be seen in a designated OPD room with an isolated waiting room. Since conjunctivitis is reported as part of the disease spectrum of COVID-19, all patients with conjunctivitis should be COVID-19 suspects and should be examined in isolation, using N95 mask and disposable gloves, face shield & gown.
- All HCWs should be encouraged to take a soap bath at once they reach home. They should be encouraged to bring minimum possible personal items to the VC to minimize seeding at home and vice versa. If needed, items such as food carriers can be carried in a larger outer case that can be easily disinfected. Minimum number of HCWs shall be posted in VC
- **Prophylaxis:** ICMR has advised oral Hydroxychloroquine (HCQ) 400 mg BD on day 1, followed by 400 mg OD weekly for 7 weeks. This must be taken only after direct consultation with an internal medicine expert.
- Digital prescriptions for glasses and medicines, digital medical report and electronic medical records if feasible.
- **Hand hygiene:** Optometrists should perform hand hygiene using alcohol-based hand rub (minimum 20 seconds) or by washing with soap and water (minimum 20 seconds).
- **Mask and PPE etiquette**
 - i. Place the mask carefully to cover mouth and nose and tie securely to minimize any gaps between the face and the mask.
 - ii. While in use, avoid touching the mask
 - iii. Remove the mask by using the appropriate technique (i.e., do not touch the front but remove the lace from behind)
 - iv. Remove PPE in the reverse order that it was worn and discard the material in appropriately colored disposal bags for infective plastic items (red)
 - v. Do not reuse or use three-ply surgical mask for more than 8 hours. If using the same mask while examining multiple patients, transmission to the patient must be avoided by not touching the front of the mask. Additionally, do not allow the mask to hang down on shirt/clothing when not examining patients.
- **Environmental hygiene:** Environmental cleaning is part of standard precautions, which should be applied to all patients in all healthcare facilities. Ensure that cleaning and disinfection procedures are followed consistently and correctly.

Table 3: Recommendations for use of PPE for hospital staff**				
Setting	Activity	Risk	Recommended PPE	Comments
Entry Screening	Screening patients and attendants with non - contact thermometers	Moderate Risk	Surgical cap, Surgical scrub suits, Three-ply surgical face mask, Disposable gloves	A minimum distance of one meter needs to be maintained between patients.
Waiting area staff such as triaging ophthalmologist, receptionist, optometrist, nurse	Interviewing patients, refraction, dilatation, scanning, etc.	Low risk	Three-ply surgical face mask, Disposable gloves	A minimum distance of one meter needs to be maintained between patients.
Sanitary staff	Cleaning frequently touched surfaces/Floor/cleaning linen	Moderate risk	Surgical cap, Surgical scrub suits, Three-ply surgical face mask, Disposable gloves	
Administrative staff not exposed to patients	Providing administrative support	No Risk	Three-ply surgical face mask	No contact with patients of COVID-19. They should not venture into areas where a suspect COVID-19 cases are being managed
Staff attending to all patients alongside ophthalmologists	Same PPE recommendations as shown in table 2			
**Developed as per recommendations of the Ministry of health and family welfare, the government of India				

Role of Tele-Ophthalmology during Covid-19

Tele-Health is defined as health care delivery over distance or time using electronic communication technology. It serves to enhance health-care access, quality and patient satisfaction. Telemedicine is provision of traditional clinical service using electronic communication technology, often in live format. Tele-ophthalmology which till now was confined to ROP and DR have now the application in community ophthalmology practice as well owing to the global pandemic situation.

An ophthalmologist from the secondary level should hold tele-ophthalmology services to the vision centre once every week. The 'tele-consultation' should be organized at the same time and same day of the week every time and should adhere to the tele-medicine guidelines issued by the Government from time to time.(2,3) The tele-consultation should target problem cases, postoperative cases and complicated refractions. A vision center coordinator should be located at the service center and should supervise each vision center every fortnight (preferably every week) over telephone. The coordinator should help in augmenting managerial and clinical skills of vision center staff and in training other categories of health personnel.

The ophthalmologists should follow the MOH&FW telemedicine guidelines and make sure they are aware of all the procedures to be followed when dealing with patients using telemedicine such as informed consent, prescription, sharing of photographs, and other aspects. The

doctors can make sure of facilities such as videoconferencing with other referring doctors and general practitioners. Telemedicine practice should be widely advertised on social media and other platforms so that it reaches to peers and patients.

Health Talks at Vision Centres

It is mandatory that all VCs discourage and stop health talks as it may lead to crowding and social gathering. Any health talk, if needed can be performed using online portals such as web meetings, Skype, Zoom, and other mobile apps. Health talks and health material may be run/displayed on TV monitors at VC.

Cost-effectiveness of PEC activities

In wake of the requirement for expensive PPE equipment, cost-effectiveness should be ensured by exploring new revenue options and avoiding redundant costs as much as possible.

Some Do's and Don'ts for Vision Centre Staff and Patients

Dos	DON'Ts
Only one attendant allowed for patients: 1. age > 60 years, 2. blind / disabled patients 3. children less than 16 years	Don't overcrowd the room.
Wear mask.	Cough or Sneeze with open face. Cover face with elbow.
Sanitise/Wash hands at entrance.	Avoid touching tabletops, door handles, lift buttons etc.
Maintain social distancing. Stand and Sit only in designated areas.	Don't visit the centre if you are suffering from cold, cough, fever or feeling unwell.
Maintain fresh air circulation by keeping doors and windows open.	Don't touch your eyes, nose and mouth.
Keep open as many doors as possible to avoid touching of doorknobs.	Do not spit in public.
Try to follow an open-door and no-AC policy if possible	

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