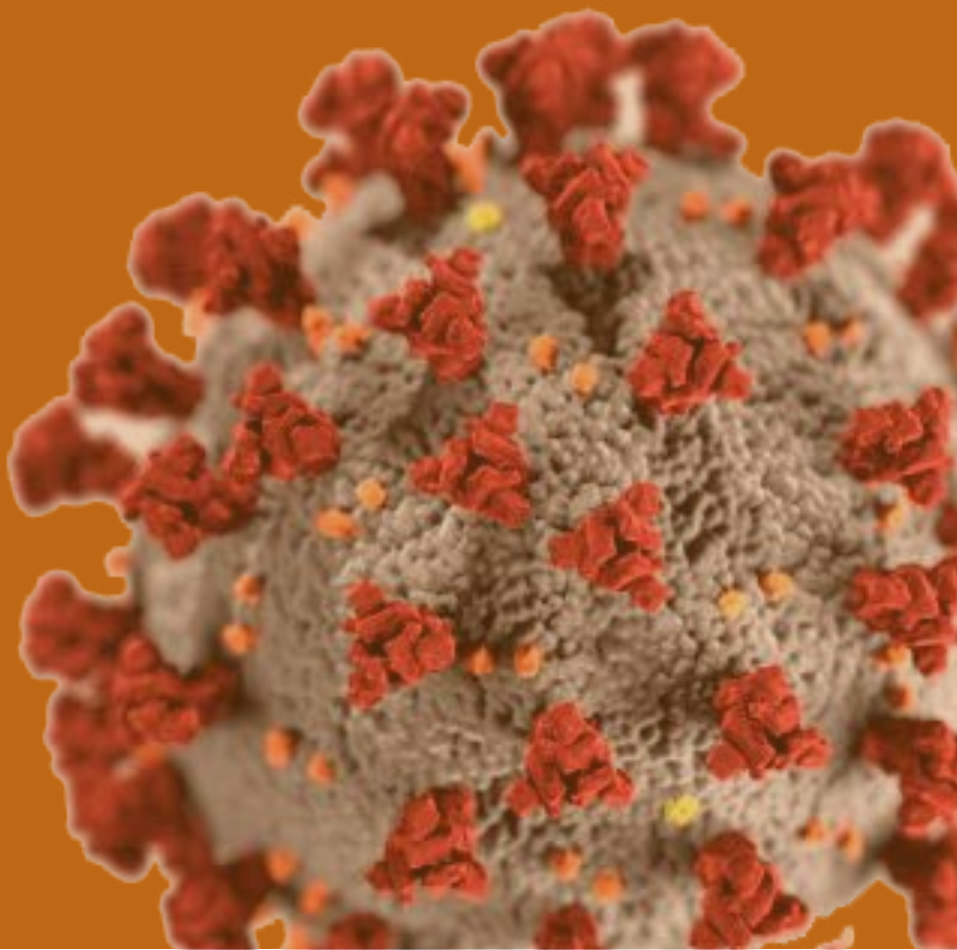
Nepal Ophthalmic Society

COVID 19

Ophthalmology Practice Guidelines



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Preface

29th April 2020

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To date, 54 cases of COVID – 19 have been confirmed in Nepal and the Government of Nepal has again very rightly extended the duration of lockdown for another seven days. It is not easy to predict when the lockdown will be lifted particularly because the new cases have been identified almost daily in Nepal and in India, with which we share common borders. Eye health care is limited to emergency services only in the country.

Our attention has been drawn to the safety of eye health professionals and the measures that are important to follow so that the spread of the disease would be halted. How to initiate regular services, after the lockdown is over, is another side of the issue.

In this context, we thought it would be helpful to have a standard protocol suitable to our settings and pattern of practice. I am very much delighted that Dr Ben Limbu took an initiative and successfully coordinated a series of online meetings to discuss several issues of the guidelines.

I wish to express special thanks and acknowledgement to everybody who contributed to developing these guidelines that are relevant to eye care services in Nepal during these difficult times of COVID-19 pandemic.

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NOS COVID 19 Ophthalmology Practice Guidelines

BACKGROUND

World is threatened by hit of novel Corona Virus (SARS-Cov2) to an extent that majority of routine life have been jeopardized in all services including eye care facility. Nepal recorded first case of COVID 19 patient on 5 January 2020, and on escalating number of COVID 19 patient globally with WHO declaring it as Pandemic, Nepal Government declared nationwide lockdown with permit to open essential services effective from 24 March 2020 and extended till 7 May 2020.

Confirmed COVID-19 cases in Nepal by district till date 29 April 2020

District	Cases	Recovered	Death
Baglung	2	2	0
Bhojpur	1	0	
Chitwan	2	1	0
Kailali	4	3	0
Dhanusa	1	0	0
Jhapa	2	0	
Kathmandu	5	5	0
Kanchanpur	1	1	0
Parsa	5	3	0
Rautahat	3	1	0
Udayapur	28	0	0
Total	54	16	0

SARS-CoV-2 is an enveloped, single-stranded RNA virus which is highly transmissible and has a significant fatality rate, especially in the elderly and those with comorbidities such as immune suppression, Hypertension, respiratory disease, cardiopathy and diabetes mellitus. Patients typically present with respiratory illness, including fever, cough and shortness of breath; diarrhea is common early in infection, and conjunctivitis has also been reported. Other less specific symptoms include headache, eye pain and fatigue. Complications in severe cases include pneumonia, renal failure, cardiomyopathy and encephalopathy. A study of these cases found that the median days from first symptom to death were 14(range 6-41) days, and tended to be shorter among people of 70 year old or above (11.5 ; range 6-19 days) than those with ages below 70 year old (20 ; range 10-41 days).

The virus is believed to spread primarily via person-to-person through respiratory droplets produced when an infected person talks, coughs or sneezes. It also could be spread if people touch an object or surface with virus present from an infected person, and then touch their mouth, nose or eyes. Contact time between patient to Health care provider proportionally increase the risk contracting virus. Existing evidence suggests that SARS-CoV-2 is commonly spread by asymptomatic and presymptomatic transmission. The median duration of viral shedding was 20 days; the longest duration observed was 37 days.

Environmental contamination by SARS-CoV-2 is another cause for concern, scientists were able to detect viable SAR-CoV-2 in aerosols up to 3 hours post-aerosolization, although in an experimental setup lacking any ventilation, and not

necessarily reflecting how the virus behaves in real-life conditions. The study also found infectious virus could survive up to 24 hours on cardboard, up to 4 hours on copper, and up to 2 to 3 days on plastic and stainless steel.

In the Era of COVID 19, Ophthalmology hospitals/clinics have been tremendously impacted, with most suspending routine eye care and providing only emergency service or temporarily shut down. And we are uncertain so as to explain the time duration that this situation that may last. Moreover, from the evidence that are available presently, the risk of viral transmission is high among medical personnel involved in examination, procedures and surgeries around head and neck region including Ophthalmology and also Anesthesiology. So, it is important to understand that during such potentially long winding pandemics, we need to achieve professional and ethical balance between becoming hotspots for viral transmission and providing services for ophthalmic emergencies.

The guidelines given by national and international bodies may not be directly applicable to every country so as to Nepal and to Ophthalmology practice in Nepal. Moreover, knowledge on COVID 19 etiology, presentation and outcome is evolving. Therefore, this article aims to discuss basic, evidenced based and practical guidelines for Ophthalmologists & Eye Health Workers throughout Nepal in order to reduce viral transmission through eye hospitals or centers during COVID 19 pandemics.

1. LIST OF EMERGENCY SYMPTOMS

It is determined by the ophthalmologist's judgment of the potential risk to vision, eye and life and impact on the quality of life if untreated. Age of the patient and laterality must be kept in mind. One eyed patient should be kept in priority. We have defined ELECTIVE as: Cases that can be postponed for more than 4 weeks without considerable risk of loss of vision and general health.

List of urgent and Emergent Conditions

1. Sudden onset red eye
2. Any form of ocular injury (Physical, chemical, thermal)
3. Sudden decreased distant vision (< 2weeks)
4. Flashes and Floaters
5. Severe Ocular Pain
6. Painful Swelling of eye lid
7. Excessive discharge from eye
8. Foreign Body sensation
9. Double vision
10. New Onset difficult to see at light
11. Colour halos around light
12. Sudden dropping of eyelid
13. Whitish reflex in centre of black part of eye
14. Pain and foreign body sensation in contact lens user

2. GENERAL GUIDELINES

I. All the regular patient eye checkups and elective surgeries to be postponed until 4 weeks after lifting of COVID 19 nationwide lockdown is announced by Government of Nepal.

II. Place information regarding COVID 19 Pandemic to educate patients and Visitors attending hospital.

http://www.nos.com.np/covid-19/reduce-your-risk-of-coronavirus-infection.pdf

http://www.nos.com.np/covid-19/covid-19-symptoms-prevention.pdf

http://www.nos.com.np/covid-19/ncov-action-to-do-asymptomatic-travelers.pdf

III. One patient - one visitor policy should be adopted inside hospital/center as far as possible.

IV. Telephonic triaging to be done where possible with respect to emergency/ non-emergency nature of visit as well as with respect to possible COVID-19 symptoms. If the condition is deemed an emergency, the patient should be given a specific time to report to the clinic/hospital to avoid crowding. Whenever possible limit the entry of children (particularly infants) and the elderly (>65 years) as a visitor inside hospital.

V. Social distancing of 2 meter and use of mask should be practice all the time inside hospital premises and outside hospital while staying on a screening queue.

VI. All ophthalmic procedures or surgeries should be directed as day care service whenever possible. And all ophthalmic procedures or surgeries should be attempted under local anesthesia. If General anesthesia is mandatory, then full PPE (Personnel Protective equipment) to be worn by anesthesia team with other members of surgery remaining outside OT during intubating and extubating of patient.

VII. Every hospital/clinic to set up an entry control and screening facility at the point of entry. One Door/gate entry to the hospital/Center with screening for COVID 19 suspect by measuring temperature and history suggestive of COVID 19 should be practice, if there are two separate building with two separate gates then each gate needs to have separate screening facility. We Recommend a consent for COVID 19 declaration form to be signed by patient visitor at screening area.

VIII. Once entry screening is passed, the patients and their attendants should wear fresh masks and use hand sanitizers (at least 70% alcohol-based) or soap water to disinfect their hands before they enter the waiting room. Masks should be worn by everyone who enters the hospital. There should be mandatory hand sanitization at the point of entry.

IX. Registration and medicine dispensing area should be attended by visitor only while patient is waiting at waiting hall whenever possible.

X. All personnel involved in direct and indirect patient eye care should wear PPE as per the guideline's recommendation

XI. Only a patient enters examination room whereas visitor remain in the maintaining social distance at waiting area, whenever possible.

XII. Health care workers including doctor should spend as minimal time as possible in history taking and examination or time needed to perform procedures or any other eye investigations. Patient doctor conversation are not to be allowed during slit lamp examination. Practice strict hand hygiene before and after every patient examination or any procedures.

For details https://www.who.int/gpsc/5may/How_To_HandRub_Poster.pdf?ua=1

XIII. Stop performing aerosol generating procedures.

XIV. Cleaning of floor, instruments, waiting area should be done as per the guidelines in regular time interval.

XV. A daily list of all HCW, patients, their attendants and other hospital visitors with their verified mobile number and contact address should be maintained (for contact tracing if necessary, in the future).

3. SUBSPECIALTY WISE STRATIFICATION

Specialty	Emergency-see immediately	Urgent- see as soon as possible	Routine - Reschedule > 3 months or Teleophthalmology
Comprehensive Ophthalmology			
New/Follow-up	1. Any acute/severe vision loss		• Blepharitis • Mild/moderate dry eye • Watery eye • Most conjunctivitis (triage via teleophthalmology)
Cataract			
New/Follow-up	1. Post-Operative Acute or Chronic endophthalmitis 2. Phacomorphic glaucoma, phacolytic glaucoma, angle-closure glaucoma	1. Traumatic cataract with the ruptured anterior lens capsule	• Cataract/Posterior capsule opacification • Regular check up
Cornea/Refractive surgery			
New/Follow-up	1. Microbial keratitis/ Epithelial viral keratitis 2. Corneal trauma 3. Acute peripheral ulcerative keratitis 4. A neurotrophic cornea with ulceration 5. Therapeutic (bandage) contact lens patients 6. Corneal graft rejection 7. Ocular surface squamous neoplasia 8. Stevens Johnson syndrome (new case only)	1. Minor trauma (e.g., abrasions, foreign bodies, recurrent corneal erosions) 2. Corneal ectasia with a moderate risk of progression (age <21 or documented progression>1D in 6 months) 3. Marginal keratitis/viral stromal keratitis (follow-up with teleophthalmology if appropriate) 4. Severe sight-threatening ocular surface disease 5. Immediate post-operative patients requiring frequent follow up	• Blepharitis • Mild/moderate dry eye, any other ocular surface condition • Corneal ectasia with low risk of progression • Drug-induced keratopathies • Metabolic keratopathies • Corneal degenerations • Corneal dystrophies without ocular complications • Routine post-operative patients
Glaucoma			
New/Follow-up	1. IOP >40 mm Hg 2. Congenital and developmental glaucoma 3. Acute angle-closure 4. Acute neovascular glaucoma	1. After a change of glaucoma therapy where IOP is anticipated to change 2. Routine post-operative care for glaucoma filtration surgery/tubes 3. Anyone with IOP >30 mm Hg and glaucomatous visual field defect 4. Uncontrolled glaucoma	• Stable glaucoma monitoring with no documented progression for 2 years • Ocular hypertension with no evidence of glaucoma and at low risk of developing glaucoma in the next 6 months
Medical retina			
New/Follow-up	1. Suspected or confirmed active CNV needing treatment 2. Intravitreal injections for Neovascular AMD, Diabetic macular edema, retinal vein occlusion, other CNV, macular edema. Treat and extend to maximum interval possible. 3. Active proliferative diabetic retinopathy requiring treatment (PRP laser or intravitreal-anti VEGF) Malignant hypertensive retinopathy 4. ROP screening and laser and anti-VEGF treatment		• Non-neovascular (dry) AMD • Low-risk diabetic retinopathy screening • Non-proliferative diabetic retinopathy without macular edema • Stable treated proliferative diabetic retinopathy • Central serous chorioretinopathy • Macular telangiectasia without CNV • Retinal dystrophies • Screening for macular drug toxicity • Angioid streaks • Hypertensive retinopathy (nonmalignant) • Choroidal folds
Neuro-ophthalmology			
New/Follow-up	1. Sight or potential life-threatening conditions like 2. Sudden loss of vision with disc edema (optic neuritis, AION, post-traumatic optic neuropathy etc) 3. Papilledema 4. Acute onset of Binocular diplopia/ cranial nerve palsies (3,4 and 6th) 5. Acute pupillary signs	1. Neuromuscular disorders 2. Gradual progressive profound loss of vision 3. Where possible, use teleophthalmology	• Stable patients or patients where management will not change outcomes
Ocular Oncology			
New/Follow-up	1. Suspected malignant ocular tumors (e.g., retinoblastoma, uveal melanoma, metastases, intraocular lymphoma, etc.) 2. Confirmed malignant ocular tumors requiring acute treatment 3. Tumors previously booked for 3 months planned follow-up interval	1. Fundus tumors/lesions causing macular exudation (choroidal haemangioma, Coats, retinal capillary haemangioblastoma) 2. Tumors previously booked for up to 6 months planned follow-up interval	• Stable choroidal naevi, CHRPE, iris cysts • Stable treated tumors • Tumors previously booked for over 6 months planned follow-up interval

Specialty	Emergency-see immediately	Urgent- see as soon as possible	Routine - Reschedule > 3 months or Teleophthalmology
Oculoplasty			
Alert: Due to the high risk of COVID 19 infection from the nasopharynx, avoid all nasal syringing, lacrimal surgery and nasal endoscopy. Treat thyroid eye disease medically first. If orbital decompression is still required, avoid medial wall/floor decompression which creates an entry into the paranasal sinuses.			
New/Follow up	1. Severe thyroid eye disease Orbital tumors (sight threatening or malignant-suspected/known) 2. Orbital vascular lesions (carotid-cavernous fistula, progressive/sight-threatening vascular anomalies- e.g., extensive haemangioma, progressive vascular malformation e.g., acute bleed) 3. Orbital inflammatory disease (orbital/ periorbital cellulitis, orbital abscess; sight-threatening orbital inflammation of any cause; acute dacryocystitis/lacrimal abscess, panophthalmitis) 4. Periocular malignancy (biopsy-proven or suspected) including melanoma (invasive and in situ), sebaceous carcinoma, squamous cell carcinoma, other high-grade malignancy (Merkel cell, adnexal carcinoma, etc.), high-risk basal cell carcinoma (medical or lateral canthal, recurrent, high-risk subtype, locally advanced i.e., orbital invasion) 5. Severe unilateral ptosis in an infant 6. Orbital fractures and suspected orbital foreign body 7. Dacryocystocele (pediatric CNLDO with nasal involvement not resolving/acutely infected). Treat medically first, if requires surgery prefer percutaneous drainage, avoid DCR due to COVID-19 risk	1. Progressive benign orbital tumors 2. Moderately severe thyroid eye disease 3. Entropion (triage with teleophthalmology if appropriate) 4. Basal cell carcinoma (triage with teleophthalmology if appropriate) 5. Lacrimal: Recurrent/low-grade dacryocystitis, canaliculitis. Treat medically first, if requires surgery prefer percutaneous drainage, avoid DCR due to COVID-19 risk 6. Post-operative simple surgery 7. Pediatric ptosis with known/ high risk of amblyopia (visual deprivation, failed amblyopia therapy) 8. Recent trauma including eyelid and canalicular lacerations,	Orbit: all other, including TED (stable mild-moderate) Other eyelid malpositions: ptosis, brow ptosis, dermatochalasis, ectropion • Some low-risk BCC that has previously been examined (triage with telehealth if appropriate) • Benign periocular tumors (e.g.,chalazion/papilloma) • Lacrimal: All other • Cases with anophthalmic sockets waiting for prosthesis
Pediatric Ophthalmology			
New/Follow-up	1. Sight or potential life (systemic) threatening conditions like orbital cellulitis. 2. Acute lens complications, (Trauma, decentered lens)	1. Visually significant Pediatric cataracts in the amblyopic period. 2. Severe anisometropia of fellow eye status post recent lens extraction in first eye 3. Patients having amblyopia treatment. Where possible, use teleophthalmology 4. Pediatric oculoplastic/adnexal cases 5. Reduced vision in one eye over age 7 years. Where possible, use teleophthalmology video/photos to triage 6. Examination under anesthesia where management is time sensitive 7. Post-operative within last 2 months 8. Reduced vision in both eyes 9. Reduced vision in one eye under age 7 years 10. ROP screening 11. Children on medication (drops or systemic) for glaucoma, uveitis, corneal disease 12. Leukocoria	• Case by case triage • Case of refractive error with amblyopia scheduled for 6 monthly f/u
Strabismus			
New/Follow-up		1. Triage of referrals on a case by case basis (except suspected neurological strabismus) 2. Triage of referrals on a case by case basis (except strabismus where amblyopia management is also required). Where possible, use teleophthalmology	• Most other non-acute strabismus cases

Specialty	Emergency-see immediately	Urgent- see as soon as possible	Routine - Reschedule > 3 months or Teleophthalmology
Uveitis/Scleritis			
New/Follow-up	1. Acute anterior uveitis- new onset 2. Acute endophthalmitis which includes seasonal endphthalmitis/ SHAPU (Seasonal endogenous endophthamitis) 3. Acute Posterior uveitis (including retinal vasculitis)-new onset or recurrence 4. Acute Panuveitis –new onset or recurrence 5. Patients with unstable uveitis of any form affecting an only eye (VA in fellow eye <6/60) 6. New onset of Scleritis, 7. Scleral abscess	1. Intermediate uveitis with vision-threatening complications 2. Recurrence of Acute anterior uveitis in patients with history of complications like Cystoid macular edema (CME), ocular hypertension (OHT)–could be considered for tele/ virtual consultation at the onset 3. Pediatric cases with poor control of inflammation 4. Chronic/persistent uveitis or scleritis of any kind with/without complications like OHT, glaucoma or CME with poor control of inflammation with medication 5. Patients who receive posterior subtenon/ intravitreal depot steroid injection for uveitis should have at least 1 clinic review/in-person for IOP check 3-6 weeks post-injection	• Patients with an established history of recurrent, self-limiting episodes of acute anterior uveitis /scleritis without CME, OHT could be considered for tele/ virtual consultation at the onset of a recurrence and for follow-up at 6-8 weeks, with clinical review if indicated • Chronic/persistent uveitis or scleritis of any kind with/without history of complications like OHT, glaucoma or CME, stable under medication# © • Uveitis/ scleritis cases under remission (quiescence without any treatment) • Patients on immunosuppressives should be managed by tele/virtual consultation with blood tests done in local laboratory. If the WBC or Platelets drops below lower limit of normal range or if LFT deranges, then reduction of dose of IMT should be considered. New IMT should not be planned within next 3 to 4 month. • Patients on oral steroid should also be managed by tele/virtual consultation with blood pressure and blood sugar checked at home or in a local laboratory once a month. The dose of oral prednisolone should be kept at 5 mg daily dose in general, or at slightly higher dose for some particular patients to keep inflammation under control for the next 3 or 4 months.
Vitreoretinal surgery/Trauma			
New/Follow-up	1. Acute retinal detachment 2. Suspected retinal tears 3. Open globe injuries: Including IOFB 4. Acute endophthalmitis 5. Vitreous hemorrhage (dense, requiring vitrectomy) in one eyed 6. Submacular hemorrhage requiring vitrectomy in one eyed 7. Aqueous misdirection requiring vitrectomy 8. Diagnostic vitrectomy for infectious or oncological causes	1. Acute full-thickness macular holes 2. Severe vitreomacular traction syndrome 3. Myopic tractional maculopathy with foveal detachment 4. Heavy liquid removal 5. Exposed scleral buckles at risk of infection 6. Dropped nucleus requiring vitrectomy/ lensectomy	• Epiretinal membranes • Silicone oil removal (unless developing complications such as emulsification) • Intraocular lens procedures • Symptomatic vitreous opacities • Post RD surgery cases with no complications

Urgent and emergent surgical procedures

Surgical Procedure	Indications
Biopsy of orbit	Suspected malignancy or immediate sight-threatening condition
Biopsy of temporal artery	Suspected giant cell arteritis
Cantholysis	Sight-threatening conditions
Canthotomy	Sight-threatening conditions
Cataract surgery	Congenital cataract in the amblyopic period, monocular patients with documented vision loss precluding driving, reading or self-care, lens-induced glaucoma, angle-closure glaucoma, acute lens complications, or severe anisometropia of fellow eye post recent lens extraction in first eye
Closure of cyclodialysis cleft	Sight-threatening hypotony due to trauma
Corneal transplantation	Pediatric patients with corneal blindness in both eyes in their amblyopic period
Decompression of dacryocele	Neonate with obstructive respiratory compromise
Decompression of orbit	Orbital tumor with impending vision loss
Drainage of abscess	Orbital cellulitis
Drainage of choroidals	Appositional choroidal effusion, suprachoroidal hemorrhage, or flat anterior chamber
Enucleation	Ocular trauma, infection, intractable glaucoma, globe perforation, intractable pain, or intraocular malignancy
Evisceration	Sight-threatening infection, or intractable pain
Examination under anesthesia	Pediatric patients with retinoblastoma, endophthalmitis,Coats Disease, uveitis, glaucoma, ocular trauma, retinal detachment, or presumed intraocular foreign body
Excision of tumors	Malignancy or sight-threatening tumor
Exenteration	Life-threatening infection
Exploration of orbit	Life-threatening or sight-threatening conditions
Fenestration of optic nerve sheath	Progressive vision loss
Filtration surgery (XEN45 gel stent)	Uncontrolled intraocular pressure that is sight-threatening who are poor candidates for trabeculectomy or aqueous tube shunts
Frontalis sling	Sight-threatening congenital ptosis
Goniotomy ab externo or ab interno	Uncontrolled intraocular pressure that is sight-threatening
Insertion of drainage implant with or without graft	Catastrophic or rapidly progressive glaucoma
Laser indirect retinopexy – complex	Retinal detachment, retinal tear, or ocular trauma
Laser photocoagulation	Pediatric patients with retinopathy of prematurity (if this can't be in NICU)
Pars plana lensectomy	Acute lens complications
Peeling of membrane/internal limiting membrane	PDR, PVR, complex preretinal membrane,complex macular pathology, or macular hole
Pneumatic retinopexy	Retinal detachment
Probing of nasolacrimal duct	Dacryocystocele
Reconstruction of ocular surface or other tectonic procedures	Acute chemical injury, or acute Stevens Johnson Syndrome
Removal of aqueous drainage implant	Endophthalmitis, corneal touch, corneal decompensation, or exposed plate
Removal of IOFB	Presumed intraocular foreign body
Repair of anterior segment or cornea	Lacerations, blunt rupture, or deeply embedded corneal foreign body
Repair of canalicular laceration	Injury or trauma to their canaliculus
Repair of dehiscence of corneal graft or other anterior segment wound	Wound dehiscence or other wounds, including dislocated LASIK flaps
Repair of extrusion or complication of keratoprosthesis	Complications with implanted devices in their cornea or anterior segment
Repair of eyelid/face	Lacerations of eyelid or face
Repair of facial fractures	Displaced facial bone fractures
Repair of open globe	Ocular trauma
Repair of operative wound(s)	Bleb leaks, wound leaks, overfiltration, underfiltration, bleb scarring, sight-threatening hypotony, or shallow anterior chamber
Repair of orbital fracture	Hemodynamic instability or oculocardiac reflex

Surgical Procedure	Indications
Repair of perforation or impending perforation of cornea or sclera	Corneal and scleral injury or trauma
Retrobulbar injection	Pain due to ocular diseases causing significant compromise of quality of life
Revision of drainage implant with or without graft	Implant/tube exposure that might be sight threatening, endophthalmitis, malpositioned tube endangering eye or excessive inflammation, a tube that might worsen vision due to corneal edema or iritis or CME, or with a severe tube malposition causing rapid visual loss
Scleral buckle	RD, ocular trauma, intraocular infection, vitreous hemorrhage, retinal tear, or IOFB
Strabismus surgery	Torn or lost extraocular muscle
Synechiolysis	Lens-induced glaucoma or angle-closure glaucoma
Tarsorrhaphy	Impending corneal compromise
Trabeculectomy with or without scarring	Catastrophic or rapidly progressive glaucoma and markedly elevated IOP, or uncontrolled secondary or primary glaucoma
Trabeculotomy	Uncontrolled intraocular pressure that is sight-threatening
Transscleral cyclophotocoagulation	Uncontrolled glaucoma or absolute glaucoma with a blind and painful eye
Vitrectomy	RD, ocular trauma, intraocular infection, vitreous hemorrhage, retinal tear, IOFB, misdirected aqueous, ciliary block glaucoma,malignant glaucoma, a vitreous prolapse, or a tube shunt that blocks filtration
Washout of the anterior chamber	Hyphema that is sight-threatening

4. SCHEDULING APPOINTMENTS

I. The number of medical team and space availability in the clinic/hospital should guide the number of appointments in the clinics.

II. Telephone or online appointment-based eye examination should be encouraged by all eye hospitals and clinics as far as possible

III. While providing appointment care should be taken so that one-time crowd in the hospital is minimized.

IV. Appointment should be based on the guidelines provided by NOS Subspecialty wise guidelines.

V. Screening and triage form can be filled at the time of booking appointment, and patient should be informed to bring only one healthy attendant preferably of age < 65 year and no children should be brought in.

VI. Walk in patient shall be screened by triage ophthalmic personnel and can be rescheduled for reappointment after COVID 19 lockdown is lifted.

VII. Any referred patient for special investigations from outside or visitor requiring ophthalmic medicine may not require appointment but has to pass standard screening and triage criteria before entering designated place.

VIII. All patient with normal temperature and no history suggestive of COVID 19 should be directed to regular OPD NOT in EMERGENCY ROOM irrespective of patient presentation.

5. POINT OF ENTRY SCREENING AND TRIAGE

I. A temporary one or two station for screening & triage area should be allocated maintaining social distance during this COVID 19 era at entry point of hospital/center providing urgent eye care service. This will help to separate patient with suspicion of COVID 19.

II. COVID 19 screening and consent form and triage with categorization of patients should be done by an ophthalmologist or a trained ophthalmic technician or an optometrist.

III. All patients with conjunctivitis new or follow up should attend emergency room irrespective of their thermal status or history suggestive of COVID 19.

NOS COVID 19 Ophthalmology Practice Screening form/Consent at the Point of Entry

Tempature		< 37.8 C	> 37.8C
Symptoms screening	Fever	No	Yes
	Cough	No	Yes
	Shortness of Breath	No	Yes
	Sore throat	No	Yes
	New Onset Loss of Smell or taste	No	Yes
	Malaise	No	Yes
Travel Screening	International travel < 2 weeks	No	Yes
	Epidemic area travel < 2 weeks		
Occupation screeening	Unprotected occupational contact with COVID-19 patients and/or their contacts	No	Yes
Cluster screening	Cluster with individuals with international travel < 2 weeks or contacts of a COVID-19 patient or a suspected COVID-19 patient or their contacts	No	Yes
Contact Screening	Contact with a COVID-19 patient or a suspected COVID-19 patient and/or their contacts	No	Yes
Conjunctivities		No	Yes

Patient and Visitor Triage Algorithm at Entry Point in Ophthalmology Practice during COVID 19 NOS Guidelines

A. Thermal Screening

B. History Suggestive of COVID 19

1. Symptoms of COVID 19
   Fever – Cough - Shortness of breath/ difficulty breathing - New loss of taste or smell - Malaise
2. Travel history Direct questioning for international travel or epidemic area domestic travel < 2 weeks
3. Occupation history Unprotected occupational contact with COVID-19 patients and/or their contacts
4. Cluster screening Cluster with individuals with international travel < 2 weeks or contacts of a COVID-19 patient or a suspected COVID-19 patient or their contacts
5. Contact screening Contact with a COVID-19 patient or a suspected COVID-19 patient and/or their contacts

Temp ≥ 37.8C	**Temp ≥ 37.8C**	**Temp <37.8C**	**Temp <37.8C**
No history S/O of COVID 19	History S/O of COVID 19	History S/O of COVID 19	No history S/O of COVID 19
Ocular emergency			
Category A	**Category B**	**Category C**	**Category D**
Registration*	Medical Center or COVID testing Center	Registration	Registration
Emergency Room or Isolated OPD Room	Urgent Referral to Medical Care after initial treatment in Isolated OPD Room	Emergency Room or Isolated OPD Room	Regular OPD
Refer patient to medical care to rule out COVID after appropriate eye treatment	After preliminary eye treatment patient will be referred to COVID 19 center for confirmation and treatment	Refer patient to medical care to rule out COVID af=ter appropriate eye treatment	Follow up to be schedule as per the need

Visitors should attend registration area for all payments while patient waiting at allocated waiting area.* ***Note* *- ALL patients presenting with RED EYE must refer to emergency room or isolated room. Waiting area for emergency and regular clinic patients' needs to be allocated separately*

कोभिड १९ महामारी उपचारमा आउने बिरामी र कुरूवाका लागि मन्जुरी फारम

मरहामी यस कोभिड १९ महामारी र लकडाउन समयमा आँखा अस्पतालद्वारा नियमित आँखा उपचार र शल्यक्रिया बन्द भएेको अवस्थामा आकस्मिक सेवा उपचार लिन यस आँखा अस्पतालरकेन्द्र मा आएेको हो । यस क्रममा, ममा हुन सक्ने लक्षण विहिन कोभिड १९ अरू बिरामी र चिकित्सक र स्वस्थ्यकर्मीहरूमा समेत फैलन सक्ने बिषयमा मरहामी अवगत छौ । यहाँ उपचारमा आउन भएेका अन्य बिरामीहरूबाट मरहामीमा कोभिड १९ सर्न सक्ने बारेमा पूर्ण जानकार छौ र यस्तो परिस्थिति आई परेमा यस्को जिम्मेबारी यस आँखा अस्पतालरकेन्द्रलाई दिने छैनौ । कोभिड १९ महामारीलाई मध्यनजर गरि सोधिएेको प्रश्नको जवाफ सत्यताको साथ दिएेको छुरछौ ।

बिरामी नाम
ठेगना :
मोबाईल नं :
मिति :

बिरामी वा कुरूवा नाम र हस्ताक्षर

6. RED EYE MANAGEMENT & PRACTICE

I. All patients with conjunctivitis new and follow even up to 2 weeks from resolution of disease should be seen in Isolated room or emergency room

II. Special universal precautions are to be consider by health care providers during management of patient with conjunctivitis.

III. Conjunctivitis patients with High body temperature and history suggestive of COVID 19 should not allow to visit registration, medical shop as far possible to prevent possible spread of virus contamination. Importantly, they are also advised to visit nearby medical facility to rule out COVID 19.

IV. Counselling should be done by the attending ophthalmologist/ paramedics and sent off with the medication from the isolated designated area itself. For this pre-packed pouch of topical antibiotic, lubricant and NSAID drops be made available. Oral NSAIDs and topical steroids should be avoided, instead use oral paracetamol instead.

V. All the acute conjunctivitis patients requiring follow up, should do a telephonic consultation on a designated number given by the hospital.

They are to be advised as follows -

- Symptomatically better – Continue the medication for 2 weeks, if complete resolution no follow - up and discontinue the medicines or if eye symptoms worsen then consult on telephone for further treatment or appointment.
- Develops URTI not suggestive of Covid19 – Azithromycin 500mg for 5 days can be added at the discretion of the treating ophthalmologist
- Patient to be educated about the Covid19 symptoms and if s/he develops worsening of symptoms with fever, sore throat and respiratory difficulty – Refer to Covid19 referral hospital

7. WAITING AREA GUIDELINES

I. To Keep the waiting room as empty as possible. Patient waiting area around registration and cash payment should be separately allocated for patient going to attend Isolation Room/Emergency and Regular OPD

II. Areas of possibilities of queue eg. the screening desk, the front office/ registration counter, the billing counter, the pharmacy, etc ,Seating to be arranged in a manner that patients should remain at least 3 - 6 feet from each other.

III. Cross (X) marking with red clour in alternate chair in waiting hall or white circle at 1 – 2 meter distance if waiting hall has bench instead of chair to maintain social distancing.

IV. OPD Supervisors/In charge should ensure to keep the waiting time minimum in the waiting area without creating huge crowd over examination room.

V. Face masks is mandatory for all the patients and their attendant.

VI. Provision of hand sanitizers in the waiting hall

VII. Keep open as many doors as possible to avoid touching of doorknobs .Use of fans and natural ventilation instead of AC.

VIII. Sanitize the waiting hall and most-touched surfaces periodically

8. OPHTHALMIC EVALUATION AND OPD PROCEDURES

I. Only those patients who have passed the TRIAGE /screening shall be permitted in the Examination Room

II. All slit lamps should have a transparent breath shield (acrylic/ plastic sheets) of adequate size attached so that the direct contact with the patients is avoided. The breath shield should be cleaned with alcohol swabs after each patient.

III. In the exam rooms, anything (furniture) in contact with the patient should be cleaned in between patients. The wall and floor of the room to be cleaned every two hours.

IV. While performing any contact procedure like tonometry, gonioscopy, keratometry, A scan, B Scan, UBM, Humphrey Visual Fields, OCT, Fundus Photo, Trial frames & lenses; thorough cleaning of instruments before and after every new case. All instrument/equipment should be cleaned before and after each patient, using the technique recommended by each manufacturer.

V. All non-essential, non-critical examinations should be avoided and patient should be explained about a more elaborate testing in future. It is better to postpone Direct Ophthalmoscopy, Contact lens trial and Routine refraction; and to avoid all aerosol-based procedures including NCT, nasolacrimal syringing, nasal evaluation and removal of sialastic DCR tube.

VI. Dilatation should be deferred, if needed it should be planned for the subsequent visit and advise for dilatation at home before coming to the hospital.

VII. Door should be kept open. Open door policy at all locations/ rooms in OPD

VIII. All the used items MUST be disposed properly.

IX. Fumigation of all examination room is preferable after the OPD is finished.

X. Keep all unnecessary areas/rooms of the hospital closed and locked inaccessible to anyone.

XI. Speak as less as possible. The patient should also be informed not to speak a lot.

XII. Hand washing to be preferred over alcohol-based hand sanitizer before and after examining each patient and also before touching any equipment once patient has been touched.

XIII. Cotton tip applicators should be used to manipulate the eyelids instead touching with fingers to separate eyelids

XIV. Special precaution to be taken in following conditions:-

a. If a procedure is planned that will result in aerosols

b. Conjunctivitis

c. Suspected or confirmed Covid-19.

XV. Monitoring of adherence to universal preacautions should be initiated. This includes monitoring of the health care providers and the patients for maintenance of personal hygiene measures, wearing masks, gloves, proper history taking, a single attendant policy, awareness of health messages and compliance. This should be a general responsibility. While daily monitoring is initiated, all execution team like department supervisor/head must monitor their own area and reinforce compliance.

9. CLEANING OF WAITING AREA & ISOLATION ROOM

I. All patient care areas all floors, the furniture surfaces and furniture fixtures (Door chairs, sofa, couches handles, Knobs, Hand rails etc.).

II. We recommend use of regular household disinfectant for cleaning waiting area is adequate. Frequency of cleaning in Non-exam rooms at least two times a day and as frequently as 2hourly in exam rooms.

III. After every 2 hours, the emergency room areas, which come in contact such as doorknobs, handles, silt-lamps (head and chin rest), tables, benches must be cleaned with freshly prepared 1% Sodium Hypochlorite or 70% alchohol or surgical spirit.

IV. The floor and common contact surfaces must be cleaned with 1% sodium hypochlorite before work begins and every 2 hourly with Lyzol daily.

V. In the exam rooms, slit lamp including acrylic sheet will be cleaned by OA/optometry staff/fellows/ doctors , 2-3 hourly and in between patients as often as needed using alcohol wipes. Clean hands with sterillium beforetouching any equipment once patient has been touched

VI. Open door policy and the rooms should be well-ventilated and well lit

VII. All residents/fellows and other HCWs must be instructed to clean and disinfect (using the standard procedure as recommended by the manufacturer) their equipment with special universal precautions such as lenses, indirect and direct ophthalmoscopes, pen, and torches, and other such items used in isolated rooms/emergency rooms.

VIII. Fogging of entire hospital shall be done on weekly basis

IX. OPD – Occluders (trial frames, lenses to be wiped with alcohol swabs after checking vision or doing refraction for each case. All non-essential non-critical examinations should be avoided and patient explained the truncated protocol and need for more elaborate testing in future as feasible.

X. Clean hands with sanitizers before touching any equipment once patient has been touched

XI. While performing any contact procedure like tonometry, gonioscopy, keratometry, A scan, B Scan, UBM, Humphrey Visual Fields, thoroughly clean instruments before and after every new case

XII. Mopping with 1% sodium hypochlorite at the evening after OPD finishes.

XIII. UV Light at night for 3-4 hours can be considered if available.

10. PRECAUTIONS AT DIAGNOSTIC PROCEDURES

I. All patients coming for diagnostic purpose one should suspect COVID 19 and consider special universal precautions during examination

II. All the ophthalmic diagnostic tests are to be carried out only if the test results can provide significant outcome in saving sight and/or life.

http://www.icoph.org/downloads/Ophthalmological-Society-of-Nigeria-COVID-19-Advisory.pdf

III. Diagnostic machines may be fomites for SARS-CoV-2. Non-disposable contact equipment, as is used in applanation tonometry, gonio lens or other lenses used, probes used for pachymetry, ultrasound bimicroscopy,

and electrophysiology, should be disinfected with ethanol-based solutions.

IV. While performing any diagnostic procedures appropriate PPE should be used as per the PPE guidelines.

V. Air puff tonometer/Auto refractor keratometry should be avoided.

VI. Special universal precaution should be practice after every patient test referred from Isolated OPD or patients referred from outside hospitals

VII. The cleaning and disinfections should be done as per the company guidelines to prevent both damage and untimely void of warranty.

11. PRECAUTIONS AT OR PROCEDURES/SURGERIES

I. All surgeries must be day care unless mandated. Along with routine pre-operative blood test, it is recommended to request Chest X Ray as a routine investigation to rule out active pulmonary infiltrates

II. Simultaneous double table surgery protocol should be discarded, single room single patient at one time is recommended to ensure limited people each procedure.

III. Defer all procedures and surgery on a COVID-19 patient until the patient recovers, unless deferral of treatment by 2 weeks has a potential risk for loss of vision, eye, and life. If surgery is considered for COVID 19 cases, then this surgery to be performed as the last case of the day in a dedicated COVID 19 Operating room whenever possible.

IV. Empty OR of all nonessential materials; consider a negative pressure anteroom with separate access to be used for donning/doffing of PPE; and Separate OR instrument trolley.

V. If a patient requires general anesthesia, an anesthetist team should be full PPE

VI. After attending a suspected or confirmed case perform cleaning of the room as follows: Disinfect all surfaces patients may have come in contact with patient or any members of the treating surgical team.

VII. Surgery room cleaning: If there has been a suspect or confirmed case, seen in the clinic cleaners should observe contact and droplet precautions and don PPE.

Note Active ingredients of hospital grade disinfectants include 70-90% alcohol, hypochlorite, hydrogen peroxide, phenol. They are effective against TB, bacteria, fungi, and viruses, and some, but not all, spores.

VIII. Clean frequently touched surfaces such as doorknobs, bedrails, tabletops, light switches in clinic and communal areas. A combined cleaning and disinfection procedure should be used, either 2-step – (i.e. detergent clean, followed by disinfectant); or 2-in-1 step - using a product that has both cleaning and disinfectant properties.

IX. Larger Eye drapes with sizes of 80x80cm or more.

X. Masks should be provided and continued in the patients before during and after the surgery. The eye drapes have the highest chance for contamination given the proximity to the mouth and nose provided the fact that most of the times they cover the whole face during the surgery. These in particular need to be handled and disposed off properly.

12. PPE USES AND ITS PRACTICE

Proper PPE is practiced as per the requirement to prevent viral transmission of COVID 19 between patient and hospital staffs. At the same time overuse of PPE should be discouraged so that it can be available for the needy.

Facility Area	Personnel	Activity	Recommended PPE
Point of Entry	• Security guard • Eye health Personnel [Ophthalmic Assistant, Eye Health Worker(EHW), Optometrist, Ophthalmology Resident]	Temperature scan Screening Questionnaire COVID 19 Consent recording Triage patient schedule them or either Regular OPD or Isolated Room/Emergency (Triage will be done by Eye health personnel)	**Security Guard** Mask - Gloves **Eye Health Personnel** Cap - Face shield/Goggles Surgical Mask - Gloves Apron (Triage to be performed maintaining Social Distancing)
Registration Cash Counter Medicine Shop	Receptionist/Cashier Computer operator Pharmacist	Patient registration/ Money handling Appointment Medicine dispensing	Gloves Mask Apron (Pharmacist)
Regular OPD/IPD Vision Room Counselling Diagnostic Room	Doctors OA Optometrist EHW/Nurses/Helper	Direct patient care	Cap - Face shield/Goggles Surgical Mask - Gloves Apron
Isolated OPD* Anaesthesia team	All staffs	Direct Patient Care Suspect COVID 19 Conjunctivitis Patient	Full PPE
OPD, IPD, Waiting area Operation theatre	Cleaning staffs	Cleaning with detergent and disinfectants	Cap - Mask - Heavy duty gloves Cotton Gown - Eye protection Boots or closed work shoes
Patho Biochemistry Laboratory	Lab technicians	Handles samples Blood, tissue samples and cornea and conjunctival swabs etc	Mask - Gloves Cap - Apron or Cotton Gown
Canteen area	Canteen staff	Prepare Food for patient and staffs	Mask – Cap - Gloves
Administrative area Academic/Training Research area Outreach area	Admin staff including medical staff at admin Cleaning Staffs	No patient care	Mask

Note - Staff working in Isolated OPD/Emergency room shouldn't go to regular OPD at any time, In case if, further consultation needed staffs should communicate over telephone or virtual communication. In case regular OPD staff needs to go in Isolated OPD full PPE must be worn. Bringing patient from Isolated OPD to regular OPD should not be allowed.

Diagram demonstrating sequence of Donning of PPE (Methods to wear PPE) Starting at diagram 1 and completing the method by diagram 8

Diagram demonstrating sequence of Doffing of PPE (Methods to putting off PPE) Starting at diagram 1 and completing the method by diagram 9

https://www.youtube.com/watch?v=cCzwH7d4Ags

13. INFECTION CONTROL AND PREVENTIVE MEASURES

I. All personnel inside hospital premises should wear surgical masks, be aware of instructions on cough etiquette and physical distancing. Alcohol-based hand sanitizer should be made available at entrances and patient check-in areas and waiting rooms. Masks should be changed every 6 hours or immediately when contaminated or wet.

II. Alcohol-based hand sanitizer before and after examining each patient

III. Standard hand hygiene practice during the pandemic includes hand-rub containing 70–90% ethanol or 1% sodium hypochlorite, which effectively inactivates coronaviruses in 20 – 25 seconds, washing hands with soap and warm water for at least 20 seconds before and after examining patients. Disposable hand gloves should be immediately discarded into the trash.

Methods to Prepare sodium hypochlorite 1%

To prepare 1:10 bleach solution add one volume of household bleach (e.g. 1 litre) to nine volumes of clean water (e.g. 9 litres). To prepare 1:100 bleach solution add one volume of 1:10 bleach solution (e.g. 1 litre) to nine volumes of clean water (e.g. 9 litres).

IV. Contact time with the patients should also be kept minimal. If longer durations or investigations mandating longer time required, the urgency of the indication must be kept in mind and be done as a part of strict medical need.

V. The same holds true for many procedures which would require contact with the ocular surface and the skin – e.g. Applanation tonometry, Visual evoked potentials, and Electroretinograms. These should be kept in minimum and done only if medically justified.

VI. There is no solid data available till date to suggest the spread via sweat or skin, but until proven, every bodily secretion must be dealt with precaution.

VII. Special precaution to be taken while transporting patient from isolation OPD/Emergency to investigation room or surgery facility.

14. ACADEMIC & TRAINING GUIDELINES

I. Continuing education can be divided into two formats: continuing education with contact (conferences, lectures, seminars, workshops, classroom activities, etc) and self-study (online learning programs, reading, etc).

II. All learning activities are to be done online through webinars and video assisted skill transfer

III. All ophthalmic educational activities including assignments are encouraged to be conducted with online video conferencing platforms

IV. All practical and community-based learning programs are to be suspended till the lockdown is lifted.

15. GUIDELINES FOR MAINTENANCE OF EQUIPMENT

I. All operation theatre equipment maintenance to be done once a week by trained OT Technicians. All Air conditions, Air Handling Unit(AHU), dehumidifiers to be switched on at least twice a week

II. All OPD and OT machines, other than Excimer and Femtosecond laser machines, to be switched on for a minimum of 15 minutes twice a week. All the OT equipment should be maintained as recommended by the manufacturer. It may be ideal to prime and run phacoemulsification machine and vitrectomy machine once in 3 days. It is advisable that all equipment be connected to UPS to avoid power surge related damage in these times when electricity flow can be unstable.

III. Excimer and Femtosecond laser machines need to be calibrated and tested at the end of the lockdown period and before any patient is posted for these procedures.

IV. For OCT, topographers, etc. all printers need to be given one print command as test print at least once a week

V. At the end of everyday, all the equipment should be shut down properly and covered. All AC's, AHU and dehumidifiers should be switched off before leaving the center for the day.

VI. Night mode of the Air-handling Unit should be activated (if such a setting is available) if the OT is infrequently used. All batteries in remotes, ophthalmoscopes, retinoscopes, etc. should be removed if it is not used regularly during lockdown period.

VII. All lasers,including Nd:YAG and retina lasers,will need to fire for 50 blank spots at least once a week

VIII. IT-related equipment such as servers, computer terminals, and UPS should be checked physically once a week.

16. TELEMEDICINE

I. Telemedicine is going to be a very useful tool in the COVID -19 crisis. It helps to protect patients by keeping them out of the susceptible hospital environment and also helps to protect ophthalmolgist by reducing the number of patients in the ER or OPD throughout the period of COVID-19 crisis.

II. Telemedicine includes both telephonic consultation and virtual video consultation via applications/softwares Viber, Skype, Zoom, Google Hangout.

17. STAFFS AND DUTY ROSTER

I. It is important that the Heads of the Institutes/Directors prepare a duty roster for all HCWs including doctors, nurses, and paramedical staff so that only one-third to one-half staff is working at any given time. This practice will ensure the availability of manpower if the need arises in the future

II. All the staff should be screened at the point of entry for fever and explicitly asked for symptoms, international travel, COVID-19 patient/suspect contact or clustering.

III. All the staff should sanitize their hands with alcohol-based hand sanitizer before entering the hospital. Touch points

should be minimal. Finger print biometry login and staff check-in should be replaced with non-touch method of attendance.

IV. All the staff who come in direct contact with the patient should change into clean surgical scrubs at entry and change out at exit. They should be encouraged to take a soap bath at home.

V. All the staff should use PPE as appropriate

VI. All the staff should strictly practice hand hygiene before and after physical contact with each patient

VII. The residents and fellows must be also given specific duties so that all of them do not enter the hospital and crowd the emergency/OPD areas. Only necessary staff, ophthalmic paramedics must be called.

III. It is important to protect hospital staffs, counsel and reassure them so that they maintain a positive psychology at work place and take care of their family members at this COVID crisis.

IV. We recommend using online based meeting applications for all administrative meeting such as management meeting, staff meetings, and coordination meetings with community eye centers or branch eye hospitals.

18. OUTREACH ACTIVITIES

We strongly recommend to suspend all the outreach programs till lockdown is lifted by Nepal Government.

19. POST COVID-19 PRACTICE – RETURNING BACK TO NEW NORMAL

I. We don't know how long COVID-19 pandemic lasts, risk of spread is a possibility till a vaccine develops and herd immunity as a concept doesn't apply. SARS-CoV-2 is still with us and so is the risk of virus transmission and serious illness even death. So, this situation will be prevailing for months in some form.

II. Future is not going to be the same; there is going to be "new normal". What won't change are triage at entry point, PPE, social distancing, hand washing, waiting room etiquette, exam room and OT precautions, separate isolated consultation room for conjunctivitis and Covid-19 patients (suspected and proven).

III. Gradually, within 4 weeks of opening of lockdown and in line with the Government policy, the elective procedures as described in patient stratification will have to be taken up in OPD and OT.

IV. Initially, all surgeries should preferably be day care and senior surgeons should do it for safety and efficiency. Number of cases is to be limited and posted in a staggered manner. As per the availability and Government policy, Covid Testing (Rapid test ± RT PCR) and Chest X ray before surgery may need to be done.

V. In the academics, bedside teaching and surgical hands-on will take a back seat and webinars, simulator based learning and VAST will come in forefront as will telemedicine.

VI. We should be patience but vigilant and must always be thoughtful and careful—for our patients, our staff and colleagues, and for ourselves and our families.

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