



Practice Management

COVID-19 preferred practice pattern for eye care professional - An initiative by Nepal Ophthalmic Society

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Introduction

World is currently facing a pandemic due to the novel Corona Virus (SARS-CoV2) to an extent that life has been jeopardized in all services including eye care facilities. Nepal recorded its first case of Corona Virus Disease (COVID-19) on 5th January 2020 (Bastola et al, 2020) and with the number of cases escalating worldwide, World Health Organization (WHO) declared a Global Pandemic on 11th March 2020. Nepal Government has declared nationwide lockdown with permit to open essential services from 24th March 2020 and has extended it till 18th May 2020. As of May 5 2020, there have been 82 confirmed cases as of this day (MOHP-Nepal-<http://heoc.mohp.gov.np>, 2020).

SARS-CoV-2 is an enveloped, single-stranded RNA virus and causes a significant mortality, especially in the elderly and those with comorbidities (Rothan and Byrareddy, 2020). The virus spreads through respiratory droplets/aerosols and from virus contaminated objects

or surfaces. SARS-CoV-2 in aerosols can remain viable upto 3 hours post-aerosolization; and 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. Contact time also proportionally increases the risk of contracting the virus. SARS-CoV-2 carriers may be asymptomatic or symptomatic. The median duration of viral shedding was found to be 20 days; with the longest duration being 37 days (van Doremalen et al, 2020).

As the COVID 19 continues its wrath in daily human lives, medical care and the economy, the eye services in the country have been tremendously impacted. This has resulted in suspending almost all routine eye care services and providing only emergency service. The duration for which this situation may last is also uncertain. Moreover, the risk of viral transmission is high among medical personnel directly involved in examination procedures and surgeries of head and neck region. (Kulcsar et al, 2020).

While the above-mentioned factors mandate that we brace ourselves for what may come, we also need to prepare ourselves to face the “new normal” and plan on resuming the eye care

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services. At the same time, we must be careful and alert to prevent ourselves from becoming “super spreaders” and making our workplace a hotspot for viral transmission.

There are many guidelines which are available and have been recommended by various national and international bodies. It may not be directly applicable to every country or different faculties of medicine. Moreover, knowledge on COVID 19 is ever evolving. Therefore, this improvised evidence-based guidelines from Nepal Ophthalmic Society aims to address and recommend the basic and practical guidelines for Ophthalmologists & eye care professionals throughout Nepal to ensure safety and break the “chain of transmission” of the virus while providing eye care services.

Materials and methods

The guidelines provided were adopted from the WHO, Centre for Disease Control and Prevention, American Academy of Ophthalmology, All India Ophthalmological Society; and were improvised to Nepalese context. The final draft was reviewed by eminent ophthalmologists of the country. These included members from the NOS governing council, the Editor in Chief and editorial board members of Nepalese Journal of Ophthalmology. This was also reviewed by eye care professionals from both private and non-private eye hospitals of Nepal. Revisions and improvisations were made according to the eye care scenario of Nepal. Any difficult issues were resolved among the members especially via literature review of various guidelines available at the International Council of Ophthalmology. The final guidelines will form a base for providing safety to both the physicians and patients during the lockdown and post lockdown period of Covid-19 pandemic.

General Guidelines (Chodosh J et al, 2020; RANZCO Guidelines, 2020; Sengupta et al, 2020; Sadhu et al, 2020)

- I. All the regular eye care services and elective surgeries to be postponed until the nationwide lockdown is lifted by the government.*
- II. Implement methods of COVID 19 awareness – For e.g.: Posters, Videos, Help Desk for the patients and visitors attending hospital.
- III. Implementation of one patient - one visitor policy.
- IV. Practice telephonic triaging where possible and limit the “at risk” population- e.g.: elderly, immune-compromised, etc. from attending the hospital as much as possible.
- V. Maintain social distancing of 2 meter and mandatory use of masks.
- VI. All ophthalmic procedures or surgeries be performed as day care service whenever possible. Try limiting procedures under general anesthesia.*
- VII. Every hospital/clinic to set up an entry and exit points to control patient flow – per building with screening . Hand sanitization to be practiced at both points. The COVID 19 declaration form to be signed by patient /visitor to make screening more effective. This is mandatory also for referrals.*
- VIII.Crowd control at registration and pharmacy area with distance markers/ labels.
- IX. Avoid entries of patient parties into examination rooms as much as possible.
- X. Take a short and concise history. Avoid conversations at/during slit lamp examination. Practice hand washing/ sanitizations after every patient/ procedure.
- XI. Limit aerosol generating procedures.
- XII. Cleaning of floor, instruments, waiting area with hospital grade disinfectants.*
- XIII. Contact tracing of patients as well as of eye care providers.*

* Supplemental material found at: <http://www.nos.com.np/main/?p=107>

1. List of emergency symptoms

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 or prognosis.

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 eyelid
7. Excessive discharge from eye
8. Foreign body sensation
9. Double vision
10. New onset difficulty to see at light
11. Color halos around light
12. Sudden drooping of eyelid
13. Whitish lesion in center of black part of eye
14. Pain and foreign body sensation in a contact lens user

2. Subspecialty wise stratification (Adopted from AAO and AIOS guidelines and Improvised by NOS in the context of Nepal) (Chodosh J et al and Sengupta et al, 2020)

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		<ul style="list-style-type: none"> • Blepharitis • Mild/moderate dry eye • Watery eye • Conjunctivitis (teleophthalmology)
Cataract			
New/ Follow-up	1. Post-Operative Acute or Chronic endophthalmitis 2. Phacomorphic phacolytic angle-closure glaucoma	1. Traumatic cataract with the ruptured anterior lens capsule	<ul style="list-style-type: none"> • 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 (teleophthalmology if appropriate) 4. Severe sight-threatening ocular surface disease 5. Immediate post-operative patients requiring frequent follow up	<ul style="list-style-type: none"> • Blepharitis • Mild/moderate dry eye, any other ocular surface condition • Corneal ectasia with low risk of progression • Drug-induced keropathies • Metabolic keropathies • Corneal degenerations • Corneal dystrophies without ocular complications • Routine post-operative patients

Glaucoma			
New/ Follow-up	<ol style="list-style-type: none"> 1. IOP >40 mm Hg 2. Congenital and developmental glaucoma 3. Acute angle-closure 4. Acute neovascular glaucoma 	<ol style="list-style-type: none"> 1. Recent Change in medication 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 	<ul style="list-style-type: none"> • 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	<ol style="list-style-type: none"> 1. Suspected or confirmed active CNV needing treatment 2. Intravitreal injections in retinal disorders 3. Active proliferative diabetic retinopathy requiring treatment (PRP laser or intravitreal-anti VEGF) 4. Malignant hypertensive retinopathy 5. ROP screening and laser and anti-VEGF treatment 	<ol style="list-style-type: none"> 1. Macular edema requiring treatment 	<ul style="list-style-type: none"> • Non-neovascular (dry) AMD • Low-risk diabetic retinopathy screening • Central serous chorioretinopathy • Macular telangiectasia without CNV • Retinal dystrophies • Screening for macular drug toxicity
Neuro-ophthalmology			
New/ Follow-up	<ol style="list-style-type: none"> 1. Sight or potential life-threatening conditions like 2. Sudden loss of vision with disc edema 3. Papilledema 4. Acute onset of Binocular diplopia/ cranial nerve palsies 5. Acute pupillary signs 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Suspected malignant ocular tumours 2. Confirmed malignant ocular tumours requiring acute treatment 3. Tumours previously booked for 3 months planned follow-up interval 	<ol style="list-style-type: none"> 1. Fundus tumours/lesions causing macular exudation (choroidal haemangioma, Coats, retinal capillary hemangioblastoma) 2. Tumours previously booked for up to 6 months planned follow-up interval 	<ul style="list-style-type: none"> • Stable choroidal naevi, CHRPE, iris cysts • Stable treated tumours • Tumours previously booked for over 6 months planned follow-up interval
Oculoplastic			
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 (Guidelines for the oculoplastic & Ophthalmic trauma surgeon ,2020).			

New/ Follow up	<ol style="list-style-type: none"> 1. Severe thyroid eye disease Orbital tumours (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. Periorbital 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 (paediatric CNLDO with nasal involvement not resolving/acute infected). Treat medically first, if requires surgery prefer percutaneous drainage, avoid DCR due to COVID-19 risk 	<ol style="list-style-type: none"> 1. Progressive benign orbital tumours 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, canalicularitis. Treat medically first, if requires surgery prefer percutaneous drainage, avoid DCR due to COVID-19 risk 6. Post-operative simple surgery 7. Paediatric ptosis with known/high risk of amblyopia (visual deprivation, failed amblyopia therapy) 8. Recent trauma including eyelid and canicular lacerations, 	<ul style="list-style-type: none"> • 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 periorbital tumours (e.g., chalazion/papilloma) • Lacrimal: All other • Cases with anophthalmic sockets waiting for prosthesis
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Paediatric Ophthalmology			
New/ Follow-up	<ol style="list-style-type: none"> 1. Sight or potential life (systemic) threatening conditions like orbital cellulitis. 2. Acute lens complications, (Trauma, decentered lens) 	<ol style="list-style-type: none"> 1. Visually significant Paediatric cataracts in the amblyopic period. 2. Severe anisometropia of fellow eye post-surgery. 3. For amblyopia therapy. Where possible, use teleophthalmology 4. Paediatric oculoplastic/ adnexal cases 5. Reduced vision in one eye over age 7 years. Where possible, use teleophthalmology 6. Examination under anaesthesia if prognosis is duration dependant 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 	<ul style="list-style-type: none"> • Case by case triage • Case of refractive error with amblyopia scheduled for 6 monthly f/u
Strabismus			
New/ Follow-up		<ol style="list-style-type: none"> 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 	<ul style="list-style-type: none"> • Most other non-acute strabismus cases

Uveitis/Scleritis			
New/ Follow-up	<ol style="list-style-type: none"> 1. Acute anterior uveitis- new onset 2. Acute endophthalmitis which includes seasonal endophthalmitis/ SHAPU (Seasonal endogenous endophthalmitis) 3. Acute Posterior uveitis (including retinal vasculitis)-new onset or recurrence 4. Acute Pan uveitis –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 	<ol style="list-style-type: none"> 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. Paediatric 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 	<ul style="list-style-type: none"> • 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 a history of complications like OHT, glaucoma or CME, stable under medication. • Uveitis/ scleritis cases under remission (quiescence without any treatment) <p>• (Notes: Patients on immunosuppressive-tele/virtual consultation with blood tests done in local laboratory. If the WBC or Platelets drops below the lower limit of normal range or if LFT is deranged, then reduction of dose of IMT should be considered. New IMT should not be planned within the next 3 to 4 month.</p>

			<ul style="list-style-type: none"> Patients on oral steroids 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	<ol style="list-style-type: none"> Acute retinal detachment Suspected retinal tears Open globe injuries: Including IOFB Acute endophthalmitis Vitreous haemorrhage (dense, requiring vitrectomy) in one eyed Sub macular haemorrhage requiring vitrectomy in one eyed Aqueous misdirection requiring vitrectomy Diagnostic vitrectomy for infectious or oncological causes 	<ol style="list-style-type: none"> Acute full-thickness macular holes Severe vitreomacular traction syndrome Myopic tractional maculopathy with foveal detachment Heavy liquid removal Exposed scleral buckles at risk of infection Dropped nucleus requiring vitrectomy/ lensectomy 	<ul style="list-style-type: none"> Epiretinal membranes Silicone oil removal (unless developing complications such as emulsification) Intraocular lens procedures Symptomatic vitreous opacities Post RD surgery cases with no complications

3. Scheduling Appointments

- The number of medical teams and space availability in the clinic/hospital should guide the number of appointments in the clinics and should be coherent to general guidelines (Section 1-above) and NOS subspecialty guidelines.

4. Point of Entry Screening and Triage

- As per general guidelines with special attention to all patients with conjunctivitis new or follow up. They should attend emergency room irrespective of their thermal status or history suggestive of COVID 19.

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 (Including declaration form)*						
1. Symptoms of COVID 19 Fever – Cough - Shortness of breath/ difficulty breathing - New loss of taste or smell - Malaise						
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 ¹	Medical Center or COVID testing Center	Registration	Registration			
Emergency Room or Isolated OPD Room	Emergency Room or 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 without delay for confirmation and treatment	Refer patient to medical care to rule out COVID after appropriate eye treatment	Follow up to be scheduled as per the need			

*Declaration form can be accessed at page 9 of the following link: <http://www.nos.com.np/covid-19/nos-covid-19-practice-guidelines.pdf>

¹Visitors should attend the registration area for all payments and patients waiting at the allocated waiting area.

Note -Waiting area for emergency and regular clinic patients' needs to be allocated separately

For TOCC Screening Form: It can be accessed via the following link: <http://www.nos.com.np/covid-19/nos-covid-19-practice-guidelines.pdf>

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. Entry screening as per Section 5, Subsection I.
- III. All the acute conjunctivitis patients requiring follow up, should do a telephonic consultation.
 - Symptomatically better – Continue the medication for 2 weeks.
 - Resolution- discontinue the medicines
 - Symptoms worsen - Telephone for further treatment or appointment.



- Developed other symptoms consistent with COVID 19 -consider as notifiable cases.

5. Waiting Area Guidelines

- I. Social distancing and safety precautions as mentioned in Section 1.
- II. Maintain spacing between two personnel by designating chairs/ benches for sitting/ leaving empty.
- III. Keep open as many doors as possible to avoid touching doorknobs .Use of fans and natural ventilation instead of AC.
- IV. Supervision to ensure that general guidelines and specific guidelines are followed.

6. Ophthalmic evaluation and OPD Procedures

- I. Follow etiquettes as per general guidelines.
- II. 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 case as per recommendation from the manufacturer.
- III. All non-essential, non-critical examinations compromising safety standards such as regular use of direct Ophthalmoscopy should be discouraged.
- IV. Dilatation should be deferred or advised for dilatation at home before coming to the hospital.
- V. Cotton tip applicators should be used to manipulate the eyelids instead of touching with fingers to separate them.
- VI. Special precaution to be taken for COVID-19 (Refer to Red Eye Management and Practice section)

7. Cleaning of Waiting Area & Isolation Room*

- I. Maintain etiquettes as per guidelines of waiting area guidelines (Section 5)
- II. Frequency of cleaning be at least two times a day in non-exam rooms and 2 hourly in exam rooms including door knobs, handles, silt-lamps (head and chin rest), tables, benches must be cleaned with freshly prepared 1% Sodium hypochlorite or 70% alcohol / surgical spirit/ Follow manufacturer's guidelines.
- III. In the exam rooms, slit lamp diaphragm to be cleaned by respective operator 2-3 hourly or in-between patients.
- IV. UV Light at night for 3-4 hours can be considered if available.

*Further details are available in supplemental material at
<http://www.nos.com.np/covid-19/nos-covid-19-practice-guidelines.pdf>

8. Precautions at Diagnostic Procedures

- I. Maintain etiquettes as per general guidelines and ophthalmic evaluation and OPD guidelines(Section 6)
- II. Special universal precaution should be practiced after every patient test referred from isolated OPD or patients referred from outside hospitals.

9. Precautions at OR procedures/Surgeries (RANZCO Guidelines, 2020; Sengupta et al, 2020; Sadhu et al, 2020)

- I. Maintain etiquettes as per general guidelines and ophthalmic evaluation and OPD guidelines (section 6) and triage the emergency and urgent cases (Section 2 – sub-specialty-wise stratification if needed)
- II. All surgeries must be day care unless mandated. Along with routine pre-operative blood tests, it is

- recommended to request Chest X Ray as a routine investigation.
- III. Halt simultaneous double table surgery protocol during the pandemic.
- IV. Empty OR of all nonessential materials, separate area for donning/doffing of PPE.
- V. If a patient requires general anesthesia, an anesthetist team should use a complete PPE
- VI. 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.
- VII. Disinfection as per general guidelines and methods mentioned in section 5,6 and 7 . OT and as per standard protocol for the operating room.
- VIII. Larger eye drapes with sizes of 80x80cm or more.

IX. Masks should be provided and worn by the patients before, during and after the surgery. Eye drapes are to be handled and disposed properly.(Sadhu et al., 2020)

10. PPE uses and its practice

Proper PPE should be practiced as per the requirement to prevent viral transmission of COVID 19 between patient and hospital staffs.(Sadhu et al., 2020; Khatri et al., 2020) At the same time overuse of PPE should be discouraged so that it can be available for the needy.

**Pictorial illustration of donning and doffing is available on Page 14 of the following weblink: <http://www.nos.com.np/main/?p=107>*

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 - The staff working in Isolated OPD/Emergency room should not go to regular OPD at any time. In case, if further consultation is needed, the staff should communicate over telephone or virtual communication. Similarly ,if OPD staff needs to go to isolated OPD, full PPE must be worn .Bringing patients from Isolated OPD to regular OPD should be restricted.

11. Infection Control and Preventive Measures

- I. Use of masks and sanitizers as in general guideline.
- II. Following the etiquettes as mentioned in Section 6,7,8 and 9.
- III. 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 (Sood and Honavar, 1998).
- IV. 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.

12. Guidelines for maintenance of equipment

- I. For equipment of various diagnostics, as per general guidelines and section 7.*

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.

I. Recalibration of precision equipment such as Excimer and Femtosecond laser machines at the end of the lockdown period (Sengupta et al,2020).

III. Removal of corrosives e.g.: Batteries, and disconnection from the mains for equipment not being used during the pandemic.

*Extensive details are found in the supplemental material at <http://www.nos.com.np/covid-19/nos-covid-19-practice-guidelines.pdf>

13. Telemedicine

- I. Protects susceptible patients by keeping away from nosocomial infections and also helps protect ophthalmologist by reducing the number of patients in the ER or OPD throughout the period of COVID-19 crisis.

- II. Implementation of both telephonic consultation and virtual video consultation via applications/software Viber, Skype, Zoom, Google Hangout.
- III. In Nepal's perspective, telephonic consultation should be the priority since this medium for communication is available for almost all patients irrespective of their level of education and reach to the technology. For this, the list of phone numbers of the ophthalmologists of almost all eye hospitals/institutes/clinics should be published online and in few popular daily newspapers, so that patients will be able to contact the concerned doctors easily for consultation.

14. Academic & Training Guidelines

- I. Continuing education can be divided into two formats:
 - a. With contact (conferences, lectures, seminars, workshops, classroom activities, etc.).
 - b. 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 practical and community-based learning programs are to be suspended till the lockdown is lifted.

15. Staffs and Duty Roster

- I. It is important that the Heads of the Institutes/Directors prepare a duty roster for all eye health professionals and supporting staff . Plan for one-third to one-half work force at a time. Increase only after the need rises.
- II. All staff must comply with general guidelines and sections enlisted above

to ensure safety of themselves, patients and the working environment.

- III. Fingerprint biometric login and staff check-in should be replaced with non-touch method biometrics.
- IV. NOS recommends using online based meeting applications for all administrative meetings including for communications to branches/ community eye centers.

16. Outreach Activities

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

Discussion

This is a time of “forced evolution” which affirms that the future is not going to be the same. There is going to be “new normal”. What is likely to exist and become the new safety norms are the triage at entry point, PPE, social distancing, frequent hand washing, waiting room etiquette, exam room and OT precautions, separate isolated consultation room for conjunctivitis and Covid-19 patients (suspected and proven).

Besides the precautionary measures, new surgeons and young ophthalmologists should anticipate a longer learning curve as most surgeries will now be performed by experienced surgeons for safety and efficiency to ensure minimal contact time. Residents and trainees should expect webinars and simulator-based learning substituting their bedside teachings and hands on training. Situations may arise where staff may be rotated and asked to take forced leaves due to decreased demand of their expertise.

However, all of us must understand that this is one of the most difficult time-testing humanity to its limits. We were never prepared for an event this cataclysmic and there are no prefabricated guidelines or protocols for us to guide on what to do and what not to. We have to base our will



to continue our services based on evidence-based guidelines and it will remain the safest approach given that we do not deviate from it.

At the same time, as the curve of the pandemic drops and we exit the critical phase, we must plan on devising a “stronger sustainable strategy”. It is only a matter of time that we will be tested again on our preparedness for the new era of “preferred practice pattern”.

Conclusion

As we continue to hope for the best, circumstances will push us to prepare for the worst. We believe our evidence-based guidelines can be of great help at this time of chaos while attending patients with ocular pathologies requiring immediate attention. Triaging along with rationalized use of safety measures can aid in not just ensuring safety of eye care professionals of Nepal who are at the frontline to continue their rightful duty but also in breaking the chain of transmission.

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Limbu B et al
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