

# EYE ON COVID:

A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE  
FOR EYE CARE DURING THE COVID-19 PANDEMIC



# Table of Content

Table of Content	i
Foreword	iii
Acknowledgement	iv
Abbreviations	v
<b>1.0 Introduction</b>	<b>1</b>
Global context	
National Context	
Aim of the guideline	
<b>2.0 Severe Acute Respiratory Syndrome-Coronavirus-2</b>	<b>2</b>
Characteristics of the virus	
Natural habitat	
Mode of transmission	
SARS-CoV-2 entry into the host cell	
SARS-CoV-2 and the Eye	
<b>3.0 Clinical signs and symptoms</b>	<b>3</b>
<b>4.0 Ophthalmic manifestations of COVID-19</b>	<b>4</b>
Ocular complaints	
Adnexa findings	
Anterior segment findings	
Posterior segment findings	
Neuro-ophthalmic manifestations	
<b>5.0 Limiting the transmission of COVID-19 in the eye care facility</b>	<b>5</b>
5.1 Administration	
5.2 Clinic appointment protocol	
5.3 Facility management	
5.4 Precautions by eye care workers	
5.5 Waiting area and Patient flow	
5.6 Personal Protective Equipment	
5.6.1 Types of Masks and How to use masks	
5.6.2 Sequence for Donning and Doffing Personal Protective Equipment	
5.7 Consulting rooms	
5.7.1 Precautions for Application of eye drops and diagnostic tests (Fluorescein/Schirmers strips)	
5.8 Refraction and Optical Services	
5.9 Laser and Surgical Procedures	
5.10 Aerosol generating Procedures	
5.11 Elective, Urgent and Emergent Cases	
5.12 Environmental Cleaning and Waste Management	

<b>6.0 Conduct of General Anaesthesia</b>	<b>21</b>
6.1 Indications for General Anaesthesia	
6.2 Checklist for Ophthalmic Surgery	
6.3 Patients Status	
6.3.1 Status Unknown/No Suggestive Features	
6.3.2 Confirmed/High index of Suspicion	
6.4 Effective Disinfectants against Coronavirus for Anaesthesia equipment	
<b>7.0 Community Eye care service and Risk Assessment</b>	<b>28</b>
<b>8.0 Mental health and Psychosocial Support for Health Care Workers during an infectious disease outbreak</b>	<b>29</b>
<b>9.0 Monitoring and Evaluation</b>	<b>31</b>
Monitoring	
Evaluation	
Performance Indicators at the National level	
Facility level Performance Indicators from IPC focal person	
<b>10.0 Annexes</b>	<b>32</b>
10.1 Monitoring and Evaluation Tools	
10.2 List of contributors	
10.3 Facility Poster	

## Foreword

The first case of Coronavirus disease 2019 (COVID-19) caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in Nigeria was reported on 27 February 2020. The disease was first identified in Wuhan, China in December 2019 and reached global pandemic levels within three months. Within a couple of weeks, it had spread to all states of the nation, including the Federal Capital Territory. Some health care workers infected while in the line of duty succumbed to the disease. The government, in a bid to curtail the spread of the virus, instituted various measures including lockdown and other strategies at national and state levels to reduce the number of new infections, hospitalizations, and deaths.

Health workers who are the front liners in disease outbreaks are at risk of various occupational hazards and thus, need to be well equipped to combat the spread. COVID-19 is a novel disease in which full understanding of the disease by the scientific community is evolving. This knowledge gap has created a level of uncertainty and anxiety on expectations and outcomes by the populace and health workers who care for those that contract the disease. Following reports of ophthalmic involvement in COVID-19, transmission of SARS-CoV-2 in health facilities, and infection of health workers, eye care service providers are not exempt.

This guideline is thus designed primarily for Eye care service providers and workers to ensure they are adequately prepared and protected to curtail the spread of COVID-19 and other infectious diseases. This includes knowledge of their rights and responsibilities as health workers, including measures needed for their occupational safety and health while in the line of duty.

I, therefore, endorse this document as a guide for eye care delivery during the COVID-19 pandemic and other related disease outbreak.



**Dr. E. Osagie Ehanire, MD, FWACS**  
**Hon. Minister of Health**

## Acknowledgement

These guidelines provide guidance for the safe delivery of eye care services within the context of the COVID-19 pandemic, which poses significant risk to the eye care worker (ECW) and their patients.

It was developed entirely ONLINE and in compliance with COVID-19 safety protocols under the leadership of the Federal Ministry of health and the technical working group in collaboration with development partners, professional and patient support groups, civil society and the academia to whom the ministry remains grateful. It involved a thorough review of all relevant literature systemically and collaboratively, ensuring evidence-based protocols geared towards preventing the spread of the virus within facilities and amongst ECW and their patients.

The ministry would like to express its gratitude to Christofell Blinden Mission (CBM) for accepting to sponsor the process; providing financial, technical and logistical support. Secondly to the consultant, the National Resource Person and the Technical Working Group (TWG) who reviewed relevant literature, collated inputs from all stakeholders and worked to present this work clearly and concisely.

We gratefully acknowledge the expert opinion and technical input provided by Ophthalmological Society of Nigeria, Nigerian Optometric Association, Nigeria Ophthalmic Nurses Association, Association of Nigeria Dispensing Opticians, Albino Foundation, Nigeria Association of the Blind and Nigerian National Association of the Deaf. We appreciate the team at the National Eye Health Programme who worked tirelessly planning and coordinating the whole process.

Finally, we thank everyone who committed their time and expertise towards the successful development of this document



**Dr. U. M. Ene-Obong**  
**Director, Department of Public Health.**

## Abbreviations

- ACE:** Angiotensin-converting enzyme
- AGP:** Aerosol Generating Procedures
- ARBs:** Angiotensin II type I receptor blockers
- CBM:** Christofell Blinden Mission
- CHEW:** Community Health Extension Worker
- CHO:** Community Health Officer
- COVID-19:** Coronavirus disease 2019
- ECW:** Eye care worker
- ETT:** Endotracheal Tube
- FFP:** Filtering Face Piece
- HEPA:** High-Efficiency Particulate Air
- HMEF:** Heat and Moisture Exchange Filter
- ICU:** Intensive Care Unit
- IPC:** Infection Prevention and Control
- IV:** Intravenous
- LMA:** Laryngeal Mask Airway
- MOG:** Myelin Oligodendrocyte Glycoprotein
- NCDC:** National Centre for Disease Control
- OCT:** Optical Coherence Tomography
- PAPR:** Powered Air-purifying Respirator
- PHEIC:** Public Health Emergency of International Concern
- PPE:** Personal Protective Equipment
- PPM:** Parts per million
- SARS-CoV-2:** Severe Acute Respiratory Syndrome Coronavirus 2
- SICS:** Small Incision Cataract Surgery
- TMPRSS2:** Transmembrane serine protease 2
- TWG:** Technical Working Group
- WHO:** World Health Organisation

# 1.0 INTRODUCTION

## Global Context

Coronaviruses (CoV) are a family of enveloped single-stranded RNA viruses that are known to cause the common cold, influenza, and serious diseases such as Severe Acute Respiratory Syndrome (SARS) and the Middle East respiratory syndrome (MERS). They were both detected for the first time in 2003 and 2012, respectively and with high mortality rates. A new strain of the coronavirus family that causes severe pneumonia was identified in December 2019 following an outbreak in Wuhan, China. This new strain of coronavirus was named, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) by World Health Organization (WHO) and the disease it causes, coronavirus disease 2019 (COVID-19). Following its identification in Wuhan, COVID-19 had since spread globally, reaching pandemic levels within three months.

## National Context

There have been various disease outbreaks in Nigeria that have been successfully curtailed such as Ebola virus disease, Cerebrospinal meningitis, Yellow fever and Lassa fever. When WHO declared Coronavirus disease a Public Health Emergency of International Concern (PHEIC) on Thursday, 30 January 2020, Nigeria upgraded its preparedness for containment in terms of active surveillance, early detection, isolation and case management, contact tracing and prevention of spread. Barely a month after, the first case of COVID-19 was confirmed in Lagos, Nigeria on 27 February 2020 by the Federal Ministry of Health. On 11 March, WHO declared COVID-19 a pandemic. Since then, there have been widespread reports in all states of the federation, including the Federal Capital Territory. Many health care workers have been infected while in the line of duty, and some have succumbed to the disease. Measures to curtail the spread of the virus with lockdown measures and other strategies have been instituted at national and state levels. The goal is to reduce the number of new infections, hospitalization, and deaths. This has taken a toll on socio-economic activities and other sectors in the country. Eye Care Services have also been affected.

## Aim of the guideline

Whenever there is an outbreak of diseases, health workers are on the frontline curbing the spread and attending to other health problems. Their work exposes them to various hazards such as pathogens, long working hours, psychological distress, fatigue, occupational burnout, stigma, and physical and mental violence. COVID-19 is a novel disease in which the disease pattern, natural history, characterization and other details are not well understood and still under study with continuous updates and emerging information by the scientific community and body of experts. This creates a level of uncertainty and anxiety on expectations and outcomes. There have been reports of ophthalmic manifestations of COVID-19, transmission within the Eye care facility and infection of Eye care workers with SARS-CoV-2.

This guideline is primarily for Eye care service providers and workers, including primary eye care workers, ophthalmic nurses, opticians, optometrists and ophthalmologists. To adequately prepare and protect them to combat, curtail and as much as possible contain the spread of COVID-19 and other infectious diseases. The guideline also provides knowledge of their responsibilities as health workers, including specific measures for occupational safety and health.

## 2.0 SEVERE ACUTE RESPIRATORY SYNDROME-CORONAVIRUS-2

### Characteristics of the virus

SARS-CoV-2 is an enveloped crown-shaped virus with a diameter between 60 and 140 nm. It has an outer fatty or lipid membrane that contains virus proteins which hold and protects the RNA. It is capped by distinctive spikes of about 9 to 12 nm in length. The lipid membrane protects the RNA from the surrounding environment but can break open inside a host cell to release the RNA. This delicate balance of structural stability and subsequent release of its RNA into the host cell for replication is necessary for the transmission of the virus making it susceptible to destruction by soap.

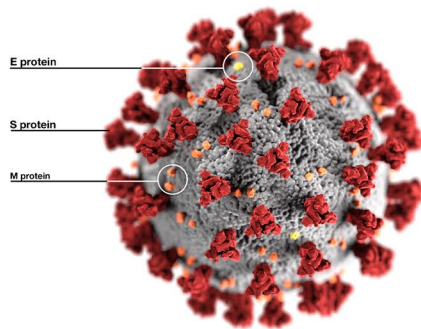


Figure 1: SARS-CoV-2

### Natural habitat

SARS-CoV-2 belongs to a group of genetically-related viruses including SARS-CoV and other CoVs which are zoonotic diseases with their origin in animals. WHO has not confirmed the possible animal source of COVID-19. Human degradation of wildlife habitat increases the risk of contact of disease-carrying wild animals with humans, allowing new strains of infectious diseases to thrive.

### Mode of Transmission

It is an airborne virus transmitted by aerosolized droplets when talking, sneezing, or coughing, aerosol particles, human-to-human contact or via fomites such as particles of skin cells, hair, clothing and bedding. Infection can occur when viral particles enter the mouth, nose or eyes. Thus, the transmission of the COVID-19 virus can occur by direct contact with infected people and indirect contact with surfaces in the immediate environment or with objects used on the infected person such as stethoscope or thermometer. The ability of the virus to survive in an environment is dependent on temperature, relative humidity, and the nature of the surfaces on which it lands. It can stay for

many days on inanimate surfaces such as plastic, on cardboard for 24 hours, and as aerosol particles for several hours. The dried virus on smooth surfaces can retain its viability in a typical air-conditioned environment with temperatures of 22–25°C and relative humidity of 40–50% for over five days. The virus' viability is rapidly lost at higher temperatures, e.g., 38°C and higher relative humidity of >95%.

Various settings which can act as catalysts for local outbreaks include homes, workplaces, hospitals, nursing and other health care facilities, cruise ships, aircraft carriers and other military vessels. Others include mass gatherings and religious gatherings, schools, prisons, homeless shelters, industrial meat-packing plants and choirs.

### SARS-CoV-2 entry into the host cell

SARS-CoV-2 enters a cell following binding via the viral spike protein to the human angiotensin-converting enzyme (ACE) 2 protein, the essential cell surface receptor. Transmembrane serine protease 2 (TMPRSS2), a cell surface-associated protease then facilitates viral entry following binding of the viral spike protein to ACE-2 expressed in the epithelial cells in lungs and other tissues such as intestines and kidney. Increased expression of ACE-2 has been found in patients with hypertension and diabetes mellitus, who are treated with ACE inhibitors and angiotensin II type I receptor blockers (ARBs).

### SARS-CoV-2 and the Eye

ACE-2 and TMPRSS2 are also expressed in the conjunctiva, limbus, and cornea. Thus, the ocular surface can serve as a portal of entry through exposure to aerosolized droplets or hand-eye contact. It could also serve as a reservoir for the human to human transmission of the virus. The virus can also be transferred along with tears from the ocular surface into the nasal cavity and the upper part of respiratory tissues due to continuation of the mucous membrane via the puncta into the nasolacrimal duct and the nasopharyngeal space. This can eventually deliver the virus into the lungs and the gastrointestinal tract, when swallowed, where it can bind to the ACE-2 receptors. The exposed ocular surface could, therefore, serve as a gateway in the transmission of COVID-19 and contact with discharge from the infected eye can be a potential source of contamination.



## 3.0 CLINICAL SIGNS AND SYMPTOMS

The incubation period for COVID-19, which is the time between exposure to the virus (becoming infected) and symptom onset ranges from 1 to 14 days, with an average of 5-6 days. Many individuals infected with SARS-CoV-2 may remain asymptomatic or have very mild symptoms, while still being highly contagious. Those who are more at risk of severe COVID-19 complications include older people, those with underlying medical problems such as diabetes, hypertension, and chronic respiratory disease such as asthma and chronic obstructive pulmonary disease, heart, kidney, neurological and liver diseases, immunosuppression, marked obesity of body mass index above 40. About 85% of patients will have a mild-to-moderate illness and symptoms and recover from the disease.

Fever within two weeks is the most common presenting symptom in about 97% of patients with clinical disease. Other clinical findings include dry cough, rhinitis, sputum production, fatigue, malaise, arthralgia, progressive gastrointestinal symptoms (diarrhoea, vomiting, abdominal pain), anosmia or hyposmia (loss of smell or reduced sense of smell), ageusia (loss of taste), shortness of breath, severe pneumonia along with chest radiographic abnormalities.

Atypical presentations of COVID-19 include haemoptysis, neurological symptoms such as axial hypotonia, altered mental status, acute necrotizing haemorrhagic encephalopathy, acute cerebrovascular disease, and muscle injuries. Hypercoagulability described as "sepsis-induced coagulopathy" which could predispose to a spectrum of thromboembolic events has been associated with COVID-19. There have been documented cases of deep venous thromboses, pulmonary emboli, and large-vessel ischemic strokes because of COVID-19 hypercoagulability. This is suspected to be due to a hyperinflammatory response caused by the SARS-CoV-2 virus. Patients with Sickle cell disease, (a group of inherited red blood cell disorders and immunocompromised states) could have underlying cardiopulmonary co-morbidities that may predispose them to acute chest syndrome, a rapid and deadly lung injury if infected with SARS-COV-2 with risk for poor outcomes.

## 4.0 OPHTHALMIC MANIFESTATIONS OF COVID-19

Ocular manifestations of COVID-19 may present as lid swelling, aches or pain, redness, watering, irritation, photophobia, poor vision and double vision.

Adnexa findings include chalazion, possibly from inflammation and obstruction of the sebaceous glands occurring from breath directed toward the eyelids following the use of masks or glasses has been reported. Lid oedema may also occur.

Anterior segment findings include follicular conjunctivitis, conjunctival hyperaemia, or congestion. Pseudo-membranous and haemorrhagic conjunctivitis has also been reported.

Posterior segment findings include subtle cotton wool spots and micro haemorrhages found along the arcades. Retinal vascular occlusion possibly from hypercoagulable states and resulting thromboembolic events have been documented. Optical coherence tomography shows hyper-reflective lesions at the level of ganglion cell and inner plexiform layers more prominent at the papillo-macular bundle. Paracentral acute middle maculopathy (PAMM) and acute macular neuroretinopathy (AMN) have also been documented.

Neuro-ophthalmic manifestations with internuclear ophthalmoparesis and fascicular oculomotor palsy have been reported in patients with atypical presentations of COVID-19 who had Miller Fisher syndrome and polyneuritis cranialis. Both are variants of Guillain-Barré syndrome. Reports have shown cross-reaction between antibodies of COVID-19 and receptors in autoimmune disorders such as Myasthenia Gravis and Myelin Oligodendrocyte Glycoprotein (MOG) antibody-associated Optic neuritis.

## 5.0 LIMITING FACILITY BASED TRANSMISSION OF COVID-19

The COVID-19 pandemic has birthed the setting for a 'new normal' in the processes involved in patient care in a bid to limit transmission of infections. The eye care facility could be the first presentation to a health care setting by both symptomatic and asymptomatic carriers of COVID-19. As people most at risk of infection are those who are in close contact with a COVID-19 patient or who care for COVID-19 patients, health care workers including eye care workers can get infected or transmit infections while rendering care if appropriate measures to prevent its spread are not in place. This is relevant in eye care settings where many procedures entail doctor and patient being less than 2 metres apart.

Recent reports also show that ophthalmology is one of the specialities at the highest risk of contracting COVID-19. It is, therefore, imperative to put in place measures to limit the transmission of COVID-19 and other highly contagious infections. These measures include:

### 5.1 Administration

1. Eye Units/Departments/Centre should have a designated Infection Prevention and Control (IPC) focal person.
2. Ensure adequate IPC training for Eye Care Workers (ECW) including hygienist and waste handlers on handwashing, cleaning, decontamination and waste disposal
3. Ensure availability of infrastructure/personal protective equipment (PPE) to prevent the spread of infection
4. Monitor ECWs compliance with standard precautions and provide mechanisms for improvement as needed.
5. Monitor the implementation process using the recommended reporting tool for Eye Care Workers during COVID-19 (see Annex 1, Tool 1) to document possible exposure and symptoms of COVID-19 among ECWs.
6. Ensure prompt and safe waste management.

### 5.2 Clinic appointment protocols

1. Patient appointments could be scheduled at specific times. Text messages could be sent ahead of time when possible.
2. Patients should be advised to limit accompanying persons, preferably none. An exception could be made for children or persons with disabilities. Other accompanying persons can wait in a designated waiting area or their cars if mobile.
3. Reduce visits of vulnerable patients as much as possible.
4. Reduce the number of people in the clinic at any one time to 50 to 75% of the normal clinic capacity to ensure adequate physical distancing of two meters. Limit drop-ins by patients but make allowance for emergency cases.

### 5.3 Facility management

1. There should be good ventilation which may involve keeping doors and windows open.
2. Patient hand washing facilities and/or hand sanitizers should be in a visible and easily accessible location outside the main entrance to the clinic and inside the clinic. Handwashing facilities should be accessible to persons with disabilities.
3. Keep doors open to avoid the need to touch any door handles. All door handles should be cleaned at regular intervals.
4. Sitting arrangement in waiting areas should ensure adequate separation of 2 metres between people with clear and unambiguous labels.



Figure 2: Sitting arrangement with adequate spacing for patients



Figure 3: Reasons for physical distancing

5. Where a queue is expected, boxes should be marked on the floor to highlight where persons must stand.
6. When clinic attendance beyond the facility's capacity is anticipated or occurs, an overflow should be created with adequate physical distancing between persons of at least 2 metres.
7. A one-way system should be developed for entry and exit from the clinic to reduce close movements in narrow corridors. Directional arrows can be marked on the floor using contrasting colours for easy recognition by persons with visual impairment to show the direction of patient flow.
8. Reduce opportunities for indirect transmission such as touching objects in common areas. Consider remove such objects completely or commit to regular decontamination.
9. An informed patient community will act responsibly and help lower transmission. Posters, signs, and information materials on COVID-19 prevention and control should be placed in visible and accessible

places (especially for those living with disabilities). Messages should be simple, clear, concise and include guides on frequent and proper handwashing, social distancing and cough etiquette. Messages should be illustrated with colourful images such that people who are not literate or have low vision can easily read and/or understand.

10. Have tissues and covered bins available for patients and staff.
11. A room should not be used for different purposes at various times of the day. If this would not be possible, decontaminate rooms thoroughly between uses.
12. Encourage non-cash (electronic) payment options and avoid sharing personal items such as mobile phones, stationeries, key, rings and pens.

#### 5.4 Precautions by eye care workers

1. All staff must wear masks, maintain good hand hygiene, respiratory hygiene and cough etiquette. Wash/decontaminate hands when appropriate.



Figure 4: Cough etiquette

2. Trinkets and jewellery should be avoided and minimize the use of mobile phones during work to prevent contamination.
3. Staff at risk of severe COVID-19 complications, such as those with medical co-morbidities (e.g. diabetes, liver diseases, kidney diseases, immunosuppression, chronic obstructive pulmonary disease and those 60 years and above should step down from front line work.

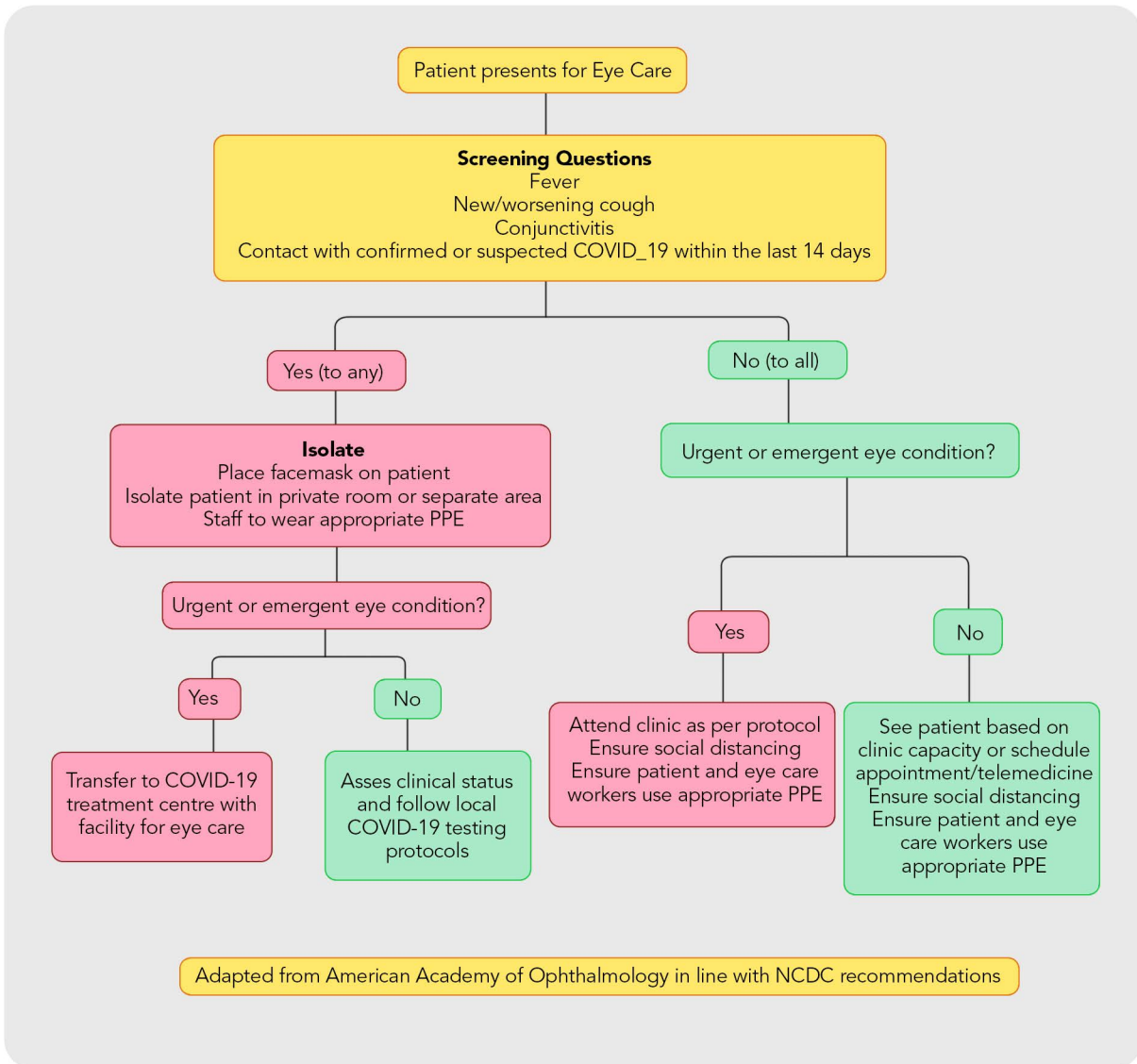
## EYE ON COVID:

### A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE FOR EYE CARE DURING THE COVID-19 PANDEMIC

4. There should be rational and appropriate use of personal protective equipment (PPE) by eye care workers. Gown, hair covers, gloves, surgical mask, and eye protection such as face shields or goggles are recommended for the clinician and other eye care workers in direct contact with patients. An N95 mask should be worn if an aerosol-generating procedure is planned or there is an emergent, urgent, or semi-urgent need to manage a COVID-19 positive patient.
5. Staff should ensure strict compliance to safety precautions outside health facilities (DO NOT LOWER YOUR GUARD) to prevent community (amongst friends and family) and hospital transmission.
6. Staff with symptoms of COVID-19 should report to designated centres for testing and may be required to self-isolate at home for 14 days or visit a hospital-based facility equipped to evaluate for, and manage, COVID-19 in keeping with national guidelines.

## 5.5 Waiting area and Patient flow

1. Patients' temperature should be checked with infrared thermometers to identify febrile patients (temperature above 37.5oC) who should be advised to seek medical attention. All persons should practice handwashing or use hand sanitizers in the designated area before entering the facility.
2. Ask questions which can identify patients with possible exposure to SARS-CoV-2 such as a history of sore throat, fever, fatigue, loss of smell or respiratory symptoms or if the patient had been in contact with someone known to have COVID-19 in the last 2 to 14 days. Patients who respond in the affirmative should be taken to a holding area before testing or advised to self-isolate as per protocol. (Please see flow chart for triage below)
3. Remove objects that several people are likely to touch, such as books, newspapers, magazines, and toys.
4. Ensure social (physical) distancing in waiting rooms, frequent and meticulous disinfection of patient waiting areas and wearing of face coverings/masks by patients.
5. Keep the waiting room as empty as possible, advice people to keep a safe distance apart of at least 2 metres with seats clearly labelled to indicate where not to sit.
6. Disinfect chairs and armrests after every patient use with 70% ethyl alcohol or sodium hypochlorite at 0.1% (1000ppm).
7. Disinfect door handles/knob at least every hour with 70% ethyl alcohol or sodium hypochlorite at 0.1% (1000ppm).



## EYE ON COVID:

A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE FOR EYE CARE DURING THE COVID-19 PANDEMIC

### 5.6 Personal Protective Equipment

Personal protective equipment (PPE) refers to protective clothing such as gowns, coveralls and aprons, head cover and gloves. They include eye protection such as face shields and goggles, face masks or respirators, shoe coverings or boots and other equipment designed to protect the wearer from injury, the spread of infection or illness. When appropriately used, PPE acts as a barrier between infectious materials such as viral and bacterial contaminants and mucous membranes (skin, mouth, nose, and eyes). The barrier has the potential to block transmission of contaminants from blood, body fluids, aerosols, or respiratory secretions. When used correctly and with other infection control practices such as hand washing, alcohol-based hand sanitizers, and covering coughs/sneeze etiquettes, it minimizes the spread of infection from one person to another. Effective use of PPE includes proper donning, doffing and disposal of contaminated PPE to prevent contamination of the wearer and others.

#### 5.6.1. Types of Masks and How to use masks

There are three main types of masks for use. These are surgical masks, respirators, and cloth face coverings.



**Surgical Mask**



**N95 respirator**



**Cloth mask**

Figure 5: Types of Face masks

#### **Surgical masks:**

A surgical mask is a fluid-resistant disposable form of personal protective equipment (PPE) that fits loosely over the nose and mouth. They are typically used to protect the wearer from sprays, splashes, large cough or sneeze droplets and large-particle droplets, but they cannot protect against smaller droplets. They can also prevent the transmission of potentially infectious respiratory secretions from the wearer to others. Surgical masks can vary in design, are often flat and rectangular with pleats or folds. The top has a metal/plastic strip that can be formed to the nose. Elastic bands or long, straight ties help hold a surgical mask in place while in use. These can either be looped behind the ears or tied behind the head..

#### **Respirators:**

These include the N95 and other filtering face-piece (FFP) that is FFP2 and FFP3 forms. The higher the number, the better the protection. These masks have tangled fibres to filter pathogens in the air, and they fit close to the face. The edges form a seal around the mouth and nose. An N95 respirator is a more tight-fitting face mask. In addition to splashes, sprays, and large droplets, this respirator can also filter out 95 per cent of microscopic particles, including viruses and bacteria. The respirator itself is circular or oval and is designed to form a tight seal to your face. Elastic bands help hold it firmly to your face. Some types may have an attachment called an exhalation valve to help with breathing and build-up of heat and humidity. They are not recommended for use according to the National Centre for Disease Control (NCDC) guideline because the exhaled air is not filtered and could infect others.

N95 respirators are not one-size-fits-all as varied sizes are ranging from extra small, small to medium and large. A smaller size is a better choice to ensure a snug fit, and it should be moulded to the face for an even tighter fit (see below on seal testing).

After being fit-tested, users of N95 respirators must

continue to perform a seal check each time they put one on. Children and people with facial hair may not be able to achieve a tight seal. N95 face masks can make it more difficult to breathe, especially if there is an underlying chronic cardiac or respiratory condition which may thus require extra precautions to be taken. When wearing an N95 respirator, shave off all facial hair because it gets in the way of the mask and prevents a tight, sealed fit, compromising efficiency.

#### How to wear a respirator mask and test seal

- Hands should be washed with soap and water and dried before putting on the mask, so the mask does not get wet and prevent accidental contamination of the mask before putting it on.
- Cup the mask in one hand and place it over the mouth and nose. Place the mask in the palm so that the straps face the floor. Set it over the nose and mouth with the nosepiece fitting over the bridge of the nose. The bottom should go just under the chin.
- Touch only the exterior and edges of the mask to keep it clean.
- Pull the bottom and top straps over the head. If the mask has two straps, pull the bottom one over the head and secure it around the neck, just under the ears. Continue to hold the mask tightly against the face with the other hand. Then, pull the top strap over and set it above the ears.
- Mould the nose piece around the bridge of the nose. Set the first 2 fingertips on either side of the metal nose clip at the top of the mask. Run fingers down both sides of the strip, moulding it along the bridge of the nose. If the mask does not have a nosepiece, simply make sure the fit is tight and snug around the nose.
- Breathe through the mask and test for leaks. Set both hands against the mask and take a breath to make sure that it seals against the face. Then exhale, feeling for any leakage from the nosepiece or around the edges. If air leaks from the nose area, re-mould the nosepiece. If it leaks from the edges of the mask, adjust the placement of the straps on the sides of the head.
- If the mask still is not completely sealed, seek assistance, or try a different size or model.
- Remove mask by pulling the straps over the top of the head. Without touching the front of the mask,

pull the bottom strap over the head and let it hang down over the chest. Then, pull the top strap over. Throw the mask away or store it in a clean, sealed container or bag. Avoid touching the mask to prevent contamination.

#### Cloth face masks:


Cloth face masks only offer a small degree of protection, but they may help prevent the transmission of SARS-CoV-2 from asymptomatic people. These should be made with fabric that will not damage or change shape when laundered or machine dried. Multiple layers of fabric which will not restrict breathing should be used. The outer layer should be made from a water-resistant fabric such as polyester or cotton-polyester blend while the inner layer can be made of cotton to make it more comfortable to wear and absorb moisture from breathing. It should fit snugly and comfortably against the side of the face and be secured with ties or ear loops. It should be washed after every day of use. It should not be placed in pockets for later use. The mask should be folded such that the contaminated exterior is folded inward and against itself when stored. It should be placed in a clean paper bag and washed. Be careful not to touch the eyes, nose or mouth when removing the mask. **The cloth face mask is not recommended for clinical practice and should be ONLY be used in the absence of a surgical mask but can be allowed for patients, carers and non-clinical staff.** The mask should meet the "candle flame test" standard. This means that a wearer should be unable to blow out a candle. If this fails, it means the mask doesn't adequately stop the flow of air. Thus, if air can leak out, air can also leak inward.





# HOW TO WEAR A NON-MEDICAL FABRIC MASK SAFELY

[who.int/epi-win](http://who.int/epi-win)

## Do's →

-  Clean your hands before touching the mask
-  Inspect the mask for damage or if dirty
-  Adjust the mask to your face without leaving gaps on the sides
-  Cover your mouth, nose, and chin
-  Avoid touching the mask
-  Clean your hands before removing the mask
-  Remove the mask by the straps behind the ears or head
-  Pull the mask away from your face
-  Store the mask in a clean plastic, resealable bag if it is not dirty or wet and you plan to re-use it
-  Remove the mask by the straps when taking it out of the bag
-  Wash the mask in soap or detergent, preferably with hot water, at least once a day
-  Clean your hands after removing the mask

## Don'ts →

-  Do not use a mask that looks damaged
-  Do not wear a loose mask
-  Do not wear the mask under the nose
-  Do not remove the mask where there are people within 1 metre
-  Do not use a mask that is difficult to breathe through
-  Do not wear a dirty or wet mask
-  Do not share your mask with others

**A fabric mask can protect others around you. To protect yourself and prevent the spread of COVID-19, remember to keep at least 2 metres distance from others, clean your hands frequently and thoroughly, and avoid touching your face and mask.**



Figure 6: How to wear a non-medical face mask

**Transparent (deaf-friendly) face masks** should be used in situations when communication with the Deaf or 'Hard of hearing' is required. This would aid lip-reading and non-verbal communication.



Figure 7: Transparent face mask

**EYE ON COVID:**

A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE FOR EYE CARE DURING THE COVID-19 PANDEMIC

**5.6.2 Sequence for Donning and Doffing Personal Protective Equipment**

A detailed pictorial sequence for donning and doffing PPE is provided below.

**DONNING PPE FOR THEATRE**

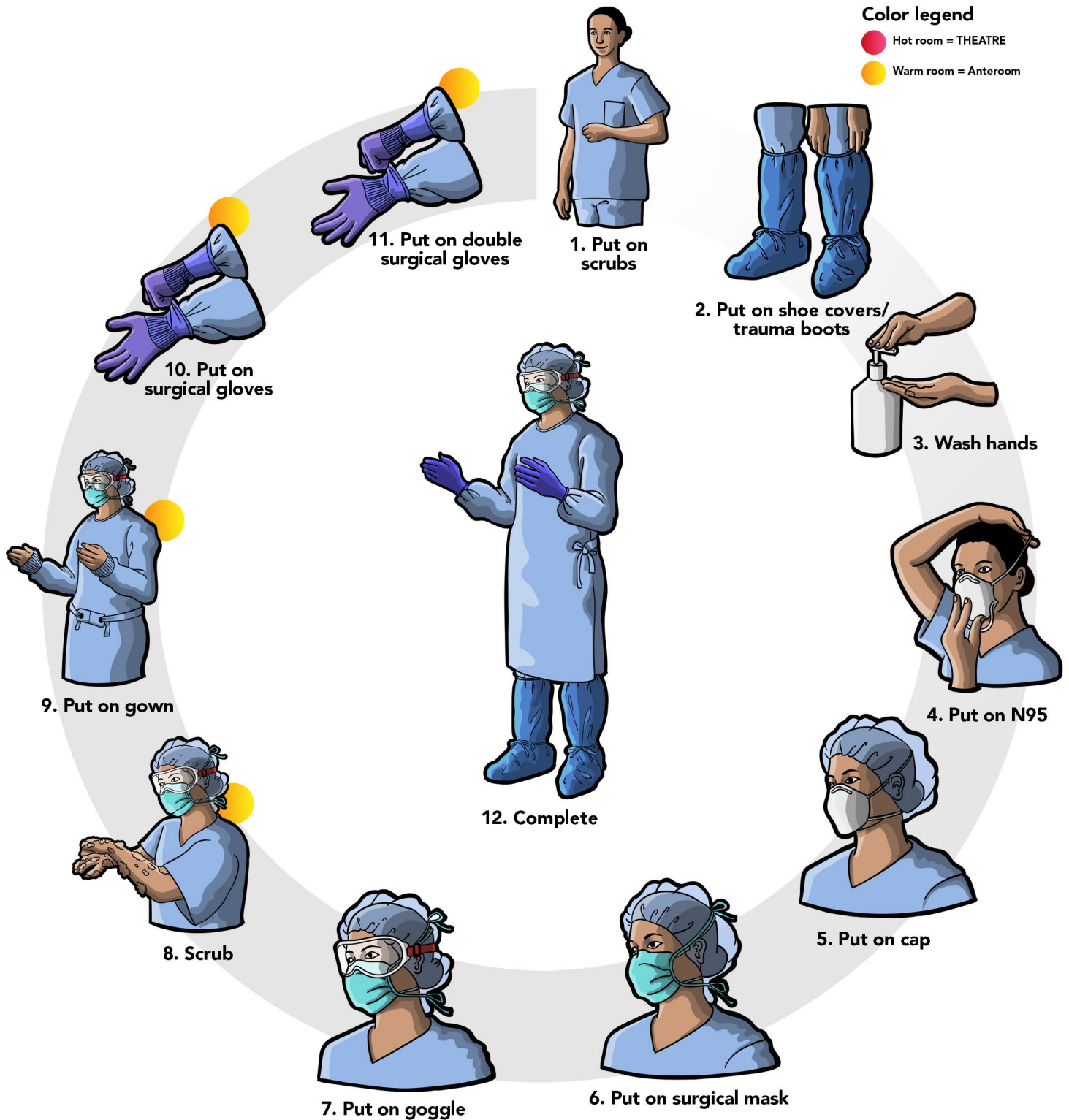


Figure 8A: Sequence for donning PPE

**N.B:** The poster can be printed and posted on clinic and theatre walls

## DOFFING PPE FOR THEATRE

### Color legend

- Hot room = THEATRE
- Warm room = Anteroom

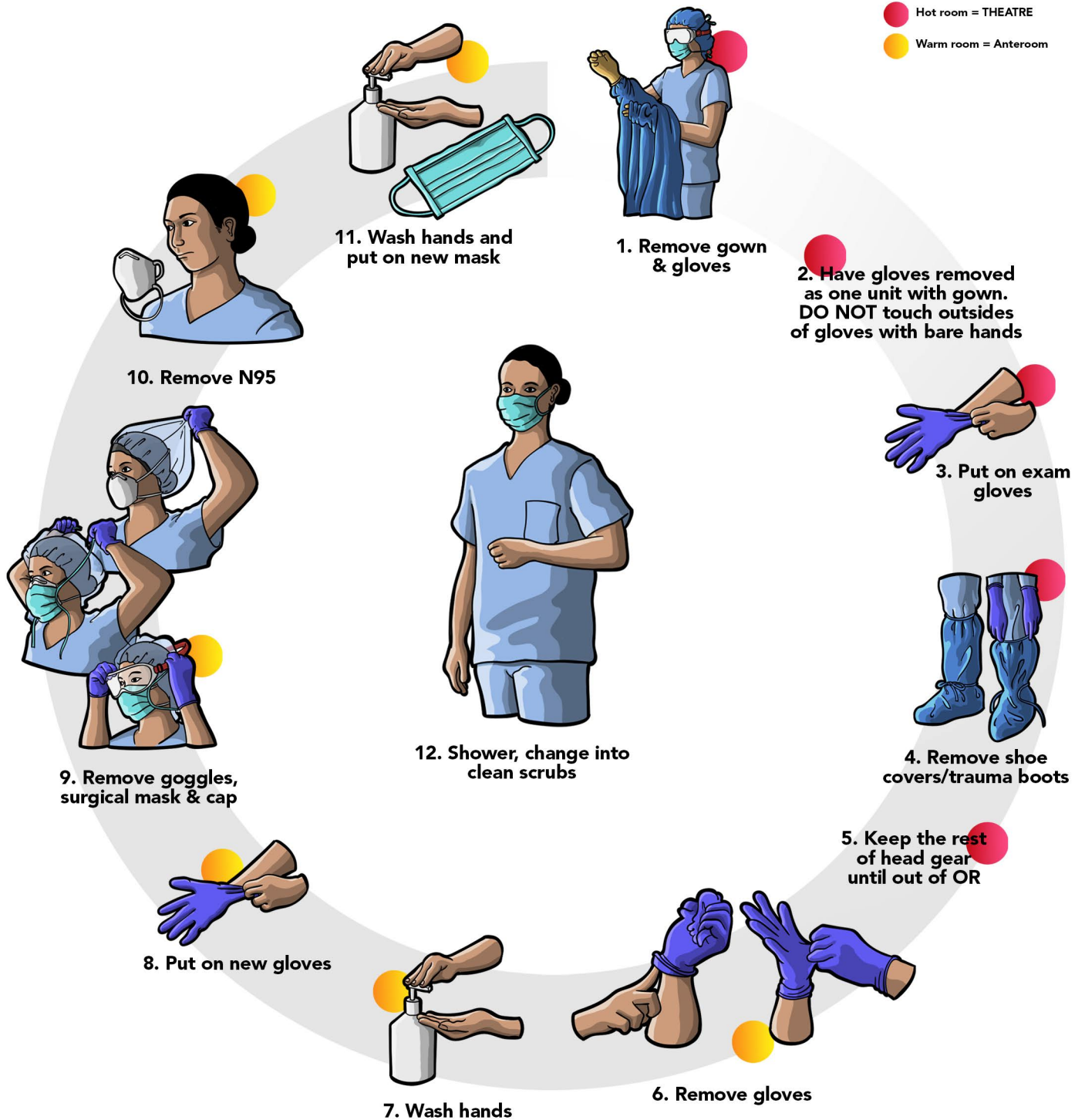


Figure 8B: Sequence for doffing PPE

**N.B:** The poster can be printed and posted on clinic and theatre walls

## EYE ON COVID:

A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE FOR EYE CARE DURING THE COVID-19 PANDEMIC

A simplified/abridged sequence for donning and doffing PPE is presented below

Donning PPE (Putting on)	Doffing PPE (Taking off)
1. Perform hand hygiene by washing with soap or alcohol rub	1. Remove shoe covers (where applicable)
2. Put on shoe covers (where applicable)	2. Remove gown and gloves together
3. Put on gown	3. Perform hand hygiene by washing with soap or alcohol rub
4. Put on mask/respirator	4. Remove eye protection (goggles/face shield)
5. Put on eye protection (goggles/face shield)	5. Remove mask/respirator
6. Put on gloves	6. Perform hand hygiene

## 5.6 Consulting rooms

1. Avoid shaking hands, or any other patient contact, as much as possible. Non contact forms of greetings are advised. The patient and doctor should always remain 2 meters apart.



Figure 9: Non-contact greetings

- Reduce contact time with patients by reviewing notes before the patient enters the consulting room.
2. Slit-lamp barriers or breath shields should be installed on slit lamps to provide a measure of added protection
  3. against the virus. These can be bought from slit-lamp manufacturers or locally improvised using smooth, transparent plastic material that is easy to clean. However, note that these barriers do not prevent contamination of equipment and surfaces on the patient's side of the barrier, which may then be touched by staff and other patients and lead to transmission..



Figure 10: Slit lamp with fitted breath shield.

4. Speaking (patient or doctor) during the slit-lamp examination should be avoided.
5. Surgical mask or cloth face covering for the patient, and a surgical mask and eye protection for the doctor during eye examinations. In some situations, wearing goggles may be impractical.
6. Improvised/home-made breath shields should be added to portable slit lamps and indirect ophthalmoscopes. **Direct ophthalmoscopy should be avoided.**
7. It is preferable to use rebound tonometers such as Icare tonometerR or use disposable Goldman applanation tonometer heads when measuring intraocular pressure. Avoid the use of non-contact "air puff" tonometer, which could be aerosol-generating.
8. Do not use Alger brushes due to the risk of aerosol generation. Instead, use a needle to remove a rust ring.
9. Clean and disinfect breath shields and ophthalmic equipment (e.g., slit lamp, tonometer, trial frames, lenses, pinhole occluder, autorefractor machine etc.) with great care in between each patient. Use disposable gloves and a concentration of 0.5% hypochlorite (household bleach) or alcohol solutions with at least 70% ethyl alcohol or isopropyl alcohol.
10. Clean and disinfect surfaces and areas touched by patients and staff such as seats, door handles, phones, keyboards, pencils and any controls/buttons on the slit lamp and other ophthalmic equipment with the same solution earlier mentioned.
11. Keep investigations such as visual fields or Optical Coherence Tomography (OCT) scans to an absolute minimum. Clean and disinfect all ophthalmic equipment thoroughly in between use by patients.

#### **5.7.1 Precautions for Application of eye drops and diagnostic tests (Fluorescein/Schirmers strips)**

1. Hand hygiene, before and after application with sanitizers or wash hands with soap and water for at least 20 seconds, especially before touching the eye drop bottles and instilling eye drops.
2. Avoid touching the face and eyes.
3. If necessary, use disinfecting wipes to clean the eye drop bottles, but make sure to avoid the bottle tips and let them dry before instilling the drops.
4. Ask patients to pull their lower lids down themselves while instilling eye drops or inserting diagnostic strips or use a tissue between finger and patient's lid if it is necessary to assist the patient.

### **5.8 Refraction and Optical Services**

1. Follow instructions on Precautions by eye care workers (see section 5.4) for safety procedures on interactions with patients
2. Minimize physical contact and time spent with patients as much as possible.
3. All equipment, instruments and work surfaces should be disinfected in between patients. These include the autorefractor machine, retinoscopes, trial frames, pinholes, occluders and trial lenses.
4. Ask patients to remove their spectacles themselves.
5. Sanitize frames before patients try them.
6. Sample frames tried by patients should be disinfected before replacing on display shelves or washed with soap and water and dried with disposable dry wipes.

## EYE ON COVID:

### A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE FOR EYE CARE DURING THE COVID-19 PANDEMIC

7. To confirm or check a patient's spectacles prescription on a focimeter, ask the patient to take them off and provide the patient with a wipe to sanitize their frames before touching.
8. Patients should be advised to limit the use of contact lenses to reduce the risk of transmission. Instruct patients who wear contact lens to insert and remove their lenses themselves.
9. If there is a need to touch a patient, ensure hand hygiene before and after, and decontaminate any equipment used appropriately.

## 5.9 Laser and Surgical Procedures

1. Follow instructions on Precautions by eye care workers (see section 5.4) for safety procedures on interactions with patients.
2. The need to institute more precautions in operating rooms could increase turnover times between cases which may affect the number of surgical cases performed per session.
3. Every patient to have any ophthalmic procedure (such as suture removal, corneal or conjunctival foreign body removal, epilation, subconjunctival, periocular or intravitreal injections), should use a surgical mask or a cloth face covering if surgical masks are in short supply to prevent asymptomatic transmission to the surgeon and staff. The eye care worker should wear a surgical mask and eye protection. An N95 mask can be used if not in short supply, to minimize potential spread from the patient's exhaled breath around the surgical mask.
4. Topical povidone-iodine (10% on periocular skin and 5% on the ocular surface) is effective against coronaviruses and should be used for surgical preparation. Application of topical povidone-iodine can be repeated but should not be applied in the presence of a penetrating incision during intraocular surgery.
5. Pre-operative COVID 19 screening tests should be requested in procedures considered to be aerosol-generating (see section 5.10) such as phacoemulsification and vitrectomy, and procedures requiring general anaesthesia. Other tests that could be requested with appropriate clinical judgment are chest X-rays and Computed Tomography scan to assess the lung parenchyma for pneumonia or fibrosis, full blood count and and inflammatory markers assay such as C-reactive protein where applicable.

6. COVID-19 testing availability, time to obtain the result of the test and accuracy should be considered in decisions to test healthy or asymptomatic patients who require eye surgery. Standard surgical personal protective equipment (PPE) should be used in these cases.

7. Standard surgical personal protective equipment (PPE), including a surgical mask, is sufficient for the surgeon in most cases. Eye protection should be worn as much as possible. In circumstances where eye protection is difficult or interferes with safe performance of the procedure, close-fitting safety glasses may be used. A sterile face shield can be placed after donning surgical loupes or an indirect ophthalmoscope. An N95 mask can be specifically indicated by the condition of the patient, the prevalence of COVID-19 in the community, and/or the type of surgery planned.

8. In patients who are positive for COVID-19, surgery should be delayed for elective cases until the patient is negative. When surgery is necessary due to the risk of permanent visual loss or loss of life if delayed, the surgeon and operating room staff should wear standard PPE, N95 masks and eye protection or face shield.

## 5.10 Aerosol Generating Procedures

Aerosols are suspensions of small liquid droplets or solid particles in the air. Droplets, in terms of respiratory infections, refer to small liquid drops that are generated by expiratory events such as coughing, sneezing, laughing, talking, or even breathing. Droplets can be large or small and aerosols generally contain a range of droplet sizes. Droplets usually descend to the ground under gravity after being expelled, thus transmitted usually over a limited distance. However, the water content of small droplets may evaporate during the stay in the air, producing even smaller sizes that could then remain suspended in air and could be transmitted over a long distance. Procedures involving high-speed instrumentation are characteristically associated with aerosol generation. In ophthalmology, potentially aerosol-generating procedures include:

- I. Non-contact "air puff" tonometry
- II. Phacoemulsification especially when the probe is activated outside the eye. This can be minimized by judicious use of Ophthalmic Viscoelastic Devices
- III. Vitrectomy

- IV. Endoscopic dacryocystorhinostomy whereby nasal endoscopy is often performed. Nasal endoscopy could irritate the nasal mucosa provoking sneezing. It also often involves suction of nasal discharge, which poses an infectious risk to staff and should be avoided as much as possible
- V. Any intraocular surgery that requires the use of fluid such as Manual Small Incision Cataract Surgery (SICS)
- VI. Operations under general anaesthesia which usually requires intubation and suction.

### 5.11 Urgent/Emergent and Elective Cases

#### Patients' complaints requiring Urgent/Emergent Care

Patients at high risk of visual loss without treatment should be considered as urgent/emergent cases. Services should continue to be provided for urgent/emergency eye care. Presenting complaints that may indicate true emergencies include the following:

- (i) Injury to the eye (chemical, thermal, mechanical)
- (ii) Sudden visual loss
- (iii) Acute pain
- (iv) Acute red eye
- (v) Acute onset of eyelid lesions
- (vi) Acute onset of double vision or sudden onset of drooping of the eyelid
- (vii) Acute onset of coloured halos, photophobia, floaters or flashes of light
- (viii) Acute onset of discharge from the eye
- (ix) Acute or subacute (days to weeks) onset bulging of the eye
- (x) Broken or lost spectacles
- (xi) Medication refill

#### Urgent/Emergent Cases

Conditions that would need to be seen urgently/emergently will depend on individual patient needs, the risk of significant harm if treatment is delayed and the situation of the eye care provider. Patients with the following conditions should be seen:

- Wet, active age-related macular degeneration
- Sight-threatening treatable retinovascular diseases such as proliferative diabetic retinopathy and retinal vascular occlusion
- Acute retinal detachment (macular on, macular off < 4 weeks)
- Suspected elevated intraocular pressure, Advanced or rapidly progressive glaucoma such as Acute angle-closure or neovascular glaucoma
- Severe, active uveitis
- Ocular and adnexal oncology – active, aggressive, uncontrolled or untreated lesions
- Retinopathy of prematurity (screening and treatment)
- Globe rupture or other significant and sight-threatening trauma such as chemical injuries
- Serious ocular infections such as microbial keratitis and endophthalmitis
- Sight-threatening orbital diseases such as orbital cellulitis and severe thyroid eye disease
- Giant cell arteritis affecting vision
- Amblyopia
- Bilateral cataract blind or one-eyed cataract blind
- Broken or lost spectacles especially in patients with high refractive errors

#### Elective Cases:

These are cases that can be postponed for more than four weeks without considerable risk of loss of vision, general health and functioning.

(See section 5.9, items 5 and 6 on COVID-19 testing for surgical procedures)

### 5.12 Environmental Cleaning and Waste management

Environmental contamination plays a role in the transmission of infections in health care settings. Environmental cleaning is a fundamental intervention for infection prevention. The provision of safe water, sanitation, hygienic conditions and waste management is essential in protecting health during all infectious disease outbreaks, including COVID-19.



## EYE ON COVID:

A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE FOR EYE CARE DURING THE COVID-19 PANDEMIC

### Reusable materials

Small surface areas and reusable dedicated equipment can be disinfected in between use with 70% ethyl alcohol or sodium hypochlorite at 0.1% (1000 ppm) for surfaces, and 0.5% (5000 ppm) for blood or bodily fluids spills in healthcare facilities. WHO recommends that utility gloves and heavy-duty, reusable plastic aprons be cleaned with soap and water, followed by decontamination with 0.5% sodium hypochlorite solution after use.

### Disposable materials

Single-use gloves and gowns should be discarded as infectious waste after use and hand hygiene performed after PPE is removed. Persons involved in environmental cleaning, laundry and handling soiled bedding, towels and clothes from patients with SARS-CoV-2 infection should wear appropriate PPE, including heavy-duty gloves, a mask, eye protection (goggles or a face shield), a long-sleeved gown, and boots or closed shoes. They should perform hand hygiene after exposure to blood or body fluids and after removing PPE.

### Handling of body waste

Body waste such as excreta on surfaces such as linen or the floor should be carefully removed with towels and immediately disposed of safely in a toilet. If the towels are single-use, they should be treated as infectious waste; if they are reusable, they should be treated as soiled linens. The area should then be cleaned and disinfected following guidance on cleaning and disinfection procedures for spilt body fluids.

Soiled linen should be placed in clearly labelled, leak-proof bags or containers, after carefully removing any solid excrement. Excrement should be disposed of in a flush or dry toilet. Machine washing with warm water at 60–90°C and laundry detergent is recommended. The laundry can then be dried according to routine procedures. If machine washing is not possible, linens can be soaked in hot water and soap in a large drum using a stick to stir, taking care to avoid splashing. The drum should then be emptied, and the linens soaked in 0.05% chlorine for approximately 30 minutes. Finally, the laundry should be rinsed with clean water and the linens allowed to dry thoroughly, preferably in sunlight.



## Cleaning and Disinfection

Cleaning should be done before disinfection. A disinfectant cannot reach the organisms if they are covered with dirt. So clean first, and then disinfect. Cleaning helps to remove pathogens or significantly reduce their load on contaminated surfaces and is an essential first step in any disinfection process. Cleaning with water, soap (or a neutral detergent) and some form of mechanical action (brushing or scrubbing) removes and reduces dirt, debris and other organic matter such as blood, secretions and excretions, but does not kill microorganisms. Organic matter can impede direct contact of a disinfectant to a surface and inactivate its germicidal properties. In addition to the methodology used, the disinfectant concentration and contact time are also critical for effective surface disinfection. Therefore, a chemical disinfectant, such as chlorine or alcohol, should be applied after cleaning to kill any remaining microorganisms. Disinfectant solutions must be prepared and used according to the manufacturer's recommendations for volume and contact time. Concentrations with inadequate dilution during preparation (too high or too low) may reduce their effectiveness. High concentrations increase chemical exposure to users and may also damage surfaces. Enough disinfectant solution should be applied to allow surfaces to remain wet and untouched long enough for the disinfectant to inactivate pathogens, as recommended by the manufacturer.

There should be defined lines of accountability and functional reporting lines and responsibilities for concerned staff. There should be cleaning schedules for every patient care area and equipment, specifying the frequency and method, and staff responsible should have been trained to acceptable performance standards.

- Always move from cleanest area to dirtiest area
- Clean from higher-level areas to low areas and from outer to inner.
- Damp dusting and wet mopping are recommended to minimize dust.

Use a 3-bucket system for cleaning and disinfection {One bucket contains a detergent or cleaning solution, the second bucket contains disinfectant or disinfectant solution, and the third bucket contains clean water for rinsing the mop}. Spraying of disinfectants is not recommended.

## Dilution of Sodium Hypochlorite (household bleach)

A litre of Sodium hypochlorite (bleach) solution, contains 3.5% concentration of chlorine and is equivalent to 35,000 parts per million of sodium hypochlorite. 0.5% bleach solution is required to disinfect faeces, blood, vomitus or other body fluids. To dilute the solution to 0.5%, mix 1 litre of bleach solution in 6 litres of water. You can pour out the 1 litre into a bucket of water, then use the container to measure out water six times. This will give 7 litres (1 litre of bleach solution + 6 litres of water). The resulting solution is now 0.5%. To disinfect linen, equipment, surfaces, and for general cleaning, you need a 0.05% bleach solution. To mix this, take 1 litre of 0.5% bleach solution (from the mixture described above) and add 9 litres of water. The result would be 0.05% bleach solution.

## Waste Management

Medical waste such as contaminated masks and gloves should be treated as hazardous waste and disposed of properly. Safe handling and final disposal of biomedical and hazardous wastes generated by health facilities are a vital element in an effective response in a pandemic. Effective management of biomedical and healthcare waste entails disinfection, protection and training of personnel who are involved in proper identification/survey of waste generating areas, collection/retrieval, separation/segregation, storage, transportation, treatment, and disposal of wastes. Several types of wastes collection points can be colour coded to facilitate separation for proper treatment and disposal.



Figure 12: Colour coded waste collection points

Waste management should ensure environmental sustainability to reduce the impact on the environment and climate change.

Wasteful and unnecessary practices should be eliminated by utilizing safe, reusable options that maximize clinical and surgical efficiency. The practice of reduce, recycle, re-use approach with multi-usage of surgical pharmaceuticals, devices, and supplies should be embraced but within the limits of safety to the eye care worker and patient. This will reduce wastage, creating a resource-efficient setting.

## 6.0 CONDUCT OF GENERAL ANAESTHESIA

### 6.1 Indications for General Anaesthesia

1. Children
2. Persons with psychosocial disabilities which could occur from conditions such as Down's syndrome, cerebral palsy, congenital rubella syndrome, tuberous sclerosis, perinatal hypoxia, Autism etc.
3. Persons with mental illness such as schizophrenia, dementia, or psychologically unstable patients.
4. Persons with seizure disorders
5. Uncontrolled neurological movements (involving head) such as Parkinson's disease and head nodding
6. Nystagmus
7. Hypersensitivity/ allergy to local anaesthetic agents
8. Claustrophobia
9. The Deaf and 'Hard of hearing'
10. Language barrier
11. Intractable arthritis
12. Orthopnea which impairs a patient's ability to lie flat and remain motionless during surgery
13. Duration of surgery because some patients without general anaesthesia cannot remain comfortable on an operating table for long.
14. Open-globe injuries.

### 6.2 Checklist for Ophthalmic Surgery

**Note:** the list is by no means exhaustive. However, where feasible local anaesthesia can be used.

S/N	Item	Check (✓)
1.	Preoperative screening tests of the patient including COVID-19	<input type="checkbox"/>
2.	Surgical mask	<input type="checkbox"/>
3.	Surgical mask for Eyecare workers and N95 mask or a suitable alternative for surgeon and assistant(s)	<input type="checkbox"/>
4.	Eye protection/Close-fitting safety goggles for Eyecare workers	<input type="checkbox"/>
5.	Standard PPE for Eyecare workers	<input type="checkbox"/>
6.	Only the anaesthetic team should be in the operating room during intubation of patient for general anaesthesia	<input type="checkbox"/>
7.	Topical povidone-iodine (5%) for surgical preparation	<input type="checkbox"/>

### 6.3 Patient Status

General anaesthesia involves close contact of the anaesthesia and ophthalmology teams with a patient's airway. It is also associated with Aerosol-generation which carry a high risk of transmission of infection from COVID-19 positive patients. These guidelines seek to help to prevent transmission of COVID-19 from patient to health practitioner and health practitioner to patient during eye surgery. The guidelines for the conduct of general anaesthesia for eye surgery during the COVID-19 pandemic shall be treated in 2 parts:

1. COVID-19 **status unknown** and with **no features suggestive** of COVID-19.
2. **Confirmed** COVID-19 patient/ **High suspicion** of COVID-19.

Examples of AGPs that may be performed during general anaesthesia (G.A.) for eye surgery: Intubation, extubation, open oral/ tracheal suctioning, manual ventilation before intubation, patient bucking or coughing, tracheostomy toileting and fibre optic bronchoscopy. Patients on high flow oxygen via nasal cannula also fall in this category. These AGPs may occur in the operating room or recovery room. Aerosols may also arise from the surgical field. All operating rooms and recovery rooms should be equipped with High-Efficiency Particulate Air (HEPA) filters as they help to maintain indoor air quality by reducing airborne particles that can harbour bacteria and viruses. They also prevent contaminants from being discharged outside the theatre or to other spaces within the hospital.

#### 6.3.1 Status Unknown/No Suggestive Features

GUIDELINES FOR THE CONDUCT OF GENERAL ANAESTHESIA FOR EYE SURGERY IN A PATIENT WHOSE COVID-19 STATUS IS UNKNOWN AND WITH NO FEATURES SUGGESTIVE OF COVID-19.

Treat such a patient as a possible COVID-19 carrier if no screening test has been done.

Recommended PPE: Cap, N95 Respirator or FFP2 or FFP3 mask or Powered Air-purifying Respirator (PAPR), surgical mask over the N95 mask, face shield/ visor, long-sleeve water-impermeable gown, double gloves, boots or high disposable foot covers.



Figure 13: FFP2 Mask

At the end of the surgery, all medical personnel directly involved are advised to doff their PPEs, shower and wear fresh clothes. Designated donning and doffing areas must be identified in the theatre. Donning and doffing should be according to recommended guidelines.

#### Intubation:

Airway assessment should be done before induction to assess ease of intubation. Laryngoscopy and intubation should be done by a very skilled and experienced anaesthetist. Only two or three persons directly involved with induction of anaesthesia and intubation should be present in the operating room/ suite at induction. All other staff should leave the room. Staff should return **15-30minutes** after intubation to allow for clearing of aerosols by ventilation system (negative pressure rooms/ environments are advised for intubation and extubation). Intubation plan should be discussed by the staff involved (anaesthetist(s), technician, ± nurse) and each person should be assigned specific roles. Ensure all required airway equipment and medications are available on a nearby trolley (See Table I). Try not to keep unnecessary things on the trolley to prevent the risk of contamination. Cover the anaesthesia machine and monitor with a see-through cover (like a plastic sheet) to reduce risk of contamination. **Bacterial and viral filter/ Heat and Moisture Exchanger containing bacterial & viral filter/ HEPA filter** should be attached to the breathing circuit at the patient end and machine end (use the appropriate size to reduce dead space).



Figure 14: Bacterial and viral filter

## EYE ON COVID:

### A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE FOR EYE CARE DURING THE COVID-19 PANDEMIC

At induction/ intubation, extubation and when suctioning, use a plastic sheet cover (See Figure 1) (or an intubation box with negative pressure) over the patient's head and upper body, to reduce the spread of aerosols that may be generated. (Please note that the plastic sheet or intubation box should be removed if it makes intubation difficult). Closed suction catheters are recommended. (See below).

Pre-oxygenate using low flow oxygen to prevent the spread of aerosols (use a level of low flow that is also safe for the patient). Avoid manual ventilation via a mask



Figure 15: Anaesthesia face mask

Muscle relaxation, in particular, Rapid Sequence Induction is advised for all intubations this period, to ensure smooth induction, facilitate intubation and to avoid bucking which may cause release and dispersion of aerosols. Give the recommended dose of muscle relaxant to each patient. Hold the mask tightly on the face after giving an induction agent and muscle relaxant. Turn off the ventilator, all gases and vaporizer just before removing the mask before laryngoscopy. A Video laryngoscope is a preferred laryngoscope in this circumstance. If unavailable, use a regular laryngoscope. Disposable laryngoscopes or disposable laryngoscope blades are preferred if available. Additional protection may be added to a standard laryngoscope by wrapping around the handle and blade with clear plastic or cling film. The Endotracheal Tube (ETT) cuff should be inflated before manual ventilation. Confirm correct tube position by capnography and equal chest rise. In the absence of capnography, chest auscultation has to be done (place stethoscope over the plastic sheet). Remove outer gloves after intubation.

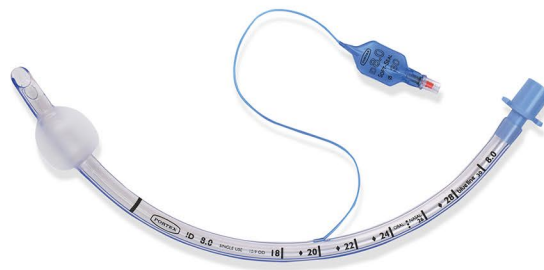


Figure 16: Endotracheal tube

The anaesthesia team shall stay at least 2 metres (approximately 6 feet), if space and equipment allow from the surgical field during the surgery, to minimize contact with aerosols generated in the operating field. Leave only one anaesthetist in the operating suite/ room during AGPs done by the surgical team. The patient's mouth can be sealed with a transparent plaster to protect the ophthalmic team from aerosols that may escape during mechanical ventilation..

### Suctioning:

**Closed suction catheters** (Fig. 4) are recommended for suctioning endotracheal tubes and tracheostomies in theatre, recovery room, Intensive Care Unit, etc. The closed suction system protects against the dispersion of aerosols and the introduction of infection. In the absence of a closed suction catheter, use an appropriate-sized suction catheter.

Always suction under a protective plastic sheet or intubation box to prevent the spread of aerosols. Administer 100% oxygen for 5 min before suctioning to increase oxygen reserves. Do not suction for more than 15 seconds at a time, to avoid desaturation and harm in the patient.

**Extubation:**

Deep extubation is advised. Suction the ETT (closed-circuit or suction catheter) and the oropharynx (Yankeur nozzle) under cover of a clear plastic cover or intubation box. Turn off all gases, ventilator and the vaporiser and extubate with the viral filter still in place at the end of the ETT. Place a face mask immediately and hold tightly while giving oxygen to prevent air leaks (turn on oxygen only when the face mask is connected to the circuit and attached to the patient's face). When the patient can maintain spontaneous respiration comfortably, replace the anaesthesia mask with a surgical face mask and tie appropriately to prevent the spread of aerosols from the patient.

If the patient is to be transported with ETT in situ, please leave the viral filter at the end of the ETT to prevent the spread of aerosols. Viral filter/ HMEF MUST NOT be re-used in another patient. Discard after use.

Decontaminate all reusable equipment (using sodium hypochlorite solution, alcohol or other suitable decontaminant) before washing and sterilization. Cleaners should be directed to wipe all operating room surfaces and trolleys with 0.5% sodium hypochlorite.

**Patient on high flow oxygen via nasal cannula:**

With nasal cannula in situ, place a surgical mask over the patient's nose and mouth and strap in place.

**6.3.2 Confirmed/High index of Suspicion**

GUIDELINES FOR THE CONDUCT OF GENERAL ANAESTHESIA FOR EYE SURGERY IN A **CONFIRMED** COVID-19 PATIENT/ A PATIENT WITH **HIGH SUSPICION** OF COVID-19.

All COVID-19 positive cases should be allowed to fully recover before operating on another patient except it is an emergency. A designated operating theatre should be used for these cases and labelled as such. All staff should be aware of the status of patients.

**Mandatory PPE:**

Cap, N95 (Respirator) or FFP2 or FFP3 or Powered Air-purifying Respirator (PAPR), surgical mask over the N95 Respirator, face shield/ visor, water-impermeable coverall, long-sleeve water-impermeable gown/ apron worn over the coverall, double/ triple gloves, boots or high disposable foot covers.

At the end of the surgery, all medical personnel directly involved are advised to doff their PPEs, shower immediately and wear fresh clothes.

Designated donning and doffing areas must be identified in the theatre. Donning and doffing should be according to recommended guidelines.

**Procedure**

The conduct of general anaesthesia for eye surgery in COVID-19 patients is as outlined above but with some key points of note:

A negative pressure environment/ operating suite/ room is **STRONGLY** advised when intubating a COVID-19 positive patient. This helps to get rid of aerosols faster and to make the room safe for all who will be in it after intubation or extubation or suctioning.

One anaesthetist or experienced anaesthesia technician will act as a 'Clean Runner' and remain just outside the intubation room but ready to get things for the intubation team (e.g. blood, extra medications/ equipment) or serve as a communicator to the outside. The Clean Runner shall don (see section 5.6.2) but not need a coverall. He/she shall have no direct contact with the COVID-19 positive patient.

Inhalational induction is highly discouraged in the COVID-19 positive patient. It should be used only when necessary. Confirmed cases of COVID-19 should not be recovered in the Recovery Room (Post Anaesthesia Care Unit), they should be recovered fully in theatre and transferred directly to the isolation area or COVID-ICU after surgery.

## EYE ON COVID:

A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE FOR EYE CARE DURING THE COVID-19 PANDEMIC

Table I: Intubation Checklist

### INTUBATION CHECKLIST

S/N	Item	Check (✓)
1.	Bag valve mask (Self-inflating/ 'Ambu' bag)	<input type="checkbox"/>
2.	Oxygen tubing/ Breathing circuit connected to an oxygen source	<input type="checkbox"/>
3.	Bacterial and viral filter (HMEF/ HEPA)	<input type="checkbox"/>
4.	Oropharyngeal airways - Different sizes appropriate for age (e.g. sizes 4, 5 for adults and sizes 00,0,1,2, for children)	<input type="checkbox"/>
5.	Anaesthesia masks - Sizes appropriate for age (e.g. Sizes 3, 4, 5 for adults and sizes 0,1,2, for children)	<input type="checkbox"/>
6.	Endotracheal tubes - appropriate size for age (e.g. 7.0 and 8.0 for adults and sizes 3,4,4.5 and 5 for children)	<input type="checkbox"/>
7.	Disposable stylet	<input type="checkbox"/>
8.	Disposable gum elastic bougie	<input type="checkbox"/>
9.	Lubricating gel	<input type="checkbox"/>
10.	Video laryngoscope (preferable disposable/ with disposable blade)	<input type="checkbox"/>
11.	Laryngoscope - appropriate blade sizes (e.g. 3 and 4 in an adult, 1 and 2 for children)	<input type="checkbox"/>
12.	Laryngeal Mask Airway (LMA) - appropriate sizes (e.g. Sizes 4, 5 in adults, and sizes 2, 2.5 in children)	<input type="checkbox"/>
13.	If difficult airway anticipated: prepare as appropriate	<input type="checkbox"/>
14.	Transparent plastic sheet overhead and chest to limit aerosol spread or Intubation box with negative pressure.	<input type="checkbox"/>
15.	Closed suction catheter set/ Suction catheter	<input type="checkbox"/>
16.	Suction machine/ Wall-mounted suction	<input type="checkbox"/>
17.	Suction tubing and Yankeur nozzle	<input type="checkbox"/>
18.	Tape to secure ETT	<input type="checkbox"/>
19.	10ml/ 5ml/ 2ml syringe to inflate cuff - as appropriate	<input type="checkbox"/>
20.	Endotracheal tube clamp	<input type="checkbox"/>
21.	Induction drugs, muscle relaxants, opioids ± sedatives	<input type="checkbox"/>
22.	Resuscitation drugs ± vasopressors	<input type="checkbox"/>
23.	Good intravenous line and IV fluid	<input type="checkbox"/>
24.	A functional multi-parameter monitor attached to the patient	<input type="checkbox"/>
25.	Proper PPE worn appropriately	<input type="checkbox"/>
26.	Only required intubation personnel in the room (3 or 4 persons)	<input type="checkbox"/>

Table II: Extubation Checklist

**EXTUBATION CHECKLIST**

S/N	Item	Check (✓)
1.	Deep extubation to limit coughing wherever possible	<input type="checkbox"/>
2.	Confirm spontaneous breathing (with minimal assistance)	<input type="checkbox"/>
3.	Transparent plastic sheet overhead and chest to limit aerosol spread.	<input type="checkbox"/>
4.	Appropriate PPE worn properly by all present	<input type="checkbox"/>
5.	Suction oropharynx with Yankeur nozzle under the plastic sheet or intubation box	<input type="checkbox"/>
6.	Loosen endotracheal tube tape or ties	<input type="checkbox"/>
7.	Ventilator and all gas flow OFF	<input type="checkbox"/>
8.	Do not give recruitment/ extubation breath	<input type="checkbox"/>
9.	Remove ETT (with viral filter/ HMEF/ HEPA filter still attached)	<input type="checkbox"/>
10.	Immediately transition to anaesthetic mask with two hand technique	<input type="checkbox"/>
11.	Put gas flow ON	<input type="checkbox"/>
12.	Confirm good respiration and absence of coughing	<input type="checkbox"/>
13.	Transition to clean surgical mask	<input type="checkbox"/>
14.	Carefully remove plastic sheet and dispose	<input type="checkbox"/>



## EYE ON COVID:

A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE FOR EYE CARE DURING THE COVID-19 PANDEMIC

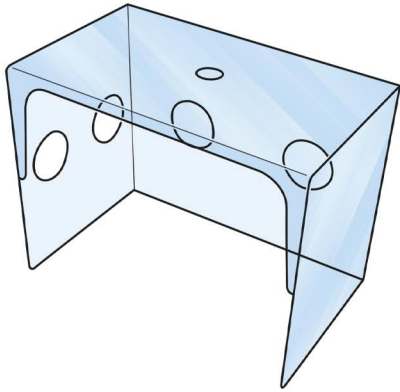


Figure 17: Intubation box. Please use with negative pressure.



Figure 18: Coverall



Figure 19: closed suction catheter



Figure 20: Clear plastic cover/sheet.

### EFFECTIVE DISINFECTANTS AGAINST CORONAVIRUS FOR ANAESTHESIA WORK SURFACES, DEVICES AND EQUIPMENT

Agent	Concentration	Contact time required
Sodium hypochlorite	0.1-0.5%	1 min
Ethanol	62 – 71%	1 min
Hydrogen peroxide	0.5%	1 min

## 7.0 COMMUNITY EYE CARE SERVICE AND RISK ASSESSMENT

Continuous monitoring of the risk of spread of COVID-19 in the community should be part of planning and scheduling programmes to prevent an escalation of cases. Social gatherings for health talks should be avoided as it may lead to crowding with the risk of spread of infection. Promotive health services and health talks can be carried out via mass media such as local radio and television stations. Health education materials can be circulated via the print media using flyers, newspapers and magazines, electronic and social media. Online portals such as webinars, Google meet, Skype, Zoom, and other mobile apps are useful alternative platforms for information dissemination. Information to the community should include COVID-19 community education and awareness and practices that encourage acceptable eye health practices. Medical outreaches and surgical camps are not advocated due to the possibility of spread of infection in mass gatherings.

Adherence to current national and local safety protocols and guidelines should be encouraged. Up to date information can be obtained from the Nigeria Centre for Disease Control website <https://covid19.ncdc.gov.ng/>

Compliance to **Standard Universal Precautions** in patient care, regardless of suspected or confirmed infection status of patients, in any health care setting (e.g., hand hygiene, cough etiquette, use of PPE, cleaning and disinfecting environmental surfaces) is compulsory for all health workers to ensure infection prevention and control.

The School Eye Health programme, which is implemented in a three-pronged approach; eye health instruction, eye health services, and a healthy environment should be leveraged upon to reduce the spread of the infection in the community. Eye Health education in schools should emphasize hygiene protocols for infection prevention and control such as frequent and proper handwashing, avoiding face touching, cough etiquette and social distancing. Eye health services where indicated must follow protocols already outlined in this document and the school should have clean water and a clean environment.

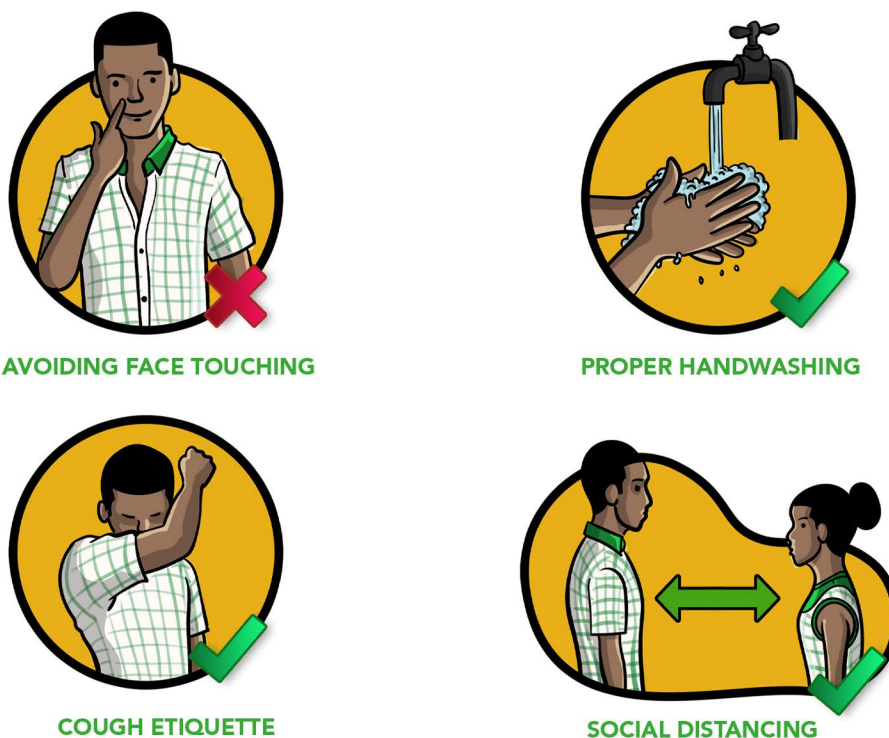


Figure 21: Standard universal precautions

## **8.0** MENTAL HEALTH AND PSYCHOSOCIAL SUPPORT FOR HEALTH CARE WORKERS DURING AN INFECTIOUS DISEASE OUTBREAK

It is natural to feel under pressure as a healthcare worker during an outbreak. Stress and feelings associated with the outbreak are not a sign of weakness, but a natural reaction to challenging times, and can be managed. If not managed, it can limit the health worker's ability to fully function. Signs of stress in an outbreak could include:

1. Fear and worry about their health and the health of loved ones.
2. Changes in sleeping or eating patterns.
3. Difficulty sleeping or concentrating.
4. Worsening of chronic health problems.
5. Worsening of mental health conditions.
6. Increased use of alcohol, tobacco, and/or other drugs.



Figure 22: Healthcare worker

**Stress Management:**

Supervisors should identify signs of physical and emotional exhaustion and ensure provision of adequate psychosocial support for staff.

**Stress coping mechanisms**

1. Take breaks from watching, reading, or listening to upsetting news and stories, including social media.
2. Health worker should take care of their physical well-being.
  - o Take deep breaths, stretch, or meditate.
  - o Eat healthy, well-balanced meals.
  - o Exercise regularly and get enough sleep.
  - o Avoid alcohol and drugs.
3. Make time to unwind and relax. Participate in other enjoyable activities.
4. Connect with others. Talk with trusted people about concerns and feelings.
5. Management should ensure provision of psychosocial support to their staff.



Figure 23: Coping with stress



Figure 24: End the stigma

**N.B:** The posters can be printed and pasted on clinic walls

## 9.0 MONITORING AND EVALUATION

Monitoring and evaluation are essential management tools which help to ensure that health activities are implemented as planned and to assess whether desired results are being achieved.

### Monitoring

Monitoring refers to a continuous review of the degree to which the recommended procedures are implemented, and performance targets are being met. It typically focuses on inputs such as staff training on the safe delivery of eye care and outputs such as availability of masks. This helps identify potential problems to institute immediate corrective actions as well as identifying and reinforcing good performance. Monitoring methods include

- Supervisory Visits by Federal Ministry of Health/State Ministries of health for continual monitoring of progress and support for health care workers.
- Routine reporting of data from health facilities by designated focal persons to appropriate establishments.

### Evaluation

Evaluation refers to the analysis of progress made towards an established goal and it provides feedback on the outcomes of implemented activities such as health care workers infected with COVID-19 or facilities with cases of community transmission of COVID-19. Evaluation methods include

- A situation analysis or needs assessment as the first step by Eye Health service providers at the different levels of care to reduce the risk of community transmission of COVID-19.
- Evaluation of the implementation progress will be done through desk reviews and field visit using qualitative and quantitative methods.

The performance indicators for monitoring the level of implementation of the guideline at point of care and national level are listed below.

### Point of care Performance Indicators

Data (to be collected by IPC focal person) for Eye care workers will be disaggregated by sex and cadre.

1. Number of staff trained on IPC
2. Number of staff with properly donned appropriate PPE at the facility
3. Number of infected Health (Eye) Care Workers in Facility per month

### Performance Indicators at the National level

1. Number (percentage) of Health Care Facilities/Eye Care Service Provider who use the guideline (disaggregated by Level of Care provided, i.e. Community level or Tertiary level)
2. Number of facilities with IPC focal person
3. Number of facilities who report Adherence to the guidelines (regular monthly report from IPC focal person using Checklist)
4. Number of facilities that are disability inclusion compliant.

Monitoring and Evaluation will enable the assessment of the implementation of this guideline. It will also identify potential problems, and where compliance is low assist facilities and eye health workers to institute appropriate safety measures and reinforce good performance.

# 10. ANNEXES

## 10.1 MONITORING AND EVALUATION TOOLS

Tool 1: Reporting Tool for Eye Care Workers during COVID-19

### Reporting Tool for Eye Care Workers during COVID-19

Name of Facility/Organization:	
Community:	Month/Year:
LGA:	ward:
State	Number of Eye Care Workers:

S/N	Fill each box appropriately.	Staff Cadre																		
		Waste Managers		CHEW		CHO		Nurses		Medical Officers		Opticians		Optometrist		Ophthalmologist		Other		Total
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
1	Eye Care Workers Trained on Infection Prevention and Control																			
2	Eye Care Workers with properly donned appropriate PPEs at the facility																			
3	Eye Care Workers Infected with COVID-19																			
4	Eye Care Workers who report symptoms of COVID-19																			
5	Eye Care Workers who report possible exposure to COVID-19																			
6	Eye Care Workers observed with symptoms of COVID-19																			

Comments:

---



---



---



---

Completed by:
Designation:
Sign: <span style="float: right; padding-left: 100px;">Date:</span>

**Key:**  
**CHEW** - Community Health Extension Worker  
**CHO** - Community Health Officer

**EYE ON COVID:**

A NATIONAL GUIDELINE AND STANDARD OPERATING PROCEDURE FOR EYE CARE DURING THE COVID-19 PANDEMIC

**Tool II:** Evaluation Checklist for Facility

Requirement	Performed			Source of verification (if applicable)	Observations	Action
	Yes	Partial	No			
IPC focal person assigned						
All health care workers, trained in IPC						
Compliance of HCW monitored						
Surveillance process in Covid-19 in HCWs						
Properly displayed IEC materials relating to COVID-19 in the facility						
Designated sanitation stations with flowing water and soap or hand sanitizing ports in the facility						
Waste management implemented						

Footnote 1: List of requirements not exhaustive and can be updated as needed

## 10.2 LIST OF CONTRIBUTORS

### Technical Working Group

Name	Designation	Organisation
Dr. U. M. Ene-Obong	Director	Department of Public Health, Federal Ministry of Health, Abuja, Nigeria
Dr. Oteri Okolo	Consultant Ophthalmologist/Head, National Eye Health Program	Department of Public Health, Federal Ministry of Health, Abuja, Nigeria
Prof. Odarosa Uhumwangho	Professor of ophthalmology/ Lead Consultant	University of Benin Teaching Hospital, University of Benin, Benin City, Nigeria.
Dr. Maryrose Osazuwa	Senior Consultant Anaesthetist/ National Resource Person	Department of Anaesthesia and Intensive Care, National Hospital, Abuja, Nigeria
Dr. Tarela Frederick Sarimiye	Consultant Ophthalmologist/ Glaucoma Specialist, Assistant Secretary General, Ophthalmological Society of Nigeria	University of Ibadan and University College Hospital Ibadan
Dr. Adurosakin Olabisi Felix	Medical Officer, National Eye Health Program	Department of Public Health, Federal Ministry of Health, Abuja, Nigeria
Adedoyin Adeleke	Scientific Officer, National Eye Health Program	Department of Public Health, Federal Ministry of Health, Abuja, Nigeria
Dr Joyce Ijeoma Iroakazi	Scientific Officer, National Eye Health Program	Department of Public Health, Federal Ministry of Health, Abuja, Nigeria
Mr Samuel Omoi	Country Programme Manager	Christofell Blinden Mission, Nigeria
Ms Angela Uyah	Programme Officer, Inclusive Eye Health	Christofell Blinden Mission, Nigeria



**Stakeholders**

Name	Designation	Organisation
Prof. Hannah Bassey Faal	Professor of Ophthalmology	University of Calabar Teaching Hospital Calabar
Dr. Mrs. Oluwafunmike P. Ani	Chairperson, Public Health in Ophthalmology Group	Ophthalmological Society of Nigeria
Prof. Afekhide Ernest Omoti	Consultant Ophthalmologist/ Professor of Ophthalmology	University of Benin Teaching Hospital, University of Benin, Benin City, Nigeria.
Prof Adedayo O. Adio	Consultant Pediatric Ophthalmologist/Chairman, Nigerian Pediatric Ophthalmology and Strabismus Society(NIPOSS), Professor of Ophthalmology	University of Port Harcourt Teaching Hospital, Rivers State
Prof. Adeola Onakoya	Professor of Ophthalmology/ Chairman, Faculty of Ophthalmology National Postgraduate Medical College of Nigeria	Guinness Eye Centre, Lagos University Teaching Hospital
Dr. Okonokhua Lewis Oziengbe	President	Nigerian Optometric Association
Mr. Stephen Lamiya	President	Ophthalmic Nurses Association
Mr David Mallim	President	Association of Dispensing Opticians, Nigeria
Dr. Fatima Kyari	Consultant Ophthalmologist, /Co-Chair West Africa International Agency for the Prevention of Blindness (IAPB)	College of Health Sciences/Teaching Hospital University of Abuja Abuja, Nigeria
Dr. M Mansur Rabi	Consultant/Ophthalmologist	Al-Noor Dubai Foundation, Dubai, UAE
Dr. Jeff Oluleye	Consultant Ophthalmologist/ Vitreoretinal Surgeon	University of Ibadan and University College Hospital Ibadan
Dr. Onyia Michael Sunday	Senior Medical Officer	Department of Hospital Services, Federal Ministry of Health, Abuja, Nigeria
Oluwafunmilayo Ogundeko	M&E Officer	Christofell Blinden Mission, Nigeria

Name	Designation	Organisation
Dr. James Ebuete	Senior Medical Officer, Occupational Health and Safety	Department of Public Health, Federal Ministry of Health, Abuja, Nigeria
Mrs Amadi Dorothy	Assistant Director, Non-Communicable Diseases	Department of Public Health, Federal Ministry of Health, Abuja, Nigeria
Mrs Taiibat Funmilayo Badmos	Epidemiology Division	Department of Public Health, Federal Ministry of Health, Abuja, Nigeria
Dr. Chris Elemuwa	Director/HOD Health Services , Community Healthcare Services Department, NPHCDA, ABUJA,	National Primary Health Care Development Agency
Dr Amen Jane Aburime	Principal Optometrist	University of Benin Teaching Hospital
Mr. Paul Martins Nwagala	Ophthalmic Nurse/Clinical Practice Manager	Eye Foundation Hospital Group, Abuja, Nigeria.
Mr Sulayman AbdulMumuni Ujah	Chairman	Joint National Association of Person with Disabilities FCT Chapter
Mr Ishiyaku Adamu	President	National Association of the Blind
Mr Afam Kasim	Head, Media/Communication	National Foundation of Persons with Albinism
Ms Barbara Anang Marok	Eye Health Programme Officer	Sightsavers, Nigeria
Mr. Abalis Dasat	Ophthalmic Nurse/ Programme Manager, Inclusive Eye Health	Health and Development Support Programme, Jos, Nigeria
Mr. Ameh Joseph	Monitoring and Evaluation Officer	Health and Development Support Programme (HANDS)
Prof. Odarosa Uhumwangho	Lead Consultant, Professor of Ophthalmology/ Consultant Ophthalmologist & Vitreoretinal Specialist	University of Benin/ University of Benin Teaching Hospital, Benin City, Nigeria

# Get a safe eye exam in this facility



## Steps for **safe facility visit** for **eye checkup** during **Covid-19 pandemic**



USE HAND SANITIZER/  
WASH YOUR HANDS



WEAR A  
FACE MASK



CHECK YOUR  
TEMPERATURE

