



# **Suggested Clinical Protocols for Preventing and Controlling COVID-19 in Eye Hospitals**

Drafted by **AIER Clinical Medical Quality Control Department**

Translated by **AIER Global Strategy and Business Department**

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For more information, please contact Joyo Zhao via [zhaoyao@aierchina.com](mailto:zhaoyao@aierchina.com)

## **DISCLAIMER**

All efforts have been made to ensure the clinical advices for COVID-19 prevention and control provided below is accurate and reliable. However, those advices and information summed up through our common practices and experience, we assume no responsibility or obligation for the accuracy, authenticity, completeness, legality or reliability of the information contained in this manual.

## A. General

Each hospital shall set up COVID-19 prevention and control leadership group which develops virus prevention emergency plan and handling process against high risk patients (including fever, conjunctivitis patient or any suspected patient).

## B. Business

In order to avoid cross infection and prevent COVID-19 spreading, hospital shall suspend certain eye checkup and treatment as well as scheduled surgery. Only emergency surgery and treatment is offered.

### 1. Suspended Checkup and Treatment Items

No.	Item Name	Remarks
1	Conjunctival sac Flushing	Except for Requirement of Emergency surgery
2	Lacrimal duct Flushing	
3	Meibomian glands massage	
4	Applanation Tonometry (inc. 24 hours intraocular Pressure)	
5	Eye Stone Takeout	
6	Dry eye checkup and treatment	
7	Subconjunctival injection	Except Emergency
8	Paracentesis of anterior chamber	Except Emergency
9	Stitch removing in Outpatient	Except Emergency
10	Laser Treatment	Except acute glaucoma and retinal hole. Contact lens shall be disinfected accordingly
11	UBM	
12	Heidelberg retina tomography	
13	Electrophysiological examination (ERG, ERG, VEP, EOG)	
14	Ultrasound A	
15	Electron rebound tonometer	
16	Fundus angiography	

### 2. Emergency Surgery Items for Service

No.	Dept.	Emergency Surgery	Remarks
1	Cataract & Glaucoma	Trabeculectomy	Acute glaucoma
2		Phaco+IOL goniosynechialysis	
3		Cyclophotocoagulation	
4	Corneal	Corneal cracking suturing	Trauma

5	Retina	Scleral bucking or vitreoretinal surgery	Acute Rhegmatogenous Retinal Detachment
6		Intraocular injection	Neovascular glaucoma
7		Eye laceration suture	Traumatic eyeball rupture

### 3. Preconditions for Emergency Surgery

- 1) Fill in COVID-19 Inquiry Form for Inpatient or Surgical Patient.  
See [Appendix 1 COVID-19 Inquiry Form for Inpatient or Surgical Patient](#).
- 2) Patient shall provide lung CT scan results of recent 3 days.
- 3) Blood routine examination and oxyhemoglobin saturation. Antibody IgM and IgG can be checked if necessary.

## C. Process for hospital in regular service

### 1. Reception and Preliminary Screening

Each hospital shall set up reception counter in main entrance where every patient must be served with preliminary screening and mask shall be provided if patient doesn't have. Take temperature, inquiry on patients' fever and exposure history in infected area or with people from infected area and record their personal information, way of contact and residence place.



## 2. Handling Process on types of patients

### 1) Fevered and suspected cases

Any fever or suspected patient identified in reception counter shall be quarantined, reported to the leadership group and must contact designated hospital to transfer for treatment. Any place the transferred patient has been to or any object/surface the transferred patient contacted shall be disinfected according to Technical Standard For Disinfection of Medical Institutions.

### 2) Patients having exposure to infected case or travel history from infected area

Even without any abnormal physical sign, any patient from infected area shall be delayed for medical consultation and advised to be quarantined.

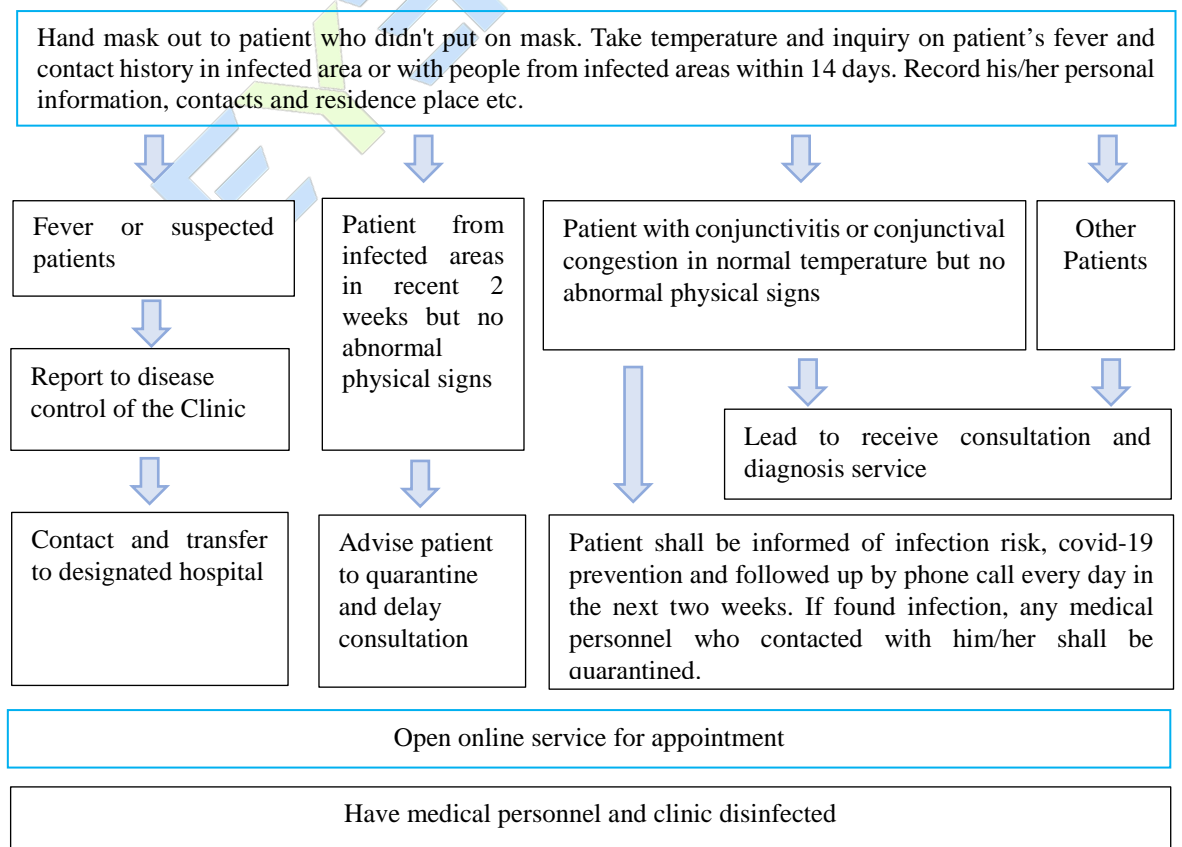
### 3) Normal cases without any sign or exposure history

Those patients who didn't have any exposure history in infected area or any abnormal physical signs such as cough, headache and diarrhea but with normal temperature can be guided to take consultation and diagnosis service. Patient shall be informed of infection risk, covid-19 prevention and being self-quarantined in 2 weeks. Patient shall be followed up by phone call every day in the next two weeks. If found infection, any medical personnel who contacted with him/her shall be quarantined.

## 3. Sorting counter Setup

Sorting counter shall be prepared in consultation area for the purpose of treatment order. Spacious consulting room with window is prioritized for service. Only one patient with not more than 1 companion is served at one time. Both doctor and patient shall wear mask.

## D. Inpatient Flow



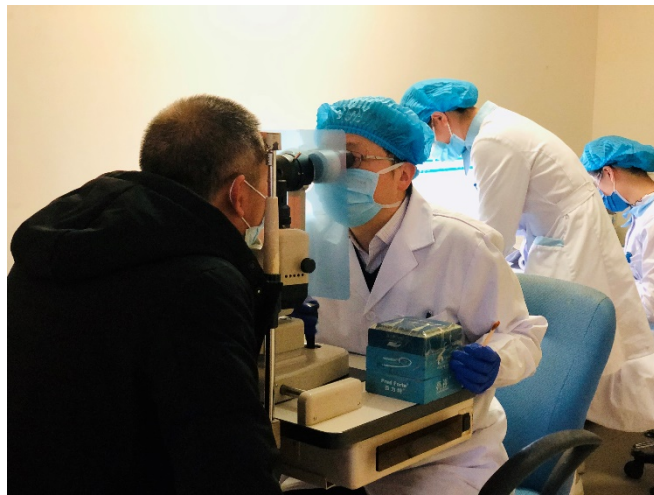
## E. Placement Requests for Departments and Office

### 1. Consultation room

Consulting room layout: Slit lamp and office table shall be placed properly for people access. Seat for doctor is suggested to be in upwind location. It can be placed with slit lamp near door entrance if necessary. Patient shall be informed in advance of no talking during checkup process. Doctor and patients shall keep distance no less than 1m from each other during consultation.

### 2. Imaging department

Image devices and office table shall be placed properly for people's access. Seat for doctor is suggested to be in upwind location. It can be placed with slit lamp near door entrance if necessary. Patient shall be informed in advance of no talking during checkup process. Doctor and patients shall keep distance no less than 1m from each other during consultation.



Sample: Shield Plate as protection

### 3. Cleaning and Disinfection Requirements for different areas.

Please see [\*Appendix 2 Guideline for Eye Hospital Environmental Cleaning and Disinfection against COVID-19.\*](#)

#### F. Protocol During Treatment

Actions must be taken when any treatment (irrigation of lacrimal passage, Irrigation of conjunctiva sac., ball conjunctiva injection, venous transfusion and eye dropping) is being done in treatment room:

- 1) Hands sanitation must be taken before and after treatment (put on latex gloves if necessary). Disposal surgical mask/N95 mask and protective hat shall be put on. Protection spectacles and face mask could be put on if necessary. Standard operation process shall be strictly implemented so as to avoid occupational exposure.
- 2) Recyclable instruments shall be soaked in 75% alcohol in 30 minutes after each usage. Then followed by cleaning, disinfecting, drying, packaging and sterilizing.
- 3) Bed sheet in treatment room shall be changed every day. Disposable pillow towel shall be used and changed every time.

#### G. On-line Reservation and Consultation

Hospitals can provide on-line consultation, re-consultation and appointment if possible.

#### H. Prevention Guideline for Medical Personnel

- 1) All medical personnel shall put on disposable hat, surgical mask/N95 mask/medical mask and latex gloves. The mask shall be changed with new one every 6 to 8 hours but shall be changed immediately when it is contaminated or moisturized. Protection spectacles are suggested to put on. If protection spectacles are in shortage, other types of glasses can be put on such as eye mask for dry eye, swimming glasses or common glasses. All slit lamp shall be put with cover plate (like X-ray film). 75% alcohol by volume shall be rubbed on devices such as slit lamp, non-contact tonometer, auto-refractor and image devices etc. esp. possible contact parts of the devices with patients after each checkup.  
Please see [\*Appendix 3 COVID-19 Prevention Guideline for Medical Personnel at Different Positions.\*](#)
- 2) Any medical personnel who contacted with people from infected area in the recent 2 weeks have symptoms of fever, cough, headache, diarrhea, conjunctivitis etc. shall be quarantined not less than 14 days and go to hospital if necessary. The ones who contacted people (without signs of infection) from infected area but don't have abnormal physical signs can provide medical consultation service but shall be monitored closely and take temperature measurement.

#### I. Disinfection

Clinic object surface, floor and air disinfection on daily basis:

- 1) 1000-2000mg/L chlorine-containing disinfectant or peracetic acid disinfectant shall be rubbed on object surface and floor including 1 or 2

times disinfection on worktop and table top for slit lamp and other devices.  
Make daily disinfection record.

- 2) Open clinic window for ventilation twice per day, and 30 minutes above per time. Turn on ultraviolet sterilizer one or twice per day and no less than 2 hours per time for air disinfection. Make daily disinfection record.

- 3) Goggles Disinfection.

Abide by routine disinfection methods.

Please see ***Appendix 4 Disinfection Process for Eye Hospital during COVID-19.***

## **J. Emergency**

Any case of droplet, body fluid, eye secretion from high risk people to eyes shall be reported to leadership group. Self-quarantine shall be conducted and monitored closely. It is suggested to rinse eyes with large amount of saline or aciclovir eye drops (No evidence based).





## **Appendix 1:**

### **COVID-19 Inquiry Form for Inpatient or Surgical Patient.**

To avoid cross infection during COVID-19 outbreak period, Patient shall be inquired the following questions :

- ☐1. Whereabouts in recent 14 days: Travel, stopover or residence history in local continuous pandemic area.
- ☐2. Whether contact with patient with fever or respiratory symptom from continuous pandemic area.
- ☐3. Any relevance to clustering COVID-19 outbreak or infected person.
- ☐4. Patients with above conditions complied more than 1 and with respiratory symptom or other COVID-19 infected signs shall be transferred to designated hospital for treatment.
- ☐5. Patient without above condition complied but with fever shall be quarantined.
- ☐6. None of Above
- ☐7. Patient is hospitalized for emergency surgery.
- ☐8. Through fever screening, COVID-19 infection is ruled out.
- ☐9. Patient's lung CT scan result: \_\_\_\_\_
- ☐10. Blood routine examination: \_\_\_\_\_
- ☐11. Oxyhemoglobin saturation: \_\_\_\_\_
- ☐12. Patient's Temperature: \_\_\_\_\_
- ☐13. Patient's other checkup results: \_\_\_\_\_

Patient Signature :

Doctor Signature :

Date :

Date :



## Appendix 2: Guideline for Eye Hospital Environmental Cleaning and Disinfection against COVID-19

Area		Object Surface (Rubbing)							Flooring				Air					
Method		Frequency			Way of Disinfection	Concentration of chlorine-containing disinfectant			Frequency		Concentration of chlorine-containing disinfectant		Way of Disinfection			Frequency	Length	
Risk/Department		≥2 Times/Day	≥4 Times/Day	Immediate Disinfection when suspected COVID-19 cases is found	Chlorine-containing disinfectant	500mg/L	1000mg/L	2000mg/L	≥2 Times/Day	≥4 Times/Day	500mg/L	1000mg/L	Open window for ventilation	ultraviolet ray	Air disinfecting machine(Machine is in the room where medical personnel is working)	≥2 Times/Day	≥30m	1 Hour
High Risk Area	Precheck and reception		▲	▲	▲	▲	△	△		▲	▲	△	▲					▲
	Public area in operation room		▲	▲	▲		▲	△		▲	▲				△			▲
	Lift		▲	▲	▲			▲		▲		▲						▲
	Transfer car		▲	▲	▲	▲	△			▲	▲							
Middle Risk Area	Consultation room	▲		▲	▲	▲	△	△	▲		▲	△	▲	▲	▲	▲	▲	
	Medical lab. room	▲		▲	▲	▲	△	△	▲		▲	△	▲	▲	▲	▲	▲	
	Outpatient pharmacy	▲		▲	▲	▲	△	△	▲		▲	△	▲	▲		▲	▲	
	Clinical lab	▲		▲	▲	▲	△	△	▲		▲	△	▲	▲	△	▲	▲	
	Ward	▲		▲	▲	▲	△	△	▲		▲	△	▲	▲	△	▲	▲	
	Infusion room	▲		▲	▲		△	△	▲		▲	△	▲	△	△	▲	▲	
	Toilet		▲	▲	▲	▲	△	△	▲		▲	△	△			▲		
Low Risk Area	Office	▲		▲	▲	▲			▲		▲		▲			▲	▲	△
	Meeting room	▲		▲	▲	▲			▲		▲		▲			▲	▲	△
	Medical records room	▲		▲	▲	▲			▲		▲		△			▲	▲	△
	Central pharmacy	▲		▲	▲	▲			▲		▲		▲			▲	▲	△
	Administration Area	▲		▲	▲	▲			▲		▲		▲			▲	▲	△
	Locker room	▲		▲	▲	▲			▲		▲		▲		△	▲	▲	△
Terminal cleaning and disinfection		Cleaning and disinfection on the whole environment and object surfaces=Move all removable indoor devices and furnitures+ Toilet+ Effective disinfection method+ Clean waste+ Tidy up stuffs=Qualified cleaning and disinfection																

Remarks: 1. ▲ Must Step △ Selective step. 2. Concentration of disinfectant depends on contamination. It shall be increased when blood, fluid and feces cause contamination. 3. Abide by the principle of process that each patient shall go through necessary cleaning and disinfection during COVID-19 outbreak period. Daily disinfection frequency shall be increased depending on patients volume and their exposure and contact history. 4. Regular disinfectant and recommended disinfectant is applicable unless evidence-based medicine proves that certain disinfectant or concentration is impossible to eliminate COVID-19 virus. 5. Concentration of chemical disinfectant refers to GB27953-2011 request in infectious focus or manufacturer specification.



## Appendix 4 Disinfection Process for Eye Hospital during COVID-19.

1.Ventilation	<ol style="list-style-type: none"> <li>1. Open window for ventilation 2 to 4 times per time, and more than 30 minutes per time. Air shall be disinfected periodically.</li> <li>2. Ultraviolet ray can be used for air disinfection twice per day and 2 hours per each time when no personnel present.</li> <li>3. Circulating air disinfectant and static electricity absorptive ultraviolet ray disinfectant can be used for air disinfection twice per day and not less than 2 hours per time when any personnel present. Disinfection shall be recorded timely.</li> <li>4. Consultation room is suggested to be used in rotation by morning and afternoon.</li> </ol>
2. Object Surface	<ol style="list-style-type: none"> <li>1. Chlorine-containing disinfectant, 75% alcohol, disposable wet tissue can be used to rub, spray and soak on object surface. Object surface can be rubbed not less than twice per day by 1000mg/L Chlorine-containing disinfectant.</li> <li>2. Cleaning and disinfection shall be done immediately when encounters obvious contamination.</li> <li>3. Surface of object which doesn't stand corrosion can be rubbed twice by 75% alcohol.</li> <li>4. Sphygmomanometer and other routine instrument shall be rubbed with 1000mg/L Chlorine-containing disinfectant after each usage. Cuff of Sphygmomanometer shall be washed and disinfected 2 to 4 times per week.</li> <li>5. Thermometer shall be soaked in 1000mg/L Chlorine-containing disinfectant for 30 minutes after each usage. Then it shall be dried for next usage.</li> <li>6. All devices on the table shall be disinfected related personnel.</li> </ol>
3.Wall Surface and Flooring	<p>Contaminant which can be seen by naked eyes can be disinfected by 1000mg/L chlorine-containing disinfectant or rubbed by alcohol. The disinfectant shall be sprayed enough when surface is wet. Timing for disinfection shall not be less than 30 minutes and 3 days per day.</p> <ol style="list-style-type: none"> <li>1. Daily disinfection sequence: treatment room, office, duty room, ward or consultation room, corridor, then toilet which is contaminated area.</li> <li>2. The floor contaminated by blood, excreta or vomitus shall be cleaned first then disinfected with 1000mg/L chlorine-containing disinfectant. Flooring disinfection starts from public area to indoor then repeat it the other way around.</li> </ol>
4.Daily Cleaning and Disinfection	<ol style="list-style-type: none"> <li>1. Object surface which is frequented contacted by patients and medical personnel such as doorknob, table top, switch shall be disinfected 4 times per day by 1000mg/L chlorine-containing disinfectant.</li> <li>2. Slit lamp, computer refraction, non-contact tonometer and other devices where patients may contact such as mandible supporter shall be rubbed by alcohol.</li> <li>3. Fixed-line telephone shall be rubbed 2 to 4 times per day by alcohol. General cleaning and disinfection for all areas shall be done every Friday.</li> </ol>

	4. Devices on the table shall be cleaned and disinfected by related personnel.
5. Terminal disinfection in the ward	Spray 1000 to 2000mg/L chlorine-containing disinfectant and rub objects, repeat it then ventilation.
6. Disinfection on medical waste	Disposable stuff including mask, gloves, hat and shoe covers shall be thrown into yellow dustbin for medical waste, spread with 75% alcohol and taken away with double dust bags. It shall be done twice per day.
7. Object surface and air disinfection in operation room	Current disinfection method shall be adopted. Air strainer shall be disinfected.
8. Cleaning, disinfection and sterilization process on surgical instruments and disinfected items (Non emergency surgery shall be suspended. Central laminar flow shall be stopped when 2 or more than 2 operation rooms for emergency surgery is used. If laminar flow is used for 1 operation room only, terminal disinfection shall be done on all laminar flow shared operation rooms. )	1. Disinfection and cleaning process for surgical instruments: Flowing water to wash-Rinsing by purified water-Disinfection with 75% alcohol-Sterilization by high pressure sterilizer.
	2. Disinfection and cleaning process for handle: Flowing water to rinse syringe needle—Use high pressure gun or 20ml injector with purified water to wash inside tube—Purified water to wash inside tube(with 20ml injector)--Use high pressure air rifle or 20ml injector to dry up tube --Use 75% alcohol to disinfect inside tube and outside surface—Use high pressure air rifle or 20ml injector to dry up tube-- Use high pressure air rifle or 20ml injector to dry up tube.
	3. Terminal cleaning and disinfection process on surgical instruments: Use flowing water to rinse—Use sonic cleaning with solution containing enzymes or manual rinsing—Use flowing water to rinse for enzymes removing—(Terminal rinsing) Use purified water to rinse—Use purified water for boiling sterilization—Put it in drying cabinet—Storage in cleaning area(No more usage of medical lubricant)
	4. Terminal Disinfection and cleaning process for handle: Use flowing water to rinse syringe needle—Use high pressure gun to wash inside tube-- Use high pressure air rifle to dry up tube-- Use 75% alcohol to disinfect inside tube and outside surface-- Use high pressure air rifle to dry up tube—Remove syringe needle and clean joint part- Dry up in drying cabinet—Storage in cleaning area.
	5. Cleaning and disinfection process for surgical fluid box and tubes: Use flowing water to rinse surface—Use high pressure gun to wash inside tube-- Use high pressure air rifle to dry up tube-- Use 75% alcohol to disinfect inside tube and outside surface—Use high pressure air rifle to dry up tube—Use absolute ethyl alcohol or 95% alcohol to rinse tube-- Use high pressure air rifle to dry up tube—Dry up in dry cabinet with 30℃ in 4 to 6 hours—Put it in bag and seal--ethylene oxide sterilization Note: Natural drying shall not be done concerning secondary contamination.
	Note: Terminal instrument, handle, brush, clothe, basket, basin, water faucet shall be soaked in and rubbed by 500mg/L chlorine-containing disinfectant and then stored in dry place. Injector shall be changed every day and not be recycled. Brush, clothe, injector and basket shall be

	prepared in duplicate. One set for rinse and wash, another set for terminal rinse. They shall not be mixed for usage.
9.Cleaning and disinfection process on recyclable medical instruments	Pack all used instruments and bring to instrument cleaning room for cleaning and disinfection.
	Use flowing water to rinse inside and outside—Soak them in 1000mg/L chlorine-containing disinfectant for 30 minutes—Use flowing water to remove chlorine—Use purified water to rinse for terminal rinsing—Dry up in drying—Put in sterilizer or seal bag with marking disinfection date.
	It is recommended to use disposable medical consumables.

