



# The Impact Of Covid-19 Pandemic In Ophthalmic Institution Services And Eye Care Practitioners

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## **Abstract:-**

**Purpose:** The corona virus outbreak has become the global health threat. the aim of the study to summarized the management steps of the ophthalmic practice in COVID-19 pandemic era to provide eye care services with view of spreading of the deadly coronavirus. The study includes about the impact of COVID pandemic in ophthalmic institutions services and eye care practitioners with respect the guidelines for maintaining virus spreading among eye care practitioners and other health workers.

**Method:** A cross sectional observational analytic study among the ophthalmologist and optometrist & hospital management practicing at Dr om Parkash eye institute in metropolitan area Amritsar, Punjab

**Result:** The result of the study shows the significant changes in clinical practice and hospital, the practitioners wear mask, PPE kits, social distancing, modifications in instruments, challenges in communication, diagnostic challenges, introduction of telemedicine, delay in routine examination, postponed of several emergency operations, thermal screening, distribution of mask in every single patient and attentive, frequent cleaning of clinic etc. The result includes huge changes in clinical atmosphere to maintain the spread of COVID among the patients and health workers and obey the government protocol for safety improvement.

**Inclusion criteria:** the observational study's data & behavioral changes include from 01of July 2020 to 01of march 2021.

**Exclusion criteria:** the changes from 01of march 2021 in guidelines and management protocols system are excluded in this study.

**Conclusion:** In this study the important changes are previewed to respect the ophthalmology practice in COVID pandemic era. This observational study shows how the ophthalmologist and optometrist and other health care professionals maintained and brought changes in practice to respect the government protocol to protect the society and patient from spreading the deadly COVID. The study is done with an insight the improvement of ophthalmic practice in COVID-19 pandemic era and quality maintaining steps for other ophthalmic institutions.

## **Introduction:**

The effect of COVID 19 (corona virus detected in 2019) on mankind is known to everyone. The corona virus has become a global health issue with least medical treatment. Corona virus are many kinds, that causes diseases in human and birds, newly identified corona virus IN 2019, SARS-CoV-2 has become the global pandemic issues causing respiratory illness and death <sup>(1)</sup>. COVID 19 caused by the SARS-CoV-2, the coronavirus emerged in 2019 <sup>(1)</sup>. COVID19 causes millions of deaths in the world and resting health issues who survived <sup>(1)</sup>. The death causes by COVID 19 has reached to three-million-mark April 17, 2021 according to WHO (world health organization) worldwide and it reaches this figure in one year and four months <sup>(2)</sup>. In India the death figure reported by who is 175673+ <sup>(2)</sup>. COVID 19 effect different in different people, the common symptoms are fever, dry cough, headache, body ache, breathing difficulties, tiredness <sup>(3)</sup> To stop spreading of deadly corona virus WHO ask for worldwide lock down. To respect the guidelines and protocols in India also declared national wide lock down in 2020 march onwards.

After a certain period of lock down all sectors are partially opening with some guidelines in view of spreading deadly virus. As well eye hospitals also running their daily work up with less patients and maintaining government provided guidelines to respect COVID spread among the eye practitioners and hospital workers. There are several changes included in daily practice such as wearing PPE kits for practitioners, wearing mask, maintain social distance, introduction of telemedicine, one attentive with a patient, thermal scanning, providing glove and mask to every patient, modification of ophthalmic instruments, restriction of using air conditions, frequent sterilization of clinics, cancellation of routine eye exams, modification of sitting arrangement in waiting hall, alternative staff arrangement, personal protection training, maintaining social distancing for every patient in hospital area, frequent cleaning of instruments after a single work up, public awareness for corona virus etc.

In this study all the possible steps are described to maintain the quality work up with an insight of pandemic and virus spreading with respect of government provided protocols. Here we mentioned how the ophthalmic institution and practitioners brought changes in their daily practice to provide ophthalmic services to the nation with maintaining hygienic and protection from this deadly virus. In this study we listed the changes to improve the protection mechanism for practitioners and patients from COVID spreading. The impact of these changes in ophthalmic practices and atmosphere are tried to view here.

## **Changes in ophthalmic practices and institution: -**

After the corona virus break down there are several changes has been done in view of the spreading of the deadly virus in every sectors. The health care institutions are on high alert for maintaining every possible step to prevent the spreading the virus<sup>(4)</sup>. Government has introduced safety protocols for every patient visiting to the hospital and brought several changes in hospital atmosphere to stop the increasing graph of the virus.

**Infection control:** Dr Om Prakash eye institute & research centre is one of the busiest hospital in Amritsar metropolitan with daily patient load of approx. 600 per day (from hospital data). The risk of COVID 19 spread is imminent and bring disaster to society. In the ophthalmology practice the equipments used are so closest to patient and has a high risk of transmission of the virus. Therefore, patients and practitioners are in the high risk to transmission the virus. Recent research has elevated that corona virus can sustain on different surface with different timing such as virus can remain viable for up to 72 hours on plastic and stainless steel, up to two hours on copper and 24 hours on cardboard <sup>(5)</sup>. Thus the contaminated surfaces are the key sources of the transmission of the virus among the practitioners. Some guidelines are

introduced for disinfecting the ophthalmic equipment by WHO. Sodium hypochlorite(bleach/chlorine) at recommended concentration 0.1% or 1000 ppm. Alcohol of 70-90% can be used for surface disinfection <sup>(6)</sup>. All disinfectant solutions should be stored in opaque containers, in a well-ventilated, covered area that is not exposed to direct sunlight and ideally should be freshly prepared every day to produced its immediate effect on the cleaning the surface. In ophthalmology practice the contaminated surfaces may include, Goldman applanation tonometer, slit lamp, trail fame, contact lens, eye drops, chine rest, table surfaces of ophthalmology diagnostic. The surfaces are cleaning with mentioned disinfected frequently.

**Outpatient care:** At dr om prakash eye institute infection control department has taken several steps to reduce the spread of the covid. The management has provided every possible PPE kit to the patients and attender to respect the spreading the corona virus. The thermal scanning of every patients and attender has been done at entrance pre scanning area, the suspicious patients(more then 98°F) are asked to check for covid test and prohibited for hospital entrance with a view of safety. The state government has provided some specific guidelines for PPE kits, that every patient should wear mask, maintaining physical distancing, wear protective grown, wearing face shield, protective goggles <sup>(7)</sup>. The standard of mask has been given by health ministry it includes the mask should be three layers or N-95 respirator mask as it has the ability high filtration of air born particles <sup>(8)</sup>. Every single patient coming to hospital are provided with a triple layer or N-95 mask, gloves, cap, face shield as per government protocol.

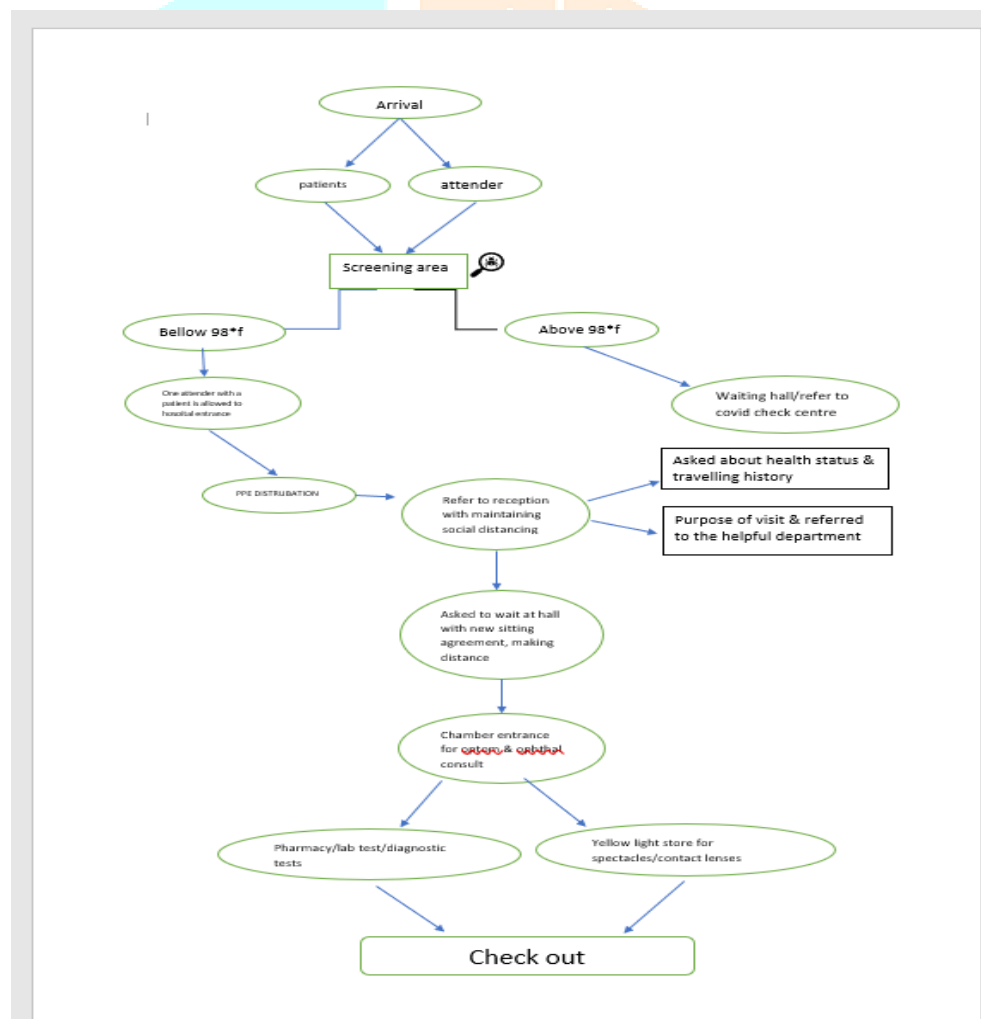


Figure: patient out flow at dr om prakash eye institute

**Surgery:** The hospital infection control authority has brought few changes in surgery schedule. They have postponed non-emergency ocular surgeries including immature cataracts, pterygium excision surgeries, corneal refractive surgeries, few ocular prosthetic surgeries, ptosis management surgeries the list also includes squint management surgeries in adults. The main aim behind this decision is to reduce gathering and safety purpose for both patients and medical staffs, which can be the source of virus spreading. The out-state patient's surgery schedules postponed through call, as travelling is the one of the risky step during the covid situation this can affect both the patient's family and hospital authority and dealing medical staff also. The centre for disease control and prevention of India also declared that travelling can be the high risk for corona virus infection as India is dealing with 4<sup>th</sup> stage of covid pandemic <sup>(9)</sup>. Cancellation of daily non-emergency surgeries in sight of covid protection protocol and maintaining safety guidelines for patients.

**Manpower:** the manpower has reduced to its half quantity. The aim behind this step to make a shield in covid transmission among the hospital staffs. The alternative duty schedule organised with duty roster arrangement. The main theme of reduced manpower is the less interactions between staffs in the hospital. Interactions and gathering in staff room, lunch room, resting-lounge can increase the risk. This can increase risk for the workers and their families also. The studies shows that healthcare and hospital workers are at the high risk of out break of corona virus to their families <sup>(10)</sup>.

**Personal protection and training:** personal protections equipment are provided to every staffs and healthcare worker, additional proper dealing with the PPE kits is the matter of good knowledge and education. The infection control department and microbiologist has provided training and educational videos to the health care workers regarding removal and disclosed the PPE kits with an aim to decreased risk of covid transmission risk. PPE demonstration, online training, online video presentation has done to reduced the staff gathering in hospital. The importance of PPE kits also discussed in those training sessions. Proper use of PPE kits can reduce the risk of infection transmission in community <sup>(11)</sup>. According to WHO ( world health organization ) the PPE (personal protection equipment) is the great shield to protect the health care workers or any person for being infected with corona infection <sup>(12)</sup>. WHO recommended PPE kits for health care workers including gloves, gowns, shoe covers, head covers, masks, respirators, eye protection, face shields, and goggles <sup>(13)</sup>. The hospital provided all PPE kits to the frontline healthcare workers to maintain and protect against covid transmission.

**Telemedicine:** Telemedicine refers to the practice of caring for patients remotely when the provider and patient are not physically present with each other. Modern technology has enabled doctors to consult patients by using HIPAA compliant video-conferencing tools. Most robust and easy to use telemedicine software <sup>(14)</sup>.

To respect the social distancing and ocular emergency consultation in mind the hospital introduced telemedicine facilities for patients. So, that they can attend the facilities through the telemedicine system. The aim of the telemedicine is to provide ocular services with no risk, through video calling with specialized software, that can minimise the risk of travelling and gathering, with is the risk factor of covid transfer one to another<sup>(15)</sup>. The group of glaucoma and retina patients are highly benefited with this telemedicine consult system.

**Restriction in ophthalmic instruments:** Ophthalmic instruments are designed to examine the eyes for measurement, evaluating diseases and disorder of ocular system. All ophthalmic instruments are designed to perform about closer to eyes for examine different measurements and determine diagnostic. Some of them are worked by directly touch the ocular surfaces such as goldman applanation tonometer. Performing instruments can bring the patient and examiner closer to each other which can be at high risk of the transmission of antigen. So, the instruments such as retinoscope, ophthalmoscope, goldman applanation tonometer are reduced in use expect any mandatory patient after using the instrument immediately sterilised by 70% alcohol concentration solution. The reduction of instruments use is determined in mind of social distancing and infection control. The cleaning procedure is maintained by universal protocol of cleaning medical instruments, the steps of cleaning instruments includes four steps such as 1) cleaning/decontamination 2) sterilization 3) quality control & 4) storage <sup>(16)</sup>.

**Modification of instruments:** The infection control department bought few changes in ophthalmic instrumentation to protect the patient and examiner from COVID-19 transmission. A large protective plastic sheet laminated on slit lamp to stop the transmission of droplets from examiner to patient or vies-versa. Slit lamp is widely performed instrument in the ophthalmology field to examine the eye from anterior to posterior segment <sup>(17)</sup>. According to WHO the droplets are high risk of covid transmission, while seizing, coughing huge amount of droplets come through, this can be lead the patient and examiner to transmission of this deadly disease <sup>(18)</sup>.

**Challenges in refraction:** optometrist of DR om prakash eye institute reported facing huge challenges in clinic while attempting refraction. The mask induced fog disturbing during the refraction to attempt potential corrective vision. To overcome the situation patients are asked to hold the mask with finger tip around the nose bridge and also taped with adessive sellotape around the nose to prevent the upwards flow of breath. The ophthalmic lenses and trail fame is cleaned after every single use with sterilizer to prevent the COVID transmission chain.

**Contact lens services:** when it comes COVID-19 and eyes the virus can transmit into body through the eye's conjunctiva, mucus membrane that covers the anterior segment of eye<sup>(18)</sup>. Conjunctivitis or pinky eye can also be a symptom of COVID-19 infection<sup>(20)</sup>. Fitting contact lenses can be a route of virus contamination to eye and be a risk of COVID infection. The finger and eyes directly comes into contact while fitting contact lenses, this can be a route for the germ entrance to the body. The New England Journal of Medicine that found that among 1,099 patients with laboratory-confirmed cases of COVID-19 in China,0.8% showed signs of conjunctivitis<sup>(21)</sup>. So, the contact lens services were stopped during the whole pandemic period.

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