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NATIONAL HEALTH MISSION - TAMILNADU

**CORONA VIRUS (COVID-19)  
STATE EMERGENCY  
OPERATIONS CENTRE**



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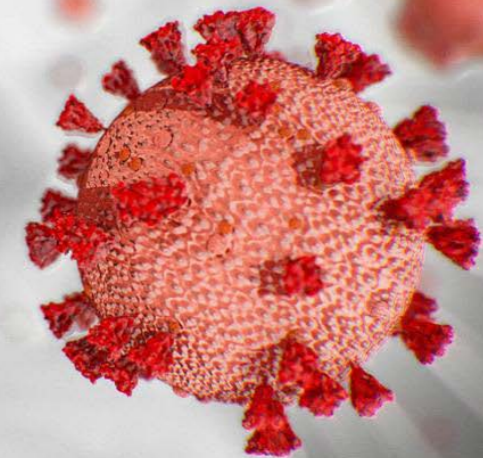
**Management of Patients with  
Dialysis and Renal  
Transplant Recipients  
during COVID-19**

National Health Mission - Tamil Nadu

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## COVID-19 THE NOVEL CORONA VIRUS DIALYSIS PATIENTS AND RENAL TRANSPLANT RECIPIENTS



### **GUIDELINES FOR MANAGEMENT OF PATIENTS UNDERGOING DIALYSIS AND RENAL TRANSPLANT RECIPIENTS DURING COVID-19**

#### **1. INTRODUCTION**

- Chronic kidney disease / End-Stage Renal Disease patients who are on maintenance hemodialysis (HD) or Continuous Ambulatory Peritoneal Dialysis (CAPD) are vulnerable to COVID-19 because of their existing comorbidities, repeated unavoidable exposure to the hospital environment and their immunosuppressed state.
- These patients are therefore not only more prone to acquire infection but also susceptible to more disease as compared to the general population.

## 2. GENERAL GUIDELINES FOR HEMODIALYSIS UNIT



Patients on maintenance dialysis should NOT miss dialysis and they have to strictly adhere to their prescribed dialysis schedule to avoid need for emergency dialysis

1. Adequate medical supplies such as dialysis solution, dialyzers and tubing, catheters, fistula needles, disinfectant and emergency medicines etc. must be ensured inadequate quantity
2. A signboard should be posted prominently in Tamil and English, in the dialysis unit and waiting area, asking patients to report any fever, cough or breathing problems.
3. All hemodialysis units should educate their staff including Nephrologists, Medical Officers, Staff Nurses, Dialysis Technicians, other staff and also all the patients undergoing HD along with their caregivers on COVID-19.
4. All universal precautions must be strictly followed.
5. All staff should strictly follow hand hygiene (seven steps) with soap and water for 20 seconds before handling any patient and in between two patients. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol.
6. If hands are visibly soiled or dirty, they should be first washed with soap and water and then an alcoholic hand rub used.
7. Avoid touching your eyes, nose, and mouth with unwashed hands.
8. Medical and support staff treating infected patients should be monitored for COVID-19 infection at the dialysis facility and should take necessary action if found infected.
9. Dialysis units should organize shift duties for healthcare workers in a way that the work of the dialysis unit is not affected.
10. All HD units should be aware of the testing, triage and notification policy recommended by the Department of Health & Family Welfare, Tamil Nadu.
11. Dialysis unit staff should be trained for donning and doffing of Personal Protective Equipment (PPE) so that they can be used during the treatment of COVID-19 positive patients.
12. All staff should be trained for cough etiquette, hand hygiene and proper use and disposal of mask, gown and eyeglasses and the need to protect themselves.
13. All patients with suspected COVID-19 be tested as per guidelines
14. Patients with suspected or positive COVID-19 should be referred to COVID-19 care team as per guidelines

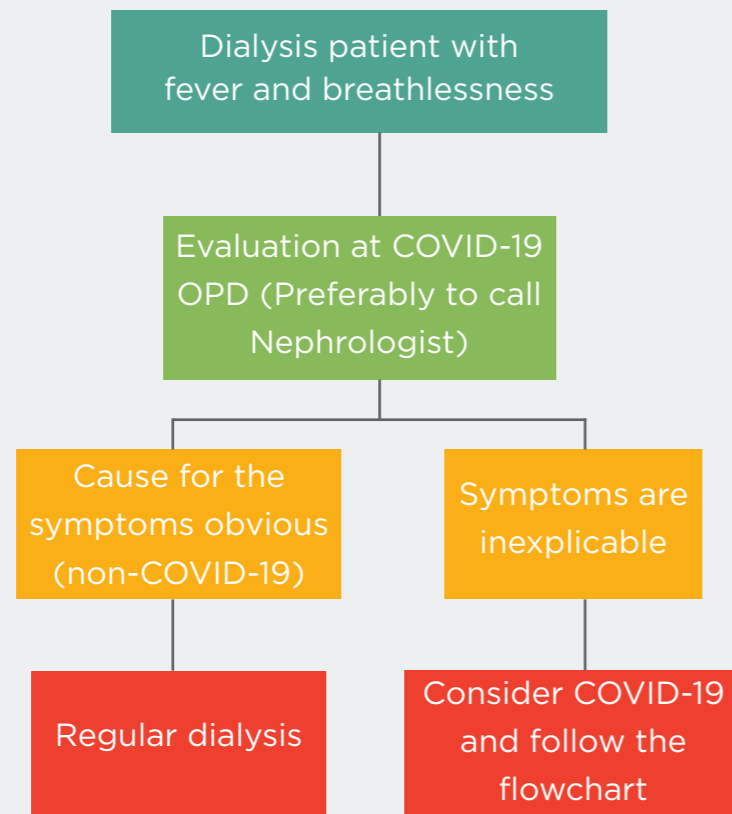


### 3. GUIDELINES FOR HEMODIALYSIS

#### 3.1. FOR PATIENTS :

##### a.) Before Arrival to Dialysis Unit

- All units should instruct their patients to recognize early symptoms of COVID-19 (recent onset fever, Sore throat, Cough, recent Shortness of breath/dyspnea (without major interdialytic weight gain), rhinorrhea, myalgia/body ache, fatigue and Diarrhea) and contact dialysis staff before coming to the dialysis centre.
- Dialysis staff should direct the patient to a Designated COVID-19 Screening area of the hospital for further evaluation.

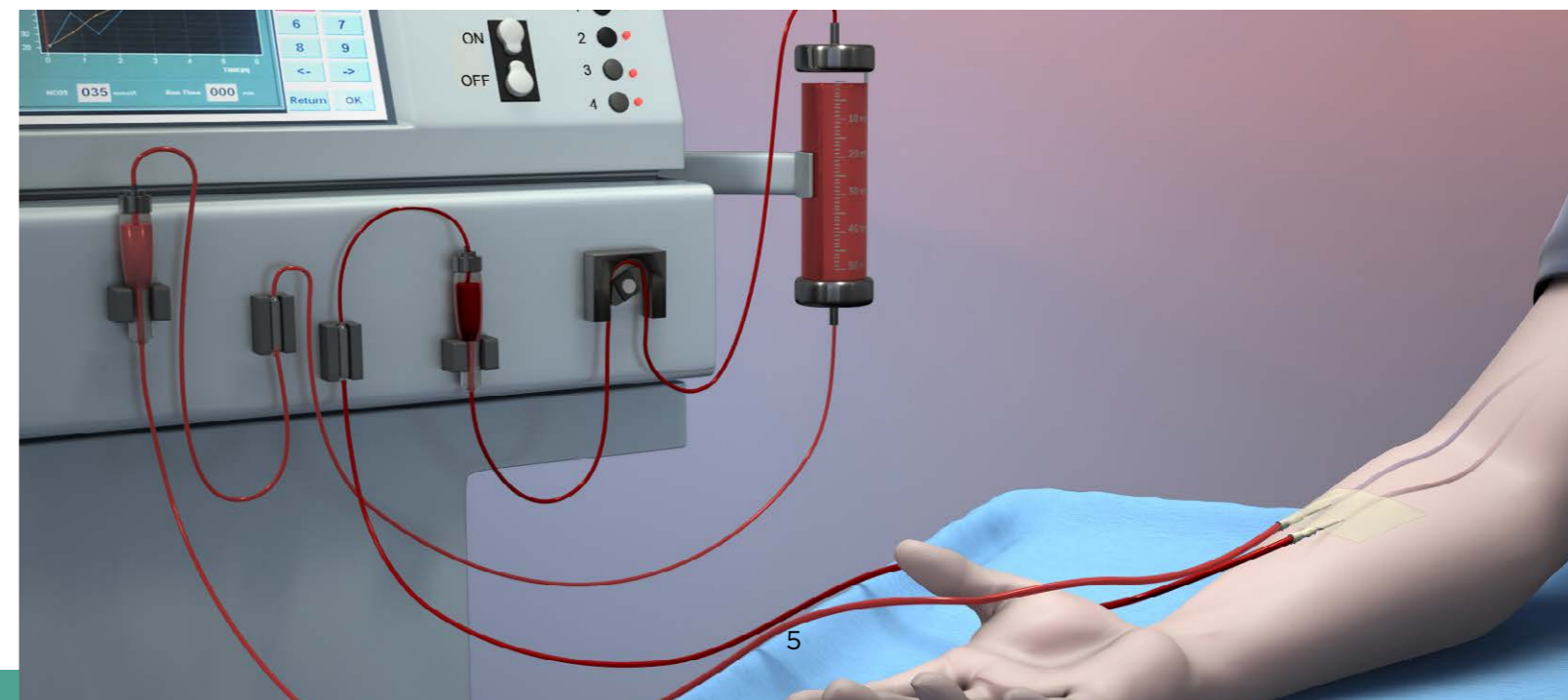


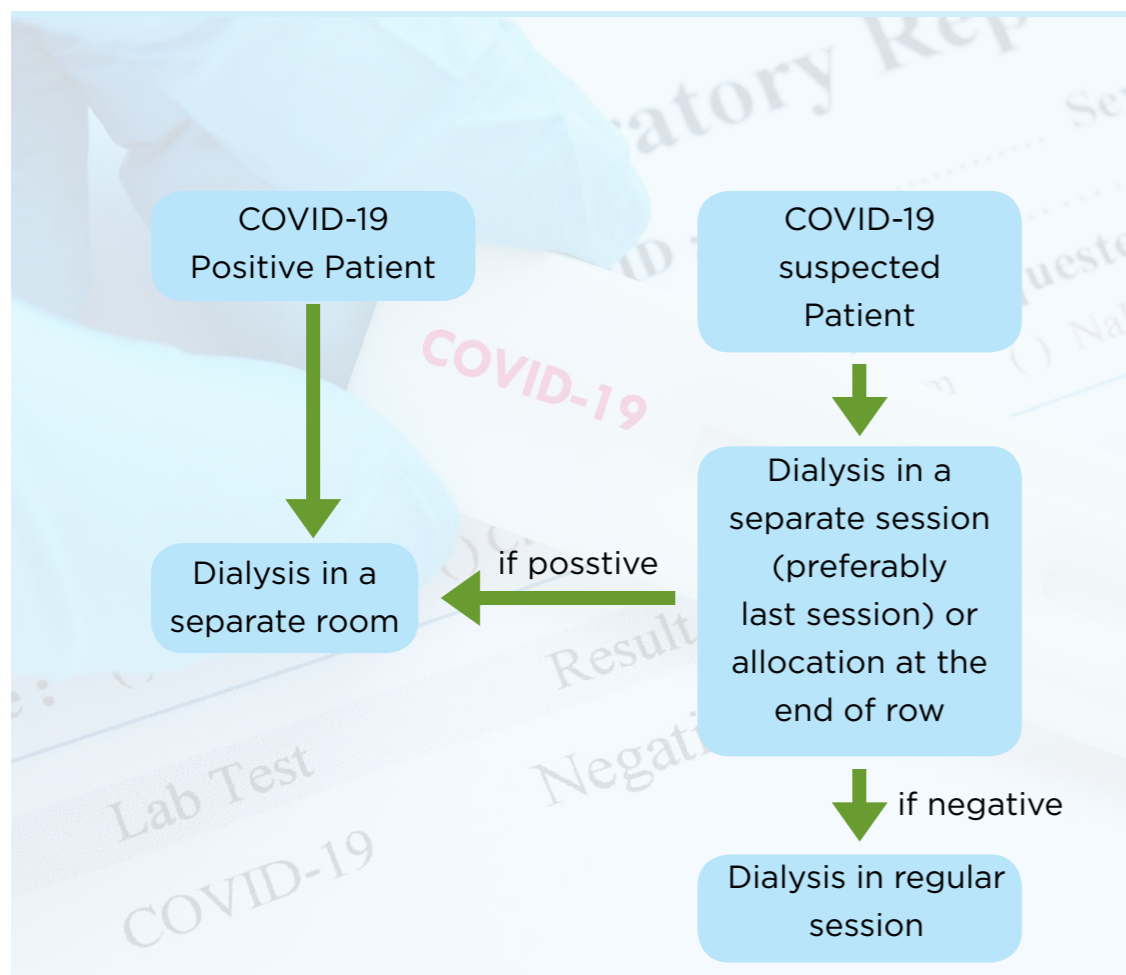
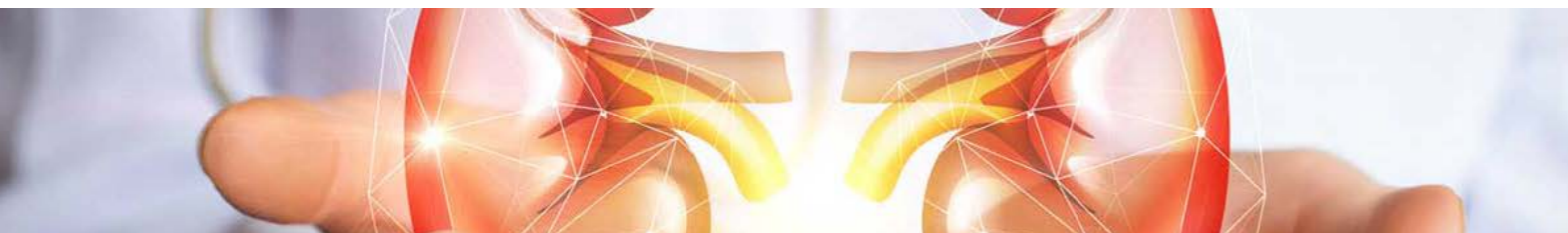
##### b.) Inside Dialysis Unit

- Suspected or positive COVID-19 patients should properly wear a disposable three-layer surgical mask throughout dialysis duration.
- Patients should wash hands with soap and water for at least 20 seconds, using the proper method of hand washing. If soap and water are not readily available, a hand sanitizer containing at least 60% alcohol can be used.
- Patients should follow cough etiquettes, like coughing or sneezing using the inside of the elbow or using tissue paper.
- Patients should throw used tissues in the trash. The unit should ensure the availability of plastic-lined trash cans appropriately labelled for disposing of used tissues. The trash cans should be foot-operated ideally to prevent hand contact with infective material.
- There should be a display of adequate IEC material (posters etc.) about COVID - 19 in the dialysis area.

#### 3.2 FOR DIALYSIS STAFF

1. Each dialysis bed should have disposable tissues and waste disposal bins to ensure adherence to hand and respiratory hygiene, and cough etiquette and appropriate alcohol-based hand sanitizer within reach of patients and staff.
2. Dialysis personnel, attendants and caregivers should also wear a three-layer surgical facemask while they are inside the dialysis unit.
3. All patients with positive COVID-19 be dialyzed in isolation. The isolation ideally should be in a separate room with a closed-door but may not be possible in all units.
4. For suspected COVID-19 patients use of a separate shift, preferably the last of the day (cohorting all such patients) or dialyzed at a row end within the unit ensuring separation from all other patients by at least 2 meters in all directions.





5. Staff caring for suspected or proved cases should not look after other patients during the same shift.
6. Dialysis staff should use of all personal protective equipment (PPE) for proven or strongly suspected patients of COVID-19. Isolation gowns should be worn over or instead of the cover gown (i.e., laboratory coat, gown, or apron with incorporate sleeves) that is normally worn by hemodialysis personnel.
7. Separating equipment like stethoscopes, thermometers, Oxygen saturation probes and blood pressure cuffs between patients with appropriate cleaning and disinfection should be done in between shifts.
8. Stethoscope diaphragms and tubing should be cleaned with an alcohol-based disinfectant including hand rubs in between patients.

9. As most NIBP sphygmomanometer cuffs are now made of rexine they should also be cleaned by alcohol or preferably hypochlorite- based (1% Sodium Hypochlorite) solutions however the individual manufacturer's manuals should be referred to.

10. Staff using PPE should be careful of the following issues:

- While using PPE, they will not be able to use the washroom so prepare accordingly
- After wearing an eye shield, moisture appears after some time and visibility may become an issue. Therefore, machine preparation can be done in the non-infected area before shifting to near the patient
- If dialysis is to be done bedside in the hospital, portable RO should be properly disinfected with hypochlorite (1% Sodium Hypochlorite) solution between the use of two patients

### **3.3 DISINFECTION AND DISPOSAL PRACTICES IN DIALYSIS UNIT :**

- Bed linen should be changed between shifts and used linen and gowns be placed in a dedicated container for waste or linen before leaving the dialysis station. Disposable gowns should be discarded after use.
- Cloth gowns should be soaked in a 1% hypochlorite solution for 20 minutes before slicing and then be transported for laundering after each use.
- Inside dialysis unit, clean and disinfect frequently touched surfaces at least thrice daily and after every shift. This includes bedside tables and lockers, dialysis machines, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks etc.
- It is recommended that solutions for disinfection be composed either of hypochlorite, alcohol, formaldehyde, or glutaraldehyde for disinfection of surfaces in accordance with the manufacturer's instructions.
- Almost all common disinfectant solutions are effective in killing the virus on surfaces, the key is effective and frequent cleaning
- Wear unsterile but clean disposable gloves when cleaning and disinfecting surfaces.



CORONAVIRUS

- Gloves should be discarded after each cleaning.
- If reusable gloves are used, those gloves should be dedicated for cleaning and disinfection of surfaces for COVID-19 and should not be used for other purposes.
- Clean hands by above method immediately after gloves are removed.
- For soft (porous) surfaces such as carpeted floor, rugs, and drapes, remove visible contamination if present and clean with appropriate cleaners indicated for use on these surfaces.
- After cleaning, launder items as appropriate in accordance with the manufacturer's instructions.
- If possible, launder items using the warmest appropriate water setting for the items and dry items completely.
- Wear disposable gloves when handling dirty laundry from an ill person and then discard after each use.
- Do not shake dirty laundry, as this will minimize the possibility of dispersing virus through the air.



### 3.3.1. Solution preparation for disinfection:

#### a.) Bleach Solution

- Mix 1 litre of commercially available bleach (4-7%) in 4 litres of water to prepare a 1% sodium hypochlorite solution. T
- his solution can be used for up to 24 hours after which it should be discarded, and a fresh solution prepared.
- As an alternative 10 grams of household bleaching powder can be dissolved in a litre of water and used for a period of 24 years.

#### b.) Alcohol-based solutions

- Ensure solution has at least 60% alcohol

## 4. DIALYSIS PATIENT WITH ACUTE KIDNEY INJURY (AKI) :

- A small proportion of patients (~5%) of COVID – 19 develops AKI. The disease is usually mild, but a small number may require RRT (Renal Replacement Therapy). In addition, an even smaller proportion of patients with a secondary bacterial infection will have septic shock, drug nephrotoxicity or worsening of existing CKD severe enough to require RRT (Renal Replacement Therapy).
- It is suggested that all modalities of RRT may be used for patients with AKI depending on their clinical status.
- Patient admitted in another ward of the hospital with AKI should be preferably given bed-side dialysis rather than a shifting patient in the main dialysis unit.
- In such a situation, portable reverse osmosis water in a tank will serve the purpose for the dialysis.
- If more dialysis is expected in the selected area, the dialysis machine may be left in the same area for future dialysis



## 5. PERITONEAL DIALYSIS

### a.) Patients already on CAPD

- Patients who are already receiving peritoneal dialysis (PD) treatment have a relative advantage over patients who are receiving hospital or satellite-based hemodialysis treatment as they will not be exposed to the hospital environment.
- However, they should arrange their delivery of supply well in time to avoid missing dialysis exchanges.
- Used dialysis bags and tubing should be properly disposed using 1% hypochlorite solution first and disposed of in a sealed bag.
- Used dialysis fluid should be drained in the flush

### b.) New patient planned for CAPD

- It will be difficult to maintain a service that can commence new patients on PD, mainly through a lack of healthcare worker to insert the PD catheter and to provide the intensive training required. Therefore, the initiation of a new patient should be avoided.

### c.) Acute PD

- Use of acute peritoneal dialysis can be lifesaving and should be used as and when required and, in the setting, where hemodialysis facility is not available. Health care worker should use all precautions while initiating acute PD and discard used consumables properly.

## 6. RENAL TRANSPLANT RECIPIENTS

- Renal transplant recipients, being on immunosuppressive medicines, are at a higher risk to acquire COVID 19. They should strictly adhere to all the precautionary measures without fail
- Renal transplant recipients should ensure availability of immunosuppressive medicines with them since missing even a few doses may result in rejection of kidney
- At tertiary Government hospitals, immunosuppressants are given free of charges to renal transplant recipients. If the patient is not able to visit the hospital, medicines are given to any person representing the patient
- Renal transplant recipients should report to hospital even when they develop mild symptoms

## 7. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal protective equipment must be used while dialyzing COVID-19 positive patients. These include :

- Shoe covers
- Gown
- Surgical cap or hood



Shoe covers



Gown



Surgical hood



Goggles

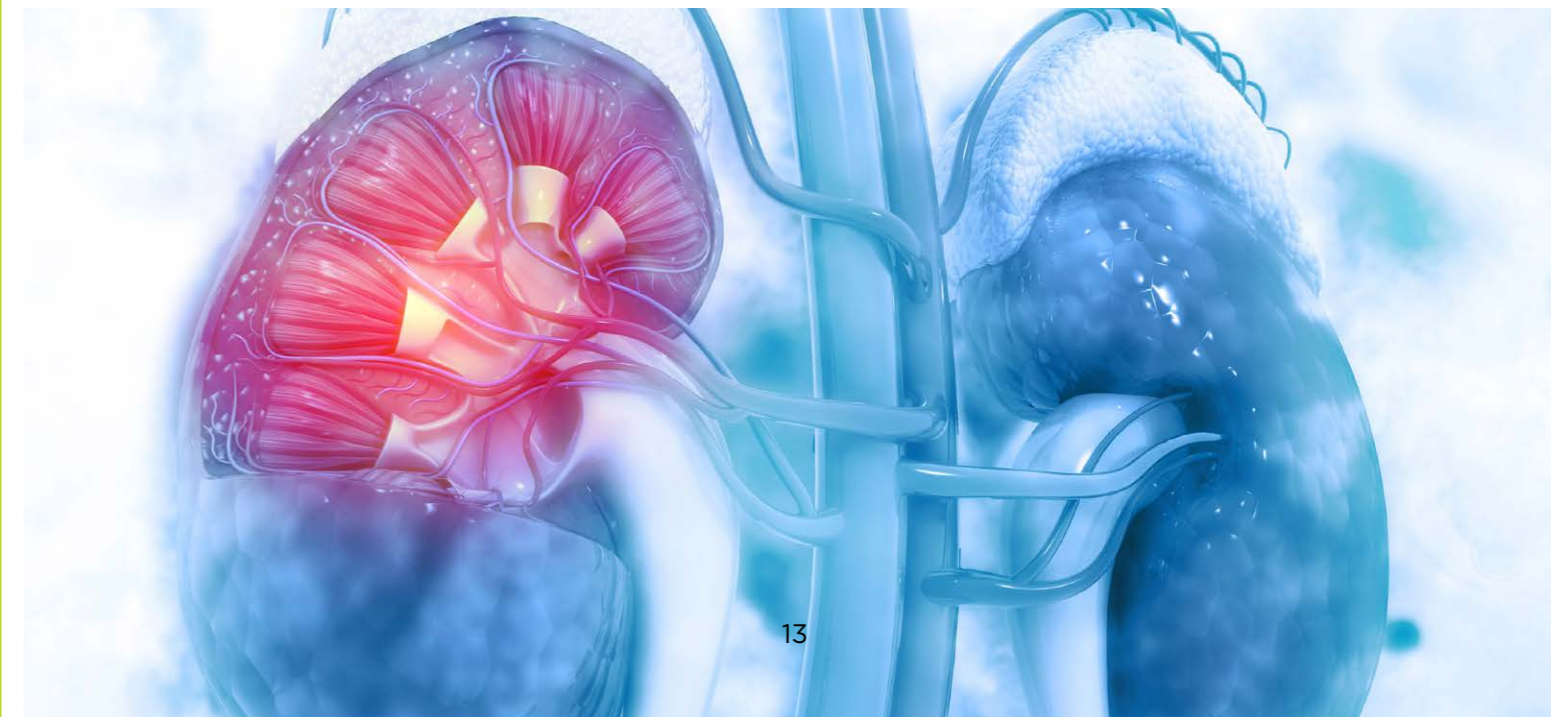


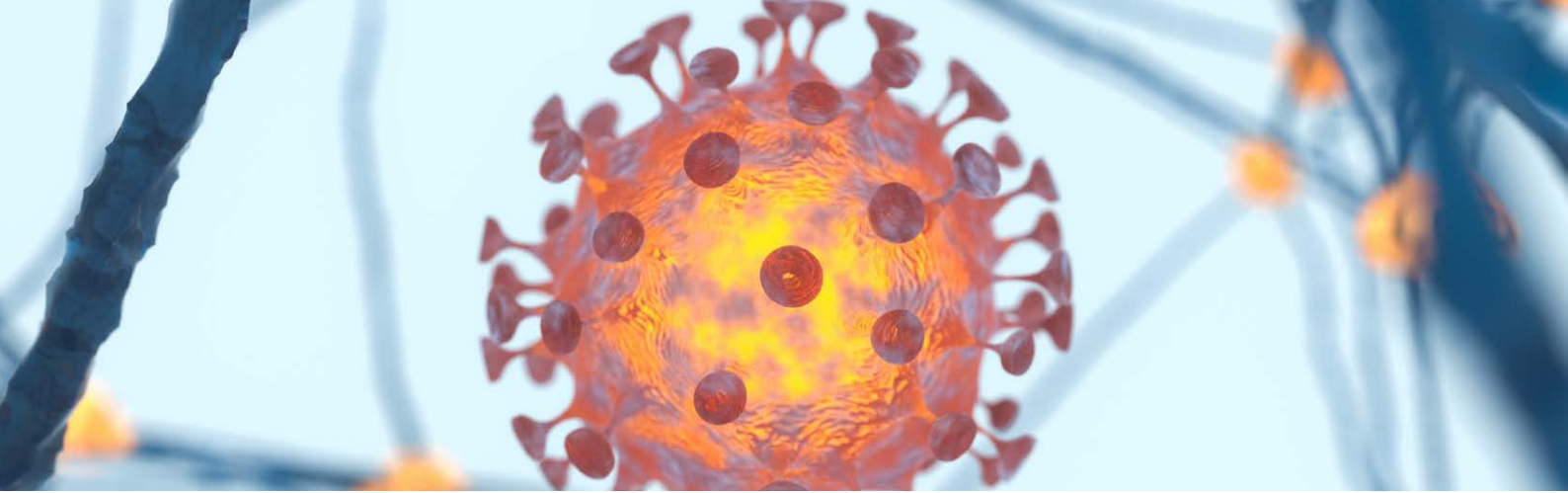
Mask



Surgical gloves

- Goggles or eye shields
- Mask : Ideally all masks should be N95 respirators with filters. However, as the life of such masks is approximately 6-8 hours and they can be uncomfortable over a long term and are also in short supply, they should be prioritized for aerosol-generating procedures, namely intubation, open suction and bronchoscopy. Surgical triple layer masks and cloth masks can be used as alternatives for all other procedures.
- However, it is always better to give hand-on training of donning and doffing to staff who is going to handle suspected or positive COVID-19 cases.





## **8. ACKNOWLEDGEMENT**

We are thankful to the following Medical Experts and the supportive team for their invaluable contribution in the making of this brochure;

1. **Dr. K. Senthil Raj**, IAS  
Mission Director, National Health Mission, Tamil Nadu
2. **Dr. Gopalakrishnan**, MD DM FRCP,  
Director, Institute of Nephrology,  
RGGGH & MMC, Chennai
3. **Dr. Shankaranarayanan**,  
Expert Advisor, TNHSRP, Chennai
4. **Dr. Jerard M Selvam**,  
State Nodal Officer NCD, NHM - TN
5. **Dr. Balakrishnan**,  
Nephrologist IMA
6. **Dr. Balasubramaniam**,  
Nephrologist, IMA
7. **Dr. T. Dineshkumar**, MD,DM,  
Assistant Professor, RGGGH & MMC
8. **Dr. R. Aravinthkumar**, MD,  
Senior Resident, RGGGH & MMC
9. **Dr. K. Manojkumar**,  
Senior Resident, RGGGH & MMC
10. **Dr. Sidhdharth Theagarajan**,  
Consultant, NHM - TN
11. Revised Guidelines for Dialysis of COVID - 19 patients, MOHFW, dt: 07.04.2020