

Expert Recommendations on Prevention and Control of 2019-nCoV Epidemic in Hemodialysis Room (Center)

National Medical Quality Control Center for Kidney Diseases

February 10, 2020

Since December 2019, an outbreak of the novel coronavirus epidemic has broken out in Wuhan City, Hubei Province. In order to prevent the occurrence of clustered epidemic in hemodialysis rooms (centers) and reduce the risk of infection, the National Medical Quality Control Center for Kidney Diseases has drawn up expert recommendations for the prevention and control of novel coronavirus epidemic in hemodialysis rooms (centers), based on *the Novel Coronavirus Diagnosis and Treatment Plan* issued by the government. During the epidemic, the hemodialysis rooms (centers) should refer to *the Standard Operating Procedures for Blood Purification (2020 Comment Edition)* and follow the expert recommendations.

I. Infrastructure for infection control

1. It is recommended that the health commissions of the provinces/municipalities directly designate hospitals for hemodialysis patients who have been diagnosed or clinically diagnosed as novel coronavirus infected during the epidemic.
2. In the epidemic area with a large number of suspected hemodialysis patients, it is suggested that the local health commission specify hospitals to admit hemodialysis patients in medical observation. With a confirmed diagnosis or clinical diagnosis, the patient can be transferred to the designated hospitals.
3. The original dialysis patients in designated hospitals without confirmed/clinical diagnosis of novel coronavirus should be moved to other place so as to ensure treatment for patients with confirmed or clinically diagnosed 2019-nCoV.
4. When dialysis patients need medical observation, hemodialysis room (center) should set up an separate dialysis room for quarantined patients.

II. Rules and regulations for infection control

On the basis of implementing the routine rules and regulations for infection control in hemodialysis rooms (centers), the following should be supplemented during the epidemic:

1. Daily screening and reporting system: The hemodialysis room (center) must report the hemodialysis patients with confirmed, clinical diagnosed and suspected cases of novel coronavirus to the provincial nephrology/blood purification quality control center.

2. The registration system for reporting the whereabouts of all staff (including week days and weekends);
3. Risk education and training system of infection control for all staff;
4. Informed consent system related to 2019-nCoV epidemic;
5. Family members/accompany personnel training and education system (including but not limited to epidemic situation, ventilation, hand hygiene, use of protective equipment, respiratory tract hygiene and public social etiquette).

III. Working System during epidemic of 2019-nCoV

A. Setting up pre-exam triage nurses and nursing workers

1. On-duty receiving nurses and nursing workers should correctly wear surgical masks, protective screens/masks and isolation clothes.
2. Position responsibilities:
 - (1) Measure and record the patients' body temperature;
 - (2) Investigate and record the moving track of patients in dialysis interval and their probable contact history with 2019-nCoV infected, suspected, or quarantined person.
 - (3) Ask if there are any symptoms such as fatigue, dry cough, nasal obstruction, runny nose, sore throat, abdominal pain, diarrhea and dyspnea in dialysis interval.
 - (4) Escort patients with body temperature $\geq 37.3^{\circ}\text{C}$ and suspected novel coronavirus infection to fever clinic.
 - (5) Assist patients to change clothes and move into dialysis room.

B. Management of patients and accompanying personnel

1. Patients management

- (1) General system
 - a) A surgical mask or KN95 level mask is needed during the whole period of dialysis;
 - b) Wash hands and changing clothes before entering and after leaving the hemodialysis room (center);
 - c) No eating in dialysis room;
 - d) Measure and record body temperatures before and after dialysis session.
- (2) The maintenance hemodialysis patients
 - a) Patients with confirmed or clinically diagnosed coronal pneumonia should be transferred and concentrated in designated treatment hospitals for continuous renal replacement therapy (CRRT) or hemodialysis treatment according to the needs of the disease and medical conditions.

- b) Patients with suspected novel coronavirus pneumonia are recommended to transfer to specified hospitals for medical screening. Hemodialysis might also be postponed if the condition permits, so as to prevent suspected patients from commuting between community and hospital. At the same time, RNA test and lung CT examination should be rapidly conducted. The confirmed or clinical diagnosed patients should be transferred to the designated hospitals while those excluded from 2019-nCoV to the medical observation.
 - c) Patients in medical observation should be staggered from other patients in the original hemodialysis room (center) (e.g. 10:00-14:00 dialysis) and gather in a separate dialysis room (not shared with blood-borne diseases positive), and disinfection should be strengthened after finishing dialysis; The hemodialysis room (center) which cannot supply above services should contact and fall back on another qualified hemodialysis room (center).
 - d) In principle, patients will not be permitted to transfer to other hospitals during the epidemic except for the above situations.
- (3) For the candidate dialysis patients
- a) Peritoneal dialysis is recommended to the patients without contraindications;
 - b) Patients who selected hemodialysis should be admitted to hospital before running-in hemodialysis if they are not the following: confirmed, suspected, clinically diagnosed 2019-nCoV or in medical observation.
 - c) Patients with confirmed or clinically diagnosed coronal pneumonia should run in hemodialysis in designated hospitals;
 - d) Suspected patients with novel coronal pneumonia should quickly complete RNA detection and lung CT examination, then enter a hospital for hemodialysis when 2019-nCoV is exclude;
 - e) The medical observed patients without emergency evidence, may postpone dialysis until the end of the medical observation period;
 - f) The patients needing acute dialysis, should undergo CRRT in the emergency room first, then follow the above process.

2. Family members and accompany personnel management

The patients' family members and accompanying personnel are forbidden to enter the dialysis room, and nurses or nursing staff shall assist the patients to change clothes and move into the dialysis room.

C. Disinfection

1. Fresh air devices could be used to strengthen cleaning and disinfection, and ventilation frequency should increase. If suspected or confirmed cases occur, the air

conditioning and ventilation system should be immediately shut down, cleaning and disinfection measures should be taken, then the system can be restarted after passing re-exam.

2. Open the window and ventilate for 30 minutes after each session.
3. Disinfect with chlorine-containing spray or ultraviolet radiation after daily treatment for more than 1 hour, and complete monitoring records.
4. Disinfection of the floor and the surface of environmental objects should be carried out in strict accordance with *the Technical Specification for Disinfection of Medical Institutions*. The floor and the surfaces of machines, beds, dining tables and other objects should be thoroughly wiped and disinfected with 1000-2000mg/L chlorine-containing disinfectant, and complete the disinfect record.
5. If the floor and the surfaces of machines, beds, dining tables and other objects are polluted by blood, excrement, secretions, vomitus and other pollutants of patients, the visible pollution should be removed with hygroscopic materials such as paper towels first, and then 2000mg/L chlorine-containing disinfectant should be used, and the record should be completed.
6. Non-contact thermometers are recommended to check the body temperature. If contact type is used, it should be implemented that one use with one disinfection.
7. Disposal, classify, register, sealed and transport of medical wastes must take strict accordance with the provisions of *the Regulations on the Management of Medical Wastes* and *the Measures for the Management of Medical Wastes in Medical Institutions*. The concept of used masks, caps, gloves and other articles as medical waste which should be centralized disposal should be strengthened and secondary pollution must be shut down.

D. Staff management

1. Strengthen the training of all staff on prevention and control of infection;
2. Body temperature should be measured twice a day. Any abnormal body temperature must be reported in a timely manner and should be intervened according to the regulations;
3. Fully implement standard preventive measures. Wear surgical masks and goggles or protective screen when contacting patients. It is suggested to wear isolation clothes/protective gown when load/unload dialysis machine or in a dialysis room for medical observed patients;
4. Strict implementation of hand hygiene operations;
5. The meeting system of gathering should be suspended, the patients' materials may be transferred via internet, WeChat and other IT-based forms during the epidemic;

6. Staff in the medical observation will not permitted to work;
7. Staff suspected of or confirmed with 2019-nCoV should be treated in isolation according to the rules. Their close contact persons should undergo 14-day quarantine.