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GUIDELINE ON MANAGEMENT OF CORONAVIRUS DISEASE 2019 (COVID-19) IN DIALYSIS CENTRES & NEPHROLOGY UNITS

Key Recommendations

- All haemodialysis (HD) centres and state authorities should have contingency plan for treating haemodialysis patients during the containment and mitigation phase of COVID-19 outbreak
- Designated hospitals should plan for the isolation and treatment of HD patients admitted to the ward. In-patient and out-patient facility for HD needs to be upgraded. Requests for additional resources including human resource and budget needs to be planned.
- Patients and staff should be provided with instructions on hand hygiene, respiratory hygiene and cough etiquette
- HD centres should implement measures to identify patients with fever and/or acute respiratory symptoms with either history of travel to high-risk areas (affected countries) or history of close contact with known (confirmed) COVID-19 positive individuals and screen these patients for COVID-19 infection
- HD centres should have plans for the isolation and transfer plans for patients with confirmed or suspected COVID-19 infection
- If the in-patient capacity of hospitals to provide HD has been exceeded, HD centres may need to treat patients in their own unit either in isolation rooms or in a separate area in the HD centres 2 metres apart from other patients
- All staff should be provided with full personal protective equipment and trained on these procedures
- HD centres should plan and coordinate with local health authorities on the isolation and treatment of cases, PUIs and their close contacts
- **Each HD centre is responsible for ensuring arrangements have been made if the centre is unable to provide treatment to their own patients.**

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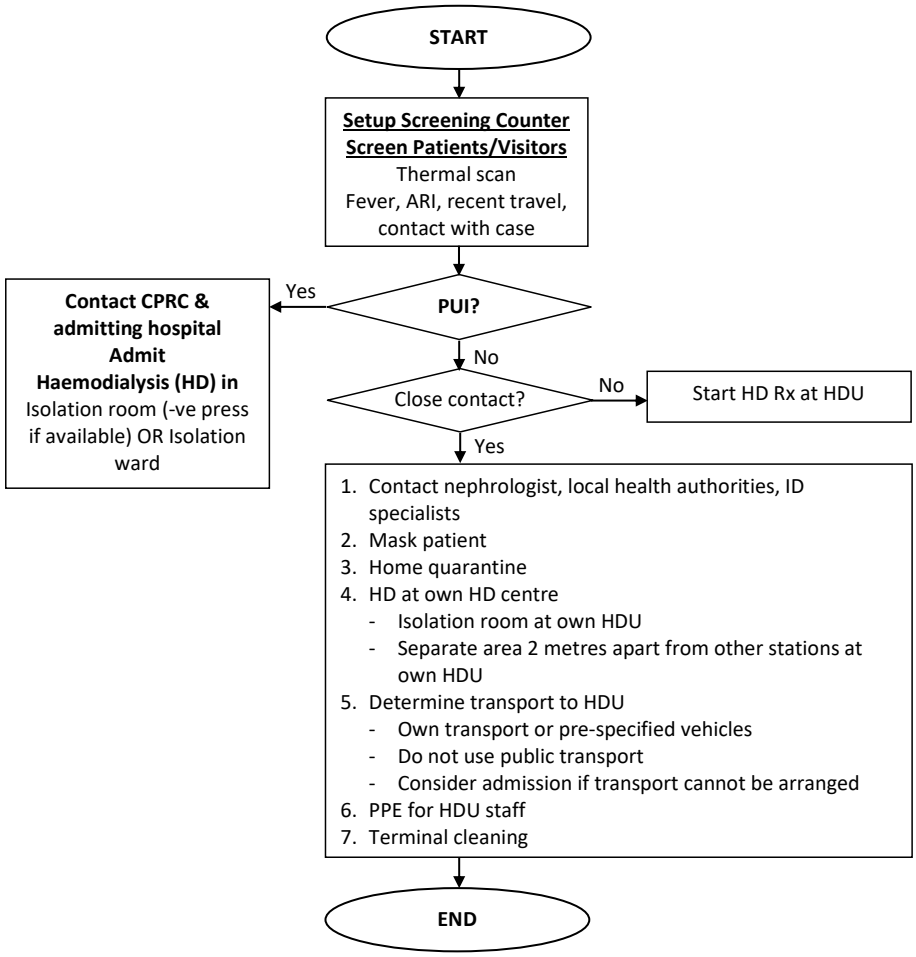
Workflow for Screening and Treatment of COVID-19 in Haemodialysis Patients



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INTRODUCTION

Haemodialysis is by far the commonest (90%) modality of dialysis for patients with end stage kidney failure. There are currently about 44,000 haemodialysis (HD) patients dialysing in 800 haemodialysis private and public centres. These centres may be standalone centres or located within hospitals. HD centres are available in almost all MOH hospitals. Most patients require HD 3 times weekly and require trained staff to deliver the treatment.

Thus during an epidemic of acute respiratory tract infections, plan will need to be made to ensure that HD patients continue to receive their treatments. Most hospitals however have limited ability to dialyse acutely ill and admitted patients. Negative pressure isolation rooms equipped with haemodialysis are even more limited.

As more COVID-19 infections are detected, facilities will need to plan in the event HD patients are admitted to their facilities to prevent the facility from being overwhelmed. As such, preparedness and response coordination with local health authorities are necessary to ensure HD services are provided to these patients.

This guideline is intended for use by both public and private HD centres. Each HD centre is responsible for ensuring arrangements have been made if the centre is unable to provide treatment to their own patients.

1. PREPARATION OF HAEMODIALYSIS (HD) CENTRES

Stringent measure should be taken by all HD centres to prevent COVID-19 contamination of the unit as disruption to HD services can be severe due to limitations in human resource and facility to provide HD capable isolation and in-patient facilities and requirement of at least 2 metre separation between cases, PUIs and other HD patients.

a. HD centre should control the flow of patients and visitors to the unit

b. Screen all patients and visitors for fever at entrance to HDU. Thermal scan is preferred.

c. Post signage
    i. Signs should be posted at entrance to instruct patients to inform staff if they have signs of fever and/or acute respiratory symptoms with either history of travel to or reside in high-risk countries* in the 34 days before the onset of illness or history of close contact in the past 14 days with a confirmed case of COVID-19
    * list of countries will be updated from time to time **(please refer to latest updates from MOH)**
    ii. Visitors should be discouraged from entering the HD centre

d. Education of patients and health care workers (HCW)
Patients, their carer and HCW should be provided with instructions about

hand hygiene, respiratory hygiene and cough etiquette. HCW should be given PPE training as well.

e. Screening
Refer to section below

f. HD centre should ensure adequate supply of PPEs, hand sanitizers etc.

g. Provide patients and carer with education on disposables for hand hygiene and respiratory hygiene

h. Isolation rooms with negative pressure (or exhaust fan) with separate toilet facility should be made available if this is feasible.

i. Separate area

2. SCREENING

This is based on MOH recommendations of screening for COVID-19 which is generic across all disciplines

a. How to screen (refer Annex 1)

i. A screening counter should be set up for screening patients and a staff assigned for triaging
ii. The screening staff should wear PPE according to guidelines
iii. Thermal scanning should be used to screen patients and visitors for fever
iv. The staff should ask 3 questions to all patients and visitors
    1. Do you have any fever or acute respiratory infection (sudden onset of respiratory infection with at least one of: shortness of breath, cough or sore throat)?
    2. Do you have any history of travelling to or residing in affected countries* in the past 14 days?
    3. Do you have any contact with a confirmed COVID-19 case within the past 14 days?
v. PUI (Person under investigation) is defined as the presence of 1 & 2 OR 3
vi. Refer to step d) if anyone has the above symptoms
vii. It is preferable to maintain a list of visitors should contact tracing be necessary

** list of countries will be updated from time to time but as of 10/3/20 include China, Hong Kong, Macau, Taiwan, South Korea, Japan, Italy and Iran*

b. Where to screen

At all possible entry points
i. HD centres
ii. PD units

iii. Nephrology/Medical clinics
iv. Nephrology/Medical wards

c. Who to screen?
Every patient and visitor

d. What to do if the screening question(s) is/are positive?

i. Do not allow the person to enter the unit
ii. The person should be given a 3-ply surgical face mask to wear immediately and instructed to use hand disinfectant.
iii. The person should wait in designated area at least 2 metres away from other patients or visitors and identify a route for movement of PUI to the designated screening area for COVID19 in their institution
iv. All centres including private centres should contact your nephrologist, local authorities and ID team (if available) if the person is identified as a PUI.
v. Contact the hotline (03-88810200 or 03-88810600 or 03-888810700) between 8am-5pm or the nearest designated centre/hospital
vi. DO NOT SEND to the designated hospital or centres without making prior arrangements
vii. All units should have a policy on the procedure for patients or visitors with symptoms (fever or sudden onset of respiratory infection with at least one of: shortness of breath, cough or sore throat) but no history of travel or close contact with confirmed COVID-19 in the past 14 days. A doctor's advice should be sought.

3. ISOLATION OF CASES, PUIs AND CLOSE CONTACTS

All hospitals & HD centres should have an isolation policy for patients with infectious respiratory infections.

During the current containment phase, designated hospitals have been identified to admit confirmed cases as well as PUIs. These patients should be dialysed at the designated hospitals but may have limited capacity to dialyse these people. HD centres should contact their local authorities on instructions where to send these patients.

During the mitigation phase, it may become necessary for PUI with mild symptoms or asymptomatic PUIs to be placed on home quarantine monitoring, and to travel by private transport to continue dialysis at their usual HD facilities including private HD centres.

a. Admission criteria:
   i. Contact the CPRC, local health authorities, infectious disease specialists if the patient requires admission. The nephrologist in-charge should also be informed.
   ii. Currently all HD patients who are confirmed cases and PUIs

should be admitted but this may change from time to time. Refer to the Annex 2 for admission criteria for PUIs and close contacts and Annex 3 for the list of designated hospitals

iii. However before the patient is admitted to the designated hospital, the hospital should be contacted to ensure there is adequate facilities for in-patient dialysis.

iv. If the capacity has been exceeded, an alternative plan needs to be made before the transfer.

b. HD patients who are admitted:
   i. should be dialysed in the wards in isolation rooms with negative pressure or if unavailable in isolation rooms without negative pressure
   ii. If isolation rooms are not available patients should be cohorted and dialysed in the ward.
   iii. Confirmed cases and PUIs should be dialysed in separate isolation rooms or wards and if this is not possible, in separate areas 2 metres away
   iv. If the ward capacity has been exceeded, mild cases and PUIs may be dialysed in their own HD centre after the necessary arrangements and coordination with local authorities are made.

c. HD patients who are asymptomatic close contacts and quarantined at home:
   i. can dialysed in their own HD centres
   ii. should wear 3-ply surgical mask in the HD centre
   iii. appropriate transport arrangements should be made
      - arrangement after discussing with PKD OR
      - own transport OR
      - arrange for designated ambulance from MECC
      - Public transport should not be used
   iv. Isolation
      - should not be placed in the same waiting area with other patients
      - should be dialysed in isolation rooms with doors closed and equipped with exhaust fan (if available). If confirmed cases are also dialysed in the HD centre, they should also be dialysed in a separate isolation room or area.
      - If isolation rooms are not available, patients should be masked and dialysed in a separate area 2 metres away from the nearest patient stations in all directions. The area should be located at the end of the unit away from the flow of traffic
      - separate entrance pathway should be identified (if this is feasible)
      - Dialysers should not be reprocessed
      - Terminal cleaning should be made after use.
      - Staff should wear appropriate PPE

Commented [1]: suggest to re-arrange as below:-

a. Confirmed cases and PUIs who are admitted:

i. should be dialysed in the wards in isolation rooms with negative pressure or if unavailable in isolation rooms without negative pressure
ii. If isolation rooms are not available patients should be cohorted and dialysed in the ward.
iii. Confirmed cases and PUIs should be dialysed in separate isolation rooms or wards and if this is not possible, in separate areas 2 metres away
iv. If the ward capacity has been exceeded, cases and PUIs may be dialysed in their own HD centre*

b. For HD patients quarantined at home

...

Commented [2]: suggest to re-arrange as below:-

a. Confirmed cases and PUIs who are admitted:

i. should be dialysed in the wards in isolation rooms with negative pressure or if unavailable in isolation rooms without negative pressure
ii. If isolation rooms are not available patients should be cohorted and dialysed in the ward.
iii. Confirmed cases and PUIs should be dialysed in separate isolation rooms or wards and if this is not possible, in separate areas 2 metres away
iv. If the ward capacity has been exceeded, cases and PUIs may be dialysed in their own HD centre*

b. For HD patients quarantined at home

...

Commented [3]: suggest to re-arrange as below:-

a. Confirmed cases and PUIs who are admitted:

i. should be dialysed in the wards in isolation rooms with negative pressure or if unavailable in isolation rooms without negative pressure
ii. If isolation rooms are not available patients should be cohorted and dialysed in the ward.
iii. Confirmed cases and PUIs should be dialysed in separate isolation rooms or wards and if this is not possible, in separate areas 2 metres away
iv. If the ward capacity has been exceeded, cases and PUIs may be dialysed in their own HD centre*

b. For HD patients quarantined at home

...

Commented [4]: suggest to re-arrange as below:-

a. Confirmed cases and PUIs who are admitted:

i. should be dialysed in the wards in isolation rooms with negative pressure or if unavailable in isolation rooms without negative pressure
ii. If isolation rooms are not available patients should be cohorted and dialysed in the ward.
iii. Confirmed cases and PUIs should be dialysed in separate isolation rooms or wards and if this is not possible, in separate areas 2 metres away
iv. If the ward capacity has been exceeded, cases and PUIs may be dialysed in their own HD centre*

b. For HD patients quarantined at home

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4. HAEMODIALYSIS STAFF

a. HD staff should receive regular training in infection control and prevention protocol including droplets or airborne and contact precautions.

b. HD staff should receive training on use of PPE in donning and doffing

c. Separate HD staff should dialyse confirmed cases and PUIs and should not manage other patients in the same shift. PUIs should be placed in the last shift.

d. Maintain list of staff for recording and monitor their health status in each HDU under OSH

e. HDU staff roster may need to be adjusted to ensure adequate staff strength during peak periods

f. Procedure for exposed staff
   i. Staff who exposed if they become close contacts of confirmed cases (including those exposed to confirmed cases without PPE) should be quarantined (refer to annex 21)
   ii. In extreme circumstances with acute shortage of staff,
      - staff who are asymptomatic close contacts may be needed to work.
      - They need to self-monitor (refer to annex 21)
      - They need to wear full PPE until their screening tests are negative and 14-day incubation period has ended
      - if they become symptomatic should not work until COVID-19 has been excluded.

5. INFECTION CONTROL POLICY & TRAINING

a. Universal precautions should be practised and should follow hospital wide policy

b. All units should have an isolation policy for patients with infectious respiratory infections

c. HD staff should wear appropriate attire as per recommendations in caring for confirmed cases, PUIs and asymptomatic contacts:
   i. disposable gown with the back covered, (long sleeve water repellent isolation gown),
   ii. gloves,
   iii. N95 face mask (for confirmed cases and PUIs) or 3-ply surgical face mask for asymptomatic contacts
   iv. face shield covering the front and sides of the face.

d. Dedicated blood pressure cuffs and equipment should be used. If the

equipment needs to be shared, it must be clean and disinfected thoroughly before use on other patients.

e. Terminal cleaning should be made between each shift of patients including medical and non-medical equipment and surfaces with recommended disinfectant.

f. Dialysers of confirmed cases, PUIs and close contacts (within 14 days of contacts) should not be reused to avoid contaminating the reuse room

g. The plan should be reviewed with all staff in the facility

6. PREPAREDNESS AND COORDINATION WITH LOCAL HEALTH AUTHORITIES

a. Each hospital and HD centre should ensure there is adequate supply of PPE and hand sanitisers:
   i. disposable gowns with the back covered, (long sleeve water repellent isolation gown)
   ii. gloves
   iii. 3-ply surgical face masks and N95 face masks
   iv. face shields covering the front and sides of the face.
   v. hand sanitizers

b. The designated hospital should prepare their facilities to treat confirmed cases, PUIs and close contacts:
   i. Establish and/or increase the availability of Isolation rooms preferably with negative pressure
   ii. Equip isolation rooms with haemodialysis capabilities e.g. piping, modification of tap heads, dedicated haemodialysis machine, portable RO or RO systems for ICUs or high dependency areas (HDA), CRRT machines, dedicated automated vital signs and cardiac monitors and blood pressure cuffs etc
   iii. Identify areas of isolation for dialysis of confirmed cases, PUIs and close contacts

c. All HD centres should prepare their facility to treat asymptomatic close contacts (and/or PUIs and confirmed cases if this becomes necessary):
   i. isolation rooms (with negative pressure if available)
   ii. separate area 2 metres away from the nearest patient stations in all directions. The area should be located at the end of the unit away from the flow of traffic.
   iii. separate entrance pathway should be identified (if this is feasible)
   iv. Consider converting hepatitis C rooms into isolation rooms

d. Each state should identify HD facilities prepared to treat confirmed cases, PUIs and close contacts. Plans should be made to scale up the availability of HD centres should the infection become more widespread. This may include identifying HD facilities dedicated to treat COVID-19

cases.

e. HD centres should work with the local health authorities (PKDs, CPRC, infectious disease specialists etc) to identify, screen and isolate PUIs and contact of patients with COVID-19

f. HD centres should plan and coordinate with local health authorities and state nephrologists on how to provide HD treatment to these patients.