

Recommendation for the use of Enhanced Personal Protective Equipment (PPE) when caring for patients receiving haemodialysis who have COVID-19 infection

On 1 July 2020, the KQuIP COVID-19 Haemodialysis patient safety working group published recommendations on minimising the risk of COVID-19 infection in UK haemodialysis units. The recommendations for the use of Personal Protective Equipment (PPE) were in line with Public Health England (PHE) guidance¹.

Haemodialysis is not classified as an aerosol generating procedure (AGP), so the PHE recommendation for the care of patients with suspected or confirmed COVID-19 infection is for standard PPE¹ (eye/face protection, fluid resistant surgical mask, plastic apron and gloves). This differs from the European (ECDC)² and American (CDC)³ guidance, which recommend the use of enhanced PPE (eye/face protection, N95 / FFP2 mask, a long sleeved fluid-repellent surgical gown and gloves). All guidelines recommend the use of an N99 / FFP3 mask during AGPs, for example when caring for a patient receiving haemodialysis and mechanical ventilation or CPAP.

Over the last few weeks, many UK renal units have undertaken staff COVID-19 antibody testing and reported results to the working group. This has shown the following key points:

- Most dialysis units have used PPE according to current PHE guidelines.
- During the height of the pandemic, dialysis staff sickness rates were so high that it was difficult to maintain a safe dialysis service in many areas of the UK.
- In some dialysis units, up to 70% of staff have tested positive for COVID -19 antibodies.
- In dialysis centres where COVID-19 positive patients dialysed in a separate unit and staff did not use enhanced PPE, staff COVID-19 infection rates, were significantly higher than in their local COVID-19 negative dialysis units⁴. This suggests that the high antibody prevalence is related to work-related rather than community exposure.
- Staff sickness rates were low in the few dialysis units where enhanced PPE was used throughout for the care of patients with COVID-19 infection.
- Private provider dialysis units experienced difficulties in obtaining PPE and fit-testing for FFP3 masks.

This evidence suggests that staff and patients remain at high risk of acquiring COVID-19 infection within the haemodialysis environment and this risk could be reduced by the use of enhanced PPE.

In order to protect patients and staff, we now make the following recommendations:

- 1. Enhanced Personal Protective Equipment (PPE)* should be worn by all staff involved in the care of patients receiving haemodialysis who are in the following groups:**
 - a. Suspected COVID-19 – symptomatic patients awaiting swab result
 - b. Confirmed COVID-19 – patients with a positive COVID-19 swab until they are de-isolated⁵

*Enhanced PPE means use of eye/face protection, FFP2 / FFP3 mask, a long sleeved fluid-repellent surgical gown and gloves. The mask may be used for a session of up to 4 hours unless it becomes contaminated, after which it should be changed. A surgical face mask provides less protection against aerosols and may not provide adequate protection given the close patient contact required during dialysis care.

2. **Standard PPE (eye/face protection, fluid resistant surgical mask, plastic apron and gloves) may be worn for the care of patients who are not in groups a or b.** This includes the following:
 - Patients who are asymptomatic contacts of a case of COVID-19
 - Patients who have now recovered from COVID-19 and have been de-isolated according to either a symptoms-based or test-based de-isolation protocol ⁵.
3. **Use of enhanced PPE should also be considered for the care of asymptomatic haemodialysis patients in the following situations following a risk assessment:**
 - Where local COVID-19 infection rates are high or rising rapidly
 - After an outbreak of 2 or more cases at the same renal unit

This is because in this setting, a significant number of patients may be asymptomatic carriers, placing staff at risk. Data on local COVID-19 infection rates and areas of concern can be found on the UK government website⁶ and the PHE weekly COVID-19 surveillance report⁷.
4. NHS dialysis units should work in partnership with their Trust's infection control team to ensure an adequate supply of enhanced PPE and appropriate face-fit testing of FFP2 / FFP3 masks.
5. NHS Trusts should adopt a consistent approach to ensure adequate supply of PPE across both NHS and private provider units. Where necessary, NHS Trusts should support private providers to obtain the correct PPE in sufficient quantities and provide access to fit-testing.
6. Dialysis units should inform patients which type of PPE is required for each patient group to provide clarity, reassurance and consistency of approach.

References

1. Public Health England (PHE) guidance on PPE <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe>
2. European Centre for Disease Prevention and Control (ECDC) guidance on PPE <https://www.ecdc.europa.eu/sites/default/files/documents/novel-coronavirus-personal-protective-equipment-needs-healthcare-settings.pdf>
3. Centers for Disease Control and Prevention (CDC) guidance on PPE for hemodialysis facilities <https://www.cdc.gov/coronavirus/2019-ncov/hcp/dialysis.html>
4. Gray et al., Increased risk of COVID-19 in haemodialysis healthcare workers in a tertiary centre in North West of England Journal of Hospital Infection, article in press, 2020
5. CDC guidance on de-isolation <https://www.cdc.gov/coronavirus/2019-ncov/hcp/disposition-hospitalized-patients.html>
6. UK regional and local data on COVID-19 infection rates per 100,000 population <https://coronavirus.data.gov.uk/region#category=regions&map=rate>
7. Public Health England Weekly Coronavirus Disease 2019 (COVID-19) Surveillance Report <https://www.gov.uk/government/publications/national-covid-19-surveillance-reports>