

PSVES Recommendations for Establishing Central Venous Access in the Time of COVID-19 Pandemic

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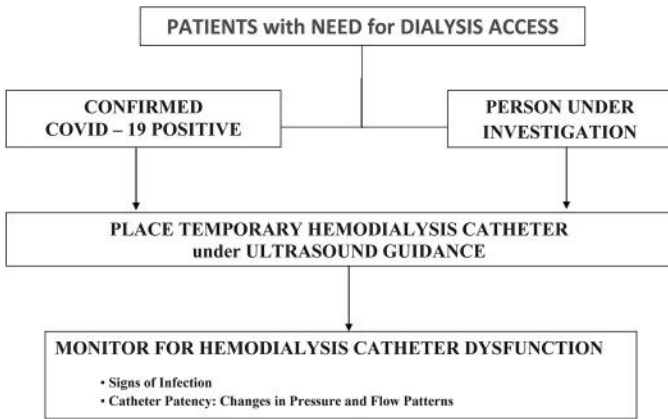
Philippine Society for Vascular and Endovascular Surgery, Inc.

Overall Consideration is the Safety for Patient, Surgeon and Ancillary Personnel.^{3,4,11,23}

Indications for establishing a central venous access include the necessity for hemodynamic monitoring and hemodialysis, but may be expanded to include expectant central venous access at the time of intubation and possibility of hemoperfusion. (Level of Evidence IV)¹¹

1. Consider all patients at least COVID Suspect (Level of Evidence IV)^{11,23}
2. Maintain high standards of asepsis and antisepsis. (Level of Evidence I)^{1,15,16,17}
3. Surgeon, assist and ancillary personnel should be in enhanced PPE for COVID (+) patients; in full PPE for all other patients. (Level of Evidence I)^{3,4}
4. Patient, if not intubated, should be wearing no less than N95 mask. (Level of Evidence III). If central venous access to be inserted at time of intubation, intubation under aerosol controlled conditions should be performed first. (Level of Evidence I).^{3,4}
5. We recommend inserting temporary hemodialysis catheters during this COVID-19 outbreak.¹ Creation of permanent vascular access such as arteriovenous fistula or graft should be deferred until local hospital setting deems scheduling elective procedures open or safe from COVID cross – contamination.
6. Right Intrajugular vein catheter insertion is the preferred site, followed by Left intrajugular, Left femoral, Right femoral vein in order of decreasing preference. (Level of Evidence I)^{12,13,15}
7. Ultrasound-guided needle access and confirmation of guidewire placement prior to dilation and catheter insertion is mandatory for decreased rates of mechanical errors, quick insertion and less exposure time for the surgeon and assists. (Level of Evidence I).^{12,18,19,20,21,22}
8. Triple lumen catheter of at least Fr12.5 is recommended to allow hemodynamic monitoring and expectant hemoperfusion/hemodialysis for in-patient COVID and PUI. (Level of Evidence II) Outpatient PUI for HD may have a dual lumen HD catheter inserted.¹¹
9. Bedside insertion following strict asepsis/antisepsis protocol may be done for ICU/intubated COVID (+) patients in designated hospital COVID zones. Central venous access for PUI, non - intubated should be carried out in the OR with a negative pressure facility. (Level of Evidence II)^{3,4,11}
10. Post – insertion chest X-ray is recommended. (Level of Evidence II)¹²
11. Post procedure catheter care should adhere to highest standards in order to prevent complications CRBSI and/or catheter thrombotic occlusion. (Level of Evidence I)^{13,14,15,16,17}
12. If permanent access (arterio – venous fistula, arterio – venous graft, tunneled catheter) is to be done, the patient should have had tested negative for COVID-19 twice, three days apart. Recommendations 1-3 still apply. (Level of Evidence II)²³
13. For initiation of hemodialysis, steps 5-8 shall apply.
14. For malfunction/thrombosis of short term or long term access (tunnelled catheter, Avf, Avg) treat as patient on initiation of hemodialysis (#10)
15. For CRBSI (Catheter Related Blood Stream Infection), Infected Avf or Avg with impending sepsis or rupture of pseudoaneurym, insertion of temporary catheter and definitive surgery should be done at the same time.

Standard Operating Procedure for Hemodialysis Access



Placement of Temporary Hemodialysis Catheter in COVID-19 Positive Patients

Protection for Vascular Surgeon	Disposable work cap, medical protective mask (N95), protective face screen, anti – fog protective goggles, protective clothing with surgical clothing, 2 pairs of disposable latex gloves, medical water – proof boots. 1, 3, 4, 5
Protection for Patient	Non-sterile, disposable patient isolation gowns, which are used for routine patient care in healthcare settings, are appropriate for use by patients with suspected or confirmed COVID-19. 4 Work cap, N95 masks
Ultrasound System and Probe	Single – use transducer covers, tegaderm with sterile towel 3, 6, 7, 8, 9 *** Ultrasound system and probes should be cleaned and disinfected to a high level. 3, 6, 7, 8, 9 *** Please refer to ultrasound manual for appropriate disinfectant for the system.
Draping of Patient	Maximal Sterile Barrier during Central Venous Catheter Insertion 2, 10, 11

We recommend use of full personal protective equipment during placement of the temporary hemodialysis catheter in COVID 19 Positive patients. The procedure is classified as procedures that are likely to induce coughing should be performed cautiously and avoided if possible. Ideally, the procedure should be done in an Aerosole – Infection – Isolation Room (AIIR). It is defined as single-patient rooms at negative pressure relative to the surrounding areas, and with a minimum of 6 air changes per hour , as defined by the Control for Disease Control Prevention.

We recommend using single – using transducer covers and maximal sterile barrier during to procedure to reduce risk of infection/bacteria, infection– related hospitalization and other adverse complications related to the procedure.

Placement of Temporary Hemodialysis Catheter In Persons Under Investigation Patients

Protection for Vascular Surgeon	Full protection with one – time disposable work cap, medical protective mask, protective face screen/anti – fog protective goggles, leak – proof surgical clothing
Protection for Patient	Non-sterile, disposable patient isolation gowns, which are used for routine patient care in healthcare settings, are appropriate for use by patients with suspected or confirmed COVID-19. 4 disposable work cap, disposable medical mask
Ultrasound System and Probe	Single – use transducer covers, tegaderm with sterile towel 3, 6, 7, 8, 9 *** Ultrasound system and probes should be cleaned and disinfected to a high level. 3, 6, 7, 8, 9 *** Please refer to ultrasound manual for appropriate disinfectant for the system.
Draping of Patient	Maximal Sterile Barrier during Central Venous Catheter Insertion 2, 10, 11

*At This Time, All Patients Shall Be Treated As PUI/PUM

We recommend use of full personal protective equipment during placement of the temporary hemodialysis catheter in persons under investigation patients.

We recommend using single – use transducer covers and maximal sterile barrier during to procedure to reduce risk of infection/bacteria, infection – related hospitalization and other adverse complications related to the procedure.

Level of Evidence

Strength	Level	Design
High	Level 1	Randomized control trial (RCT) Meta-analysis of RCT with homogeneous results
	Level 2	Prospective comparative study (therapeutic) Meta-analysis of Level 2 studies or Level 1 studies with inconsistent results
	Level 3	Retrospective Cohort Study Case-control Study Meta-analysis of Level 3 studies
Low	Level 4	Case Series
	Level 5	Case Report Expert Opinion
		Personal Observation

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