#### ICU-RMO Guideline: Central Lines

***Introduction***

This guideline has been developed to ensure patients in the Galway Clinic receive best treatment. It reflects latest evidence on this issue or reflects widely accepted expert opinions. This guideline addresses the percutaneous insertion of central venous catheters in the ICU of the Galway Clinic.

***General considerations***

1. A physician performing this procedure has to be appropriately trained before.
2. Oral consent is obtained in advance where appropriate.
3. Each central line needs a clear indication.
4. The number of lumens should be kept to a minimum, bearing in mind the possibility of an escalation in treatment requiring more lumens.
	1. Any solution containing lipid (e.g. TPN) should have a dedicated lumen.
5. In the ICU setting always use the ultrasound for insertion.
6. The insertion site should be determined according to clinical grounds. In general though:
	1. For most patients the right internal jugular vein or right subclavian vein should be preferred.
	2. In general the femoral vein is not a first line access site.
	3. The subclavian access should be avoided in patients with pulmonary problems if possible.
7. Central lines are always properly sutured to the skin.
8. Routine replacement of central lines is NOT recommended. Central lines have to be reviewed daily for:
	1. Signs of local or systemic infection.
	2. Patency of lumens.
	3. Ongoing indication.
9. Central lines without indication have to be removed.

***Insertion***

1. The patient has to be monitored with at least pulseoxymetry and ECG.
	1. Ideally the QRS volume is turned on to notify any rhythm disturbance during insertion.
2. Awake patients are kept informed throughout the procedure on what is happening
3. The physician inserting the catheter uses maximal barrier precautions including:
	1. Surgical scrub of hands
	2. Facemask
	3. Eye protection
	4. Surgical cap
	5. Surgical gown and gloves
4. All other directly involved persons wear facemasks and caps, except the patient.
5. The insertion site should be free of hair (clipping is preferred to shaving).
6. The skin is disinfected using Chloraprep.
7. Large drapes are used to cover the surrounding.
8. For safety reasons the catheter should be fully inserted and sutured to the skin directly with the catheter juncture hub. The plastic catheter clamps should not be used, except in small patients.
9. If sepsis is breached the procedure should be stopped.
10. After 2 failed attempts (on max. 2 different sites) or unsuccessful puncture within 20 minutes after starting the procedure the RMO has to contact the Intensivist/ Anaesthetist on call for help

***Replacement of central lines***

Routine replacement of central lines is NOT recommended. If a central line needs to be replaced, this is done ideally after removal of the prior catheter and at a new site.

Re-wiring of central lines increases the risk of infection and can be considered under following circumstances:

* Procedure difficult or dangerous due to swelling, injury or anatomical reasons
* Coagulopathy

For further information please read the Galway Clinic document on ‘Management of Central Venous Catheters’ which can be found on Meditech.