

# Clinical Guidance

## ***Paediatric Critical Care: ECMO Unfractionated Heparin Anticoagulation***

### **Summary**

Clinical guideline for the management of routine anticoagulation using unfractionated heparin for patients on ECMO. This guideline is not be used to manage patients who are receiving anticoagulation for other purposes.

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| Superseded documents                         |  |
| Related documents                            | <a href="#">Paediatric Critical Care: Extracorporeal Membrane Oxygenation(ECMO): Bleeding and Blood Product Use</a>                                  |
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**Glossary:** ACT: activated clotting time, CVVH: continuous veno-venous hemofiltration, ECMO: extracorporeal membrane oxygenation.

# Paediatric Critical Care

## ECMO Unfractionated Heparin Anticoagulation

For routine anticoagulation for children on ECMO

### Initiation of unfractionated (UF) heparin anticoagulation

#### Acute:

- UF Heparin at cannulation = 75units/kg bolus (surgical instruction), may repeat if >30 min elapses to cannulation
- Standard UF heparin concentration **1mL/h = 25 units/kg/h**  
(1250units UF heparin x wt (kg) in 50mL 0.9% sodium chloride)
- Start infusion at 25 units/kg/h when ACT < 300 seconds (measure ACT ½ hourly until UF heparin started)

#### Post cardiosurgical bypass:

- Start heparin infusion at 25 units/kg/h when ACT < 300 seconds. Rarely require bolus dose.

#### Key points:

- Adjust UF heparin infusion in increments of **5units/kg/h** if change in anti-coagulation needed – Do not routinely bolus. In some patients adjustments of less than 5units/kg/h are required to achieve target anti-Xa levels.
- Use anti-Xa level to guide UF heparin dosage
- In certain settings e.g. severe pulmonary haemorrhage the UF heparin dosage / infusion may be held or altered
- If patient on ECMO requires CVVH then no extra UF heparin is required for the CVVH circuit including prime
- Anti-Xa levels should be **done after 6 hours on ECMO** and usually **once per shift** or more frequently following any significant changes in patient / circuit bleeding or thrombosis

