ADULT ECMO Extracorporeal Membrane Oxygenation Provider Course

Zuid Afrikaans Hospital
Education Centre

The training course provides a comprehensive curriculum that covers both the theoretical foundations and practical applications of ECMO. It is particularly beneficial for all healthcare professionals seeking to enhance their skills in managing critically ill patients on ECMO. The course's hands-on approach, guided by experienced instructors, allows participants to gain invaluable insights and practical experience, ensuring that they are well-prepared to take on the challenges associated with ECMO therapy.

Moreover, the collaborative learning environment fosters networking opportunities among peers and experts in the field, creating a rich forum for sharing experiences and best practices. This is invaluable for building a community of skilled practitioners dedicated to excellence in patient care.

# Course Synopsis

## First Day

1. An overview of the different modes of ECLS support and global trends.
2. Introduction to and building of a circuit. (Group splits in 3)
3. The key milestones in the development of ECLS and landmark studies.
4. A didactic lecture on circuit components: cannulas and tubing, the centrifugal pump, oxygenator and blender, pressure monitoring and priming the circuit.
5. A bedside demonstration of the circuit check.
6. Simulation Scenario demonstrated by the faculty followed by a debrief. (whole group)
7. The physiology of ECLS support, gas transfer in the membrane, oxygen delivery and uptake and the manipulation thereof.
8. Cannulation: Configuration for VV and VA-ECMO, complications of cannulation including recirculation and differential hypoxaemia.
9. Respiratory failure and the indications for VV-ECMO.
10. VV-ECMO initiation.
11. VV-ECMO: Maintenance of the run, weaning off and decannulation.
12. Cardiac failure and the indications for VA-ECMO.
13. VA-ECMO initiation.
14. VA-ECMO: Maintenance of the run, left ventricular dysfunction, weaning off the run and decannulation.
15. Meet the Machines.
16. Scenario training with debrief and wet lab training. (Group splits in 3)
    a. Scenarios: Air embolism, pump failure, gas failure, membrane lung failure and drainage insufficiency.
    b. Wet lab: Air in circuit, connection of the cannula to the circuit and priming of circuit.
17. Simulation Scenario by 3 volunteer participants with debrief. (whole group)
18. Summary of the day with Q&A and debrief.

Endorsed by
CPD Accredited (16 Clinical, 1 Ethical)
ECMO SOCIETY SOUTH AFRICA

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19. Physiotherapy and mobilization of the patient on the ECMO run
20. The need for, types and monitoring of anti-coagulation and transfusion of blood and blood products.
21. Sedation and analgesia: at cannulation, during the run and at de-cannulation.
22. Renal replacement therapy during the ECMO run.
23. Transport: in and inter-hospital, preparations, precautions and monitoring.
24. Procedures during the ECMO run, precautions, preparations and complications.
25. ECMO Complications: drainage insufficiency, return obstruction, medical and mechanical complications, neurological, bleeding, thrombosis, haemolysis, limb ischemia and cardiac arrest,
26. ECMO Complications: pump failure, membrane dysfunction, air embolism, circuit disruption, accidental decannulation, and coming off ECMO emergently.
27. A Review of recent evidence for ECMO.
28. The ethics and legalities of terminating ECMO support
29. Scenario training and wet labs at lib.
30. Theory MCQ Examination.
31. Simulation Scenario Competency Practical Examination.