



PERFUSION CLASSIFICATION GUIDELINES in patients requiring ECLS

ECLS patients should be placed in **Class 1, 2 or 3** based on specific parameters of ECLS stability. Degree of Perfusion support will vary depending on the class, but Perfusionists are required to be present for all ECLS Initiations and Terminations. The initial classification of an ECLS patient will default to Class 3, unless there is a clear indication for Class 1 or 2 support. Importantly, patients do not need to progress through each step of the classification system (i.e. patients can move from Class 1 to Class 3, and vice versa, as their clinical condition dictates).

The core ECLS team must consist of the ECLS Surgeon, Perfusionist, Attending ICU physician (Intensivist, Cardiac Anesthesiologist), Respiratory Therapist and Bedside Nurse, at a minimum. (It is recommended that the ECLS team be expanded to include: Pharmacy, Dietician, Social Worker and Palliative Care.) At any time, any member of the ECLS team may initiate a discussion regarding the classification or re-classification of an ECLS patient. The ECLS Surgeon and ICU Physician must be notified if there are any changes in classification made; a change in classification must be documented in the patient's chart.

The classification system outlined below is a guideline only. The classification (and re-classification) of each patient should be tailored to each individual patient's clinical condition and care needs as discussed and agreed upon by the ECLS team. **Each patient on ECLS must be classified individually and accordingly.** Perfusion support at the bedside is a function of classification of individual patients and not of the total number of patients on ECLS.

Regardless of the patient classification, **Perfusionists must be present at the bedside for each of the following interventions / critical ECLS events:**

- Initiation of ECLS
- Hemorrhage
- Daily bedside rounds
- Change in cannulation
- Exsanguination
- Transportation
- Circuit change
- Plasmapheresis
- Ambulating patients
- Decannulation/Termination
- Cardiac arrest
- Tracheostomy
- Air in ECLS circuit
- Persistent desaturation
- Inserting/Removing VasCath
- Inserting/Removing Central Line (excluding PICC)
- Sudden/ongoing changes in ECLS flow
- Arrhythmias with hemodynamic instability



Cannulation and Initiation of ECLS

The initial classification of an ECLS patient will default to Class 3, unless there is a clear indication for Class 1 or 2 support. The Perfusionist should remain at the patient bedside after Initiation to stabilize ECLS flows and sweep according to patient ABG results and hemodynamic stability.

Safety / Back-Up Equipment: The Perfusionist should ensure at least 1 (one) additional primed ECLS circuit is readily available within unobstructed access to the patient(s) on ECLS.

Daily Expectations: The Perfusionist will perform a full circuit assessment twice a day (between 0800-1000 and 1900-2100), 7 days a week. These times are subject to change depending on patient and/or unit needs.

Class 1 ECLS SUPPORT WITH MINIMAL INTERVENTION (PERFUSION ON-CALL)

All patients will be considered Class I Perfusion support after ECLS initiation unless clear criteria are noted and discussed with the inter-professional ECLS team to reclassify.

Patient is hemodynamically stable on ECLS with minimal intervention. No bedside Perfusion support required, and Perfusion is not required to be in hospital. Perfusionist must be available by pager for consultation and/or troubleshooting, as required.

Indications:

A. Hemodynamic Stability:

- Hemodynamic stability can be adequately maintained with fluid, inotropic and/or vasoactive support
- Minimal changes need to be made to ECLS flows and/or sweep. Any changes that are made are in a non-emergent manner by the Perfusionist, ECLS specialist, ECLS surgeon or CSICU intensivist
- Venous line circuit chatter is manageable and resolves with volume administration

B. Stable Oxygenation:

- Frequent manipulation of the ECLS oxygenator or circuit is **not** required to maintain oxygenation

C. Anticoagulation and Hemostasis:

- Anticoagulation is within acceptable range
- Minimal bleeding

D. Other indications agreed upon by the ECLS team



Class 2 ECLS SUPPORT WITH FREQUENT INTERVENTION (PERFUSION IN HOSPITAL)

Patients in this category a Perfusionist will be in hospital 24/7.

Indications:

A. Hemodynamic Stability:

- Hemodynamically stable but requiring repeated interventions to maintain hemodynamics
- Require repeated changes to ECLS flows and/or sweep *
- Repeated venous line chatter requiring volume administration and/or ECLS flow adjustments

B. Intermittent desaturations with recovery:

- Frequent manipulation of the ECLS oxygenator or circuit is **not** required to maintain oxygenation

C. Anticoagulation and Hemostasis

- Anticoagulation is within acceptable range or actively correcting
- Bleeding is controlled

D. Other indications agreed upon by the ECLS team

* ECLS changes requiring Class II support does not include controlled weaning of ECLS flow and/or sweep.



Class 3 ECLS SUPPORT WITH PERFUSION PRESENT (PERFUSION BEDSIDE 24/7)

Patients will be considered Class 3 if a Perfusionist is required to be at the bedside for constant ECLS support 24/7.

Indications:

A. Hemodynamically unstable or labile:

- Hemodynamically labile or unstable requiring multiple vasoactive agents with frequent changes in dose with persistent labile hemodynamics
- Require frequent changes to ECLS flows and/or sweep
- Ongoing venous line chatter requiring volume administration and/or ECLS flow adjustments
- Sudden escalation in lactate levels

B. Frequent or refractory desaturations:

- Repeated manipulation of the ECLS oxygenator or circuit is required to maintain oxygenation

C. Anticoagulation and hemostasis

- Active bleeding (surgical or other), requiring cell saver and/or benefitting from rapid transfusion through ECLS circuit
- Evidence of thrombosis to patient or circuit

D. ECLS device alarm and/or circuit instability potentially requiring hardware change

E. Other indications agreed upon by the ECLS team