

ECPR cards

1. **Team Leader**
2. Cannulator 1 - patient selection & cannulation
3. Cannulator 2 - assist cannulation
4. Cannulator 3 - in charge of cannulation equipment
5. Sonographer - confirm guidewire position
6. Console Person - prepare ECMO circuit

ALS cards

7. Airway doctor
8. Airway assistant
9. Chest compressions (LUCAS)
10. Defibrillation
11. Drugs
12. Scribe

Team Leader



Airway Dr

Airway nurse

Defib

Role

- Inclusion criteria (back of card)
- Setup room
- Allocate ALS cards
- Allocated ECPR cards together with cannulator 1 or 2

CPR

Pre-cannulation Phase (before skin prep)

1. Contact cardiology
2. Standard ALS
3. Apply LUCAS - manual ventilation (bag)
4. Expose groin and shave

U/S

C1

Cannulation Phase (from skin prep)

1. NO more defibrillation
2. NO CXR, A-line or CVC during cannulation
3. Stop LUCAS (max 60sec) during needle puncture/ guidewire insertion
4. Stop resuscitation if NOT on ECMO with adequate flow by 90min after initial cardiac arrest

C2

ECMO Console

Trolley

Drugs

Console Person

ECMO Equipment

C3

Team Leader

Scribe

ECPR Inclusion Criteria - *NOT* Accidental Hypothermia



INCLUSION CRITERIA
Age + Time in min < 100 (ambulance call time to time of decision in min)* <i>alternatively Time only <60min</i>
Witnessed cardiac arrest
Shockable initial rhythm
Bystander CPR within 5 min
No known end-stage disease

* ROSC <20min is considered continuous cardiac arrest; ROSC >20min is considered as separate arrests, the longer cardiac arrest time is taken

Criteria fulfilled	Survival*	Recommendation
5/5	~ 46%	Reasonable inclusion
4/5	~ 12%	
3/5	~0%	Extremely infrequent on compassionate basis
2/5	~0%	
1/5	~0%	

* Only OHCA, local experience Victorian ambulance and The Alfred ECPR program

more details under www.ecmo.icu

In the Cath Lab

MINIMUM CRITERIA* - ALL required
Age < 75
All rhythms included
LV ejection fraction >30% OR LVEF likely to improve with procedure OR LVAD or heart transplant considered
Aortic regurgitation not more than mild
No known end-stage disease

*Only for patients in cardiac catheter lab

Prerequisites - ALL required

Suitable as per cardiology
AND
 Early cardiac arrest (<20min)
without
 significant peripheral mottling/
 lactate rise (>10 mmol/L)

Cannulator 1



Equipment to bring

- ECPR Equipment trolley

Role

- Confirms inclusion criteria (back of card)
- Check in with Team Leader
- Allocate roles with Team Leader
- Cannulation

U/S

Procedure

1. Confirm eligibility with Team Leader
2. Allocation of ECPR proceduralists (Team Leader to allocate blue ALS cards)
3. Scrub
4. Sterilise groin & drape
5. Apply ultrasound sleeve
6. Cannulation
 - Right side access, Left side return
 - Insert both guidewires first

C2

C1

C3

Trolley

Team
Leader

ECPR Inclusion Criteria - *NOT* Accidental Hypothermia



INCLUSION CRITERIA
Age + Time in min < 100 (ambulance call time to time of decision in min)* <i>alternatively Time only <60min</i>
Witnessed cardiac arrest
Shockable initial rhythm
Bystander CPR within 5 min
No known end-stage disease

* ROSC <20min is considered continuous cardiac arrest; ROSC >20min is considered as separate arrests, the longer cardiac arrest time is taken

Criteria fulfilled	Survival*	Recommendation
5/5	~ 46%	Reasonable inclusion
4/5	~ 12%	
3/5	~0%	Extremely infrequent on compassionate basis
2/5	~0%	
1/5	~0%	

* Only OHCA, local experience Victorian ambulance and The Alfred ECPR program

more details under www.ecmo.icu

In the Cath Lab

MINIMUM CRITERIA* - ALL required
Age < 75
All rhythms included
LV ejection fraction >30% OR LVEF likely to improve with procedure OR LVAD or heart transplant considered
Aortic regurgitation not more than mild
No known end-stage disease

*Only for patients in cardiac catheter lab

Prerequisites - ALL required

Suitable as per cardiology
AND
 Early cardiac arrest (<20min)
without
 significant peripheral mottling/
 lactate rise (>10 mmol/L)

Cannulator 2



Equipment to bring

- Large procedure trolley with LUCAS

Role

- Assist Cannulator 1

U/S

Procedure

1. Open ECMO pack
2. Check in with Cannulator 3
3. Scrub
4. Chose dilator sizes
5. Chose and receive cannulae 15F (17F) arterial, 19F (21F) Multi-stage venous cannulae
6. Organise sterile field
7. Cannulate with C1

C1

C2

C3

Trolley

Team
Leader

ECPR Inclusion Criteria - *NOT* Accidental Hypothermia



INCLUSION CRITERIA
Age + Time in min < 100 (ambulance call time to time of decision in min)* <i>alternatively Time only <60min</i>
Witnessed cardiac arrest
Shockable initial rhythm
Bystander CPR within 5 min
No known end-stage disease

* ROSC <20min is considered continuous cardiac arrest; ROSC >20min is considered as separate arrests, the longer cardiac arrest time is taken

Criteria fulfilled	Survival*	Recommendation
5/5	~ 46%	Reasonable inclusion
4/5	~ 12%	
3/5	~0%	Extremely infrequent on compassionate basis
2/5	~0%	
1/5	~0%	

* Only OHCA, local experience Victorian ambulance and The Alfred ECPR program

more details under www.ecmo.icu

In the Cath Lab

MINIMUM CRITERIA* - ALL required
Age < 75
All rhythms included
LV ejection fraction >30% OR LVEF likely to improve with procedure OR LVAD or heart transplant considered
Aortic regurgitation not more than mild
No known end-stage disease

*Only for patients in cardiac catheter lab

Prerequisites - ALL required

Suitable as per cardiology
AND
 Early cardiac arrest (<20min)
without
 significant peripheral mottling/
 lactate rise (>10 mmol/L)

Cannulator 3



Ensure all equipment present

- ECMO Equipment trolley
- Large cannulation trolley with LUCAS
- ECMO console & Ultrasound

Role

- Manage ECMO trolley, open equipment then assist C1 & 2

U/S

Procedure

1. Open equipment in sequence (1-6) of ECMO equipment trolley
2. Ask for choice of dilator and cannulae
3. Open 15F (17F) arterial, 19F (21F) multi-stage venous cannulae
4. Hand over equipment role to console person
5. Scrub
6. Assist cannulation, receive ECMO circuit

C1

C2

C3

Trolley

Move here
once scrubbed

ECMO
Equipment

C3

Team
Leader

Start here

ECPR Inclusion Criteria - *NOT* Accidental Hypothermia



INCLUSION CRITERIA
Age + Time in min < 100 (ambulance call time to time of decision in min)* <i>alternatively Time only <60min</i>
Witnessed cardiac arrest
Shockable initial rhythm
Bystander CPR within 5 min
No known end-stage disease

* ROSC <20min is considered continuous cardiac arrest; ROSC >20min is considered as separate arrests, the longer cardiac arrest time is taken

Criteria fulfilled	Survival*	Recommendation
5/5	~ 46%	Reasonable inclusion
4/5	~ 12%	
3/5	~0%	Extremely infrequent on compassionate basis
2/5	~0%	
1/5	~0%	

* Only OHCA, local experience Victorian ambulance and The Alfred ECPR program

more details under www.ecmo.icu

In the Cath Lab

MINIMUM CRITERIA* - ALL required
Age < 75
All rhythms included
LV ejection fraction >30% OR LVEF likely to improve with procedure OR LVAD or heart transplant considered
Aortic regurgitation not more than mild
No known end-stage disease

*Only for patients in cardiac catheter lab

Prerequisites - ALL required

Suitable as per cardiology
AND
 Early cardiac arrest (<20min)
without
 significant peripheral mottling/
 lactate rise (>10 mmol/L)

Sonographer



Equipment to bring

- Ensure ultrasound present

Role

- Confirm guidewire and cannula placement

U/S

Procedure

1. Prepare ultrasound machine
2. Assist in applying ultrasound sleeve
3. Confirm guidewire position
 - Single wire in IVC for access
 - Single wire in aorta for return

C1

C2

C3

Trolley

Team
Leader

Console Person



Equipment to bring

- ECMO console

Role

- Prepare ECMO circuit - NO heater
- Take over equipment role from C3

Procedure

Console Checks

1. Turn console on
2. RPM to 0
3. Unscrew yellow cap from oxygenator
4. Unclamp circuit and blue & red tubes
5. Run 2000 RPM for 2min (ensure flow in priming bag)
6. Reapply yellow cap
7. Clamp circuit (and both blue & red tubes close to de-airing bag)
8. RPM to 0, ensure ECMO clamp on
9. Apply white U/S cream
10. Zero flow on console
11. Connect oxygen to O₂ cylinder (not blender) at **3L/min**
12. Await for transfer to bedside
13. Ask C1 or C2 to check no air in circuit

Equipment role

1. Take over equipment role once C3 scrubbed

U/S

C2

C1

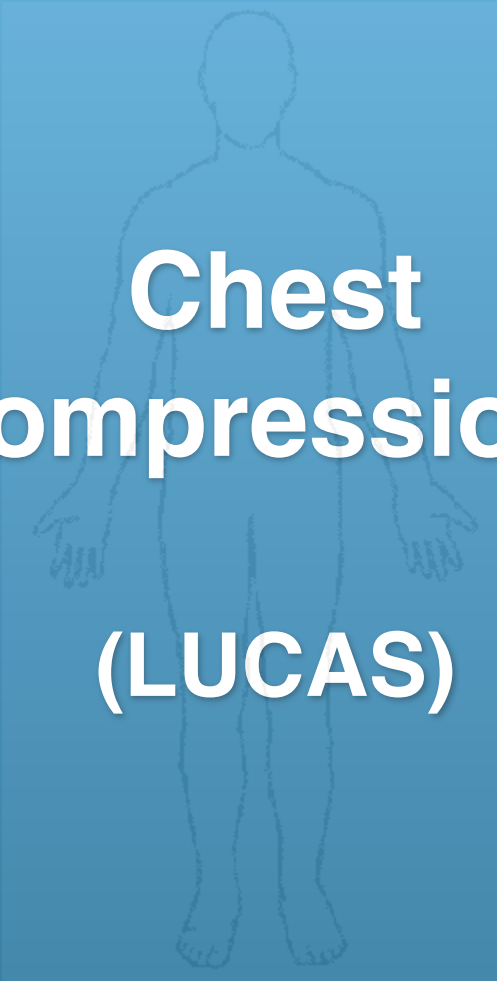
C3

Trolley

ECMO
Console

**Console
Person**

Team
Leader

A faint, light blue silhouette of a human figure is centered in the background of the slide, showing the head, torso, arms, and legs.

Chest Compressions (LUCAS)

A faint, light blue silhouette of a human figure is centered in the background of the slide.

Defibrillation

No defibrillation after
commencement of skin prep

A faint, light blue silhouette of a human figure is centered in the background of the page. The silhouette is a simple outline of a person standing with arms slightly away from the body.

Airway Doctor

A faint, light blue silhouette of a human figure is centered on the page, serving as a background for the title text.

Airway Assistant

A faint, light blue silhouette of a human figure is centered in the background of the slide.

Drugs

**No adrenaline just prior to
commencement of ECMO**

Scribe



Role

- Documentation and timing

Procedure

- Time cycle
- Important times to document
 1. Patient in trauma bay
 2. CPR start and stop
 3. Patient on ED trolley
 4. Decision for ECPR
 5. Skin preparation
 6. On ECMO support

U/S

C1

C2

C3

Trolley

Team
Leader

Scribe