

# ERC Reanimation Guidelines 2025, Implementation and local Knowledge

**Robert TINO Greif**

GUIDELINES

2025

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# Conflict of Interest

## No financial COI

Devices for research: Intersurgical, Karl Storz, Verathon, Aircraft Medical, Prodol Meditec, Venner Medical, Kingsystems, Medtronic, Ambu, VBM, Radiometer, Sentec, Fisher&Paykel

## Intellectual COI

Professor emeritus, Anaesthesiology & Intensive Care Medicine, University of Bern, Bern, Switzerland

Professor emeritus, Medical Education, Sigmund Freud University Vienna, Vienna, Austria  
Member of Project for Universal Management of Airways (PUMA)

Editorial Board: Resuscitation Plus

## **ERC Director of Guidelines and ILCOR**

ILCOR Task Force Chair - Education, Implementation, Team

Steering Group – ILCOR initiative 10 Steps Toward Improving IHCA



# 11 Guidelines & 1 Summary

Collaboration with ESICM, EuSEM, ESAIC, ESC, IFRC

Approved by 31 NRCs

**Changes 211 ⇒ 1282 Recomm.**

Epidemiology		18
SSL	13	50
BLS	8	66
ALS	26	137
Post Res Care	13	93
Spec Circ	55	167
NLS	27	202
PLS	9	329
Edu	22	38
Ethics	19	56
First Aid	19	126





**141 persons** - 100 physicians, 7 nurses, 11 paramedics, 23 others (teachers, ethicist, physiotherapy, admin, scientists, physical edu)

29 countries – 42% women

**Public involvement:**

- 11 lay people in writing groups
- GL2025 scope public consultation
- 820 comments on GL2025 from public

**New**

- DEEI
- Low resource settings
- 20% early and mid career persons
- Lay terms GL2025 brochure

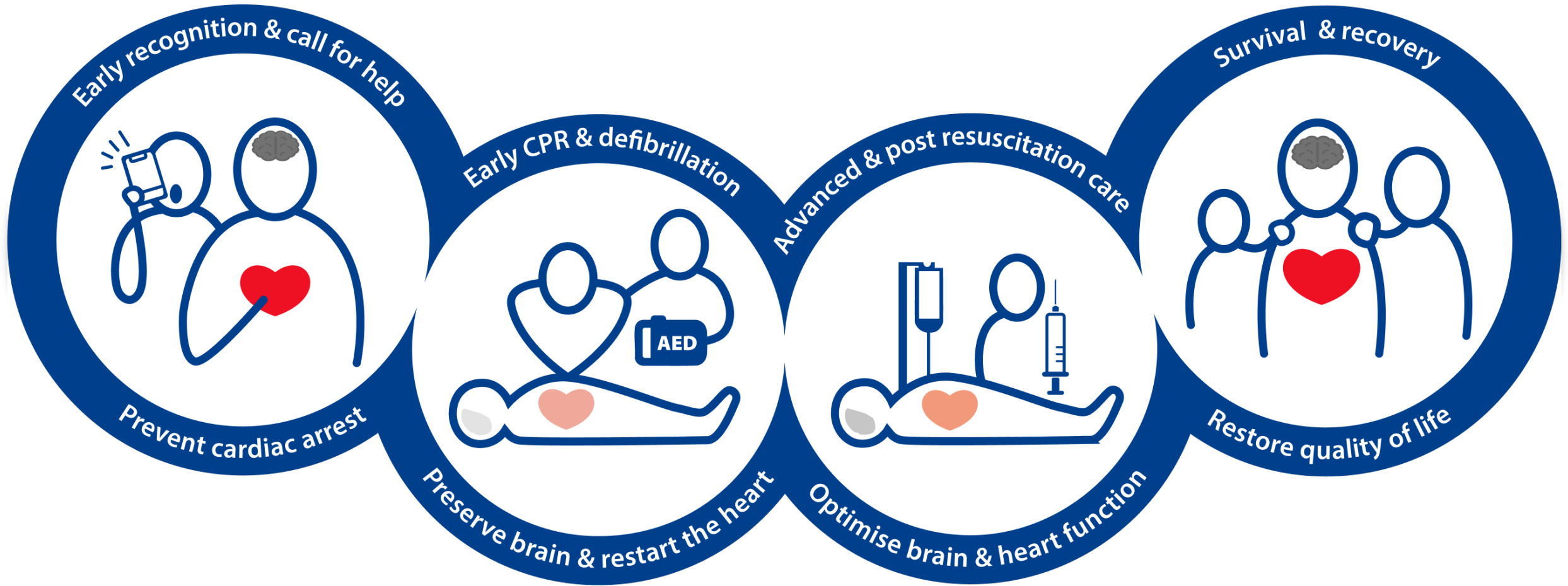


# GUIDELINES

# 2025

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 <p><b>FIRST AID</b></p> <p>Guidelines 2025 First Aid</p>	 <p><b>EPIDEMIOLOGY OF RESUSCITATION</b></p> <p>Guidelines 2025 Epidemiology in resuscitation</p>	 <p><b>SPECIAL CIRCUMSTANCES</b></p> <p>Guidelines 2025 Adult special circumstances in resuscitation</p>	 <p><b>POST-RESUSCITATION CARE</b></p> <p>Guidelines 2025 Adult post resuscitation care</p>	 <p><b>NEONATAL LIFE SUPPORT</b></p> <p>Guidelines 2025 Newborn life support</p>	
 <p><b>SYSTEMS SAVING LIVES</b></p> <p>Guidelines 2025 Systems saving lives</p>	 <p><b>ADULT BASIC LIFE SUPPORT</b></p> <p>Guidelines 2025 Adult basic life support</p>	 <p><b>ADULT ADVANCED LIFE SUPPORT</b></p> <p>Guidelines 2025 Adult advanced life support</p>	 <p><b>PAEDIATRIC LIFE SUPPORT</b></p> <p>Guidelines 2025 Paediatric life support</p>	 <p><b>EDUCATION FOR RESUSCITATION</b></p> <p>Guidelines 2025 Education for resuscitation</p>	 <p><b>ETHICS IN RESUSCITATION</b></p> <p>Guidelines 2025 Ethics in resuscitation</p>

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# ERC Guidelines 2025: von Evidenz zu Empfehlungen



- ERC-Guidelines are based on ILCOR Systematic and Scoping Reviews
- ILCOR Recommendation – strong evidence (desired effect outweighs side-effects)
- Suggestion – weak evidence (low safety versus side effects)
- No or very weak evidence – “Good Practice Statement“
- ERC has taken over all ILCOR Recommendations
- No ILCOR Recommendation - ERC-Authors create own Reviews

## Every Recommendation

- Part 1.– **Precise Guidelines for clinical practice:** Recommendations, Approach, and Algorithms
- Part 2.– **Evidence-based Guidelines**– Explanation for the Recommendations

# GUIDELINES 2025

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Available online at ScienceDirect

# Resuscitation

journal homepage: [www.elsevier.com/locate/resuscitation](http://www.elsevier.com/locate/resuscitation)

## Practice Guideline

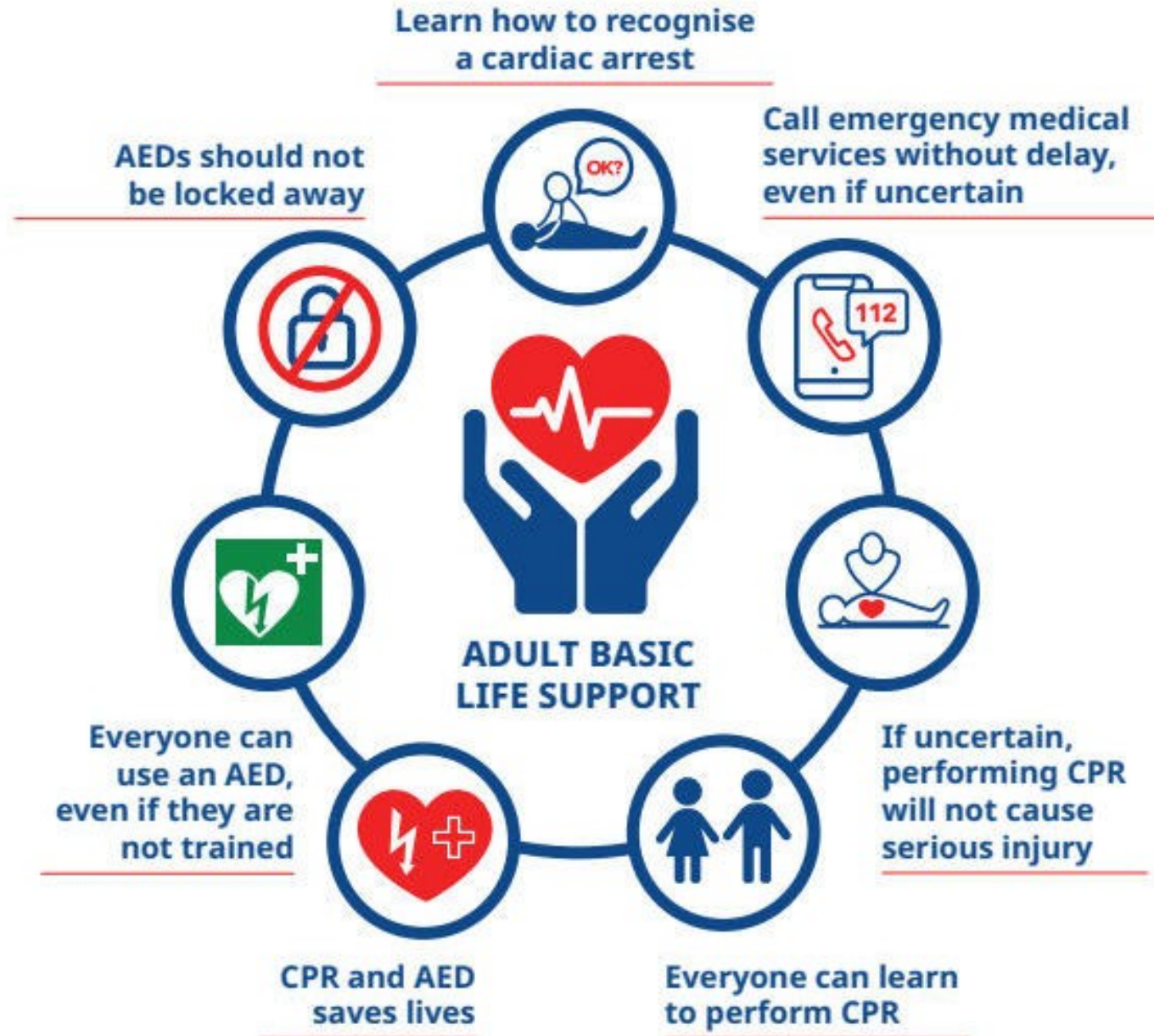
# European Resuscitation Council Guidelines 2025 Adult Basic Life Support



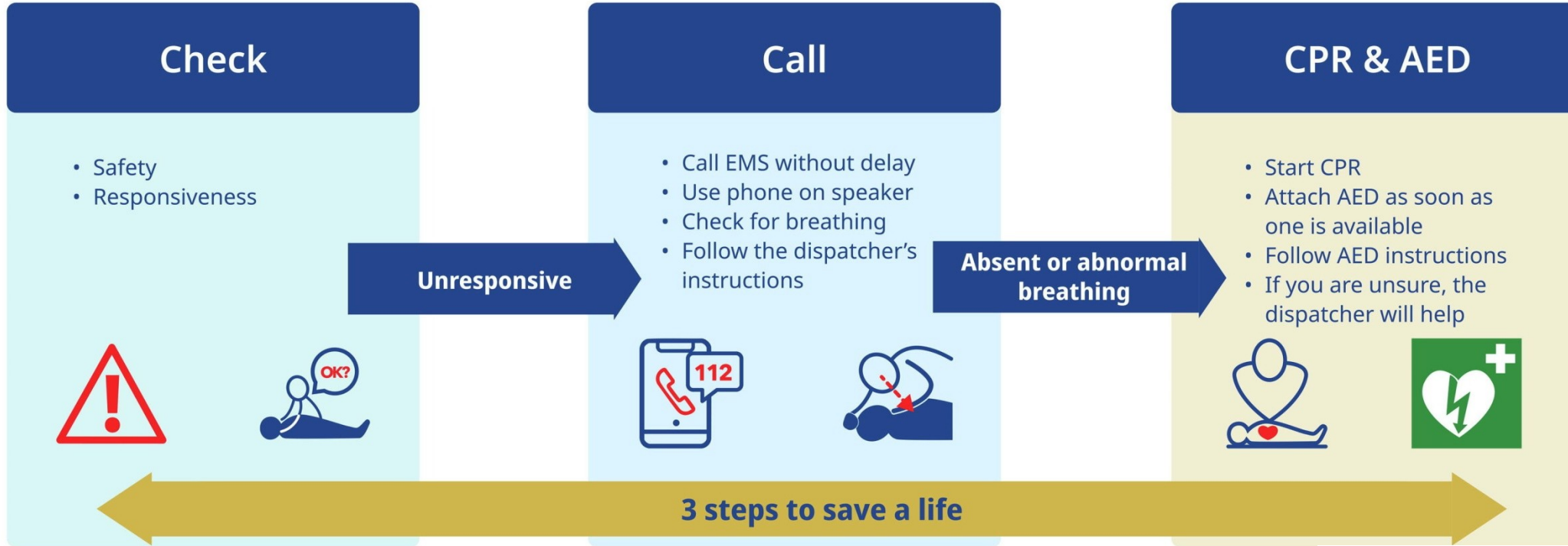
*Michael A. Smyth<sup>a,b,\*</sup>, Sander van Goor<sup>c</sup>, Carolina Malta Hansen<sup>d,e,f</sup>, Nino Fijačko<sup>g</sup>, Naomi Kondo Nakagawa<sup>h</sup>, Violetta Raffay<sup>i</sup>, Giuseppe Ristagno<sup>j,k</sup>, Jessica Rogers<sup>l</sup>, Tommaso Scquizzato<sup>m</sup>, Christopher M. Smith<sup>a,b</sup>, Anastasia Spartinou<sup>n,o</sup>, Keck Wolfgang<sup>p</sup>, Gavin D. Perkins<sup>a,b,q</sup>, for the ERC Adult Basic Life Support Collaborators*

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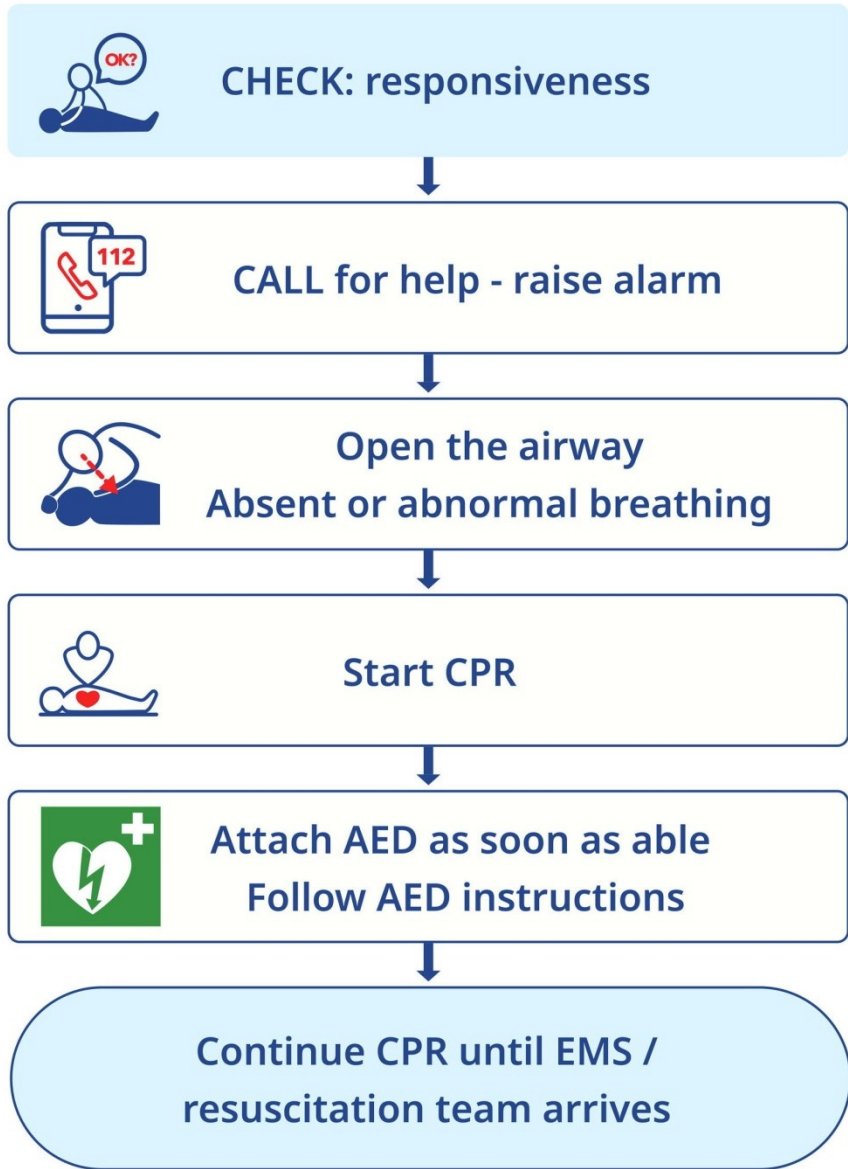
# Adult BLS Key messages



# Three Steps to Save a Life



# ERC- BLS Algorithm



**Call for help without delay**

Out-of-hospital	In-hospital
<ul style="list-style-type: none"> <li>• Phone on speaker</li> <li>• Check for breathing</li> <li>• If you are unsure, the dispatcher will help</li> <li>• Follow dispatcher's instructions</li> </ul>	<ul style="list-style-type: none"> <li>• Check for breathing and signs of life</li> <li>• Request AED or defibrillator</li> <li>• Alert resuscitation team</li> </ul>

**Start CPR**

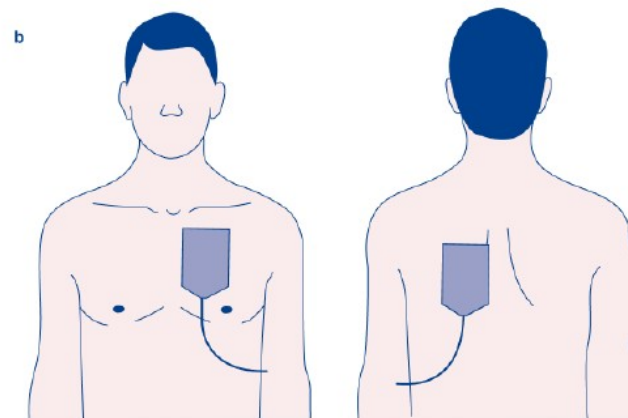
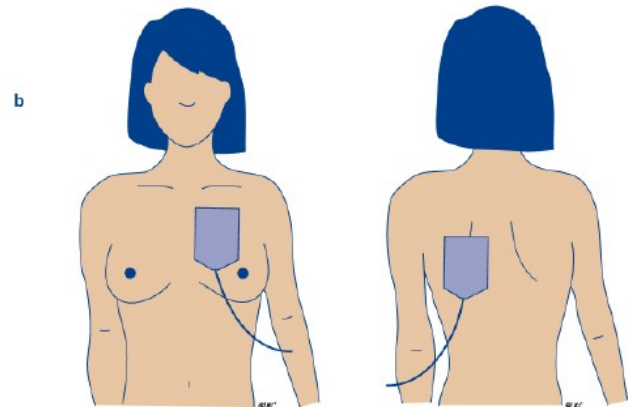
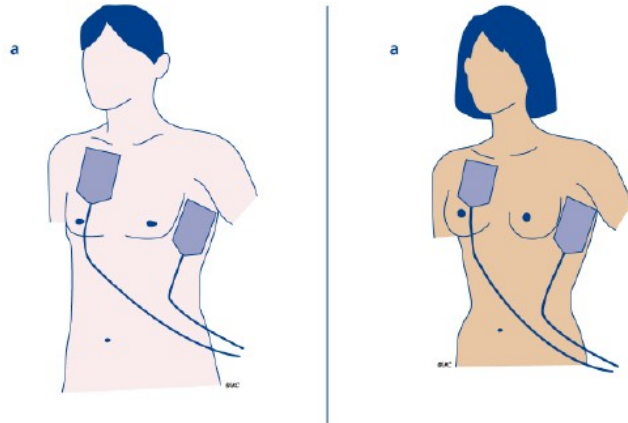
Adult	Paediatric
<p><i>If not BLS trained</i></p> <ul style="list-style-type: none"> <li>• Chest-compression only CPR</li> </ul> <p><i>If BLS trained</i></p> <ul style="list-style-type: none"> <li>• CPR 30:2</li> </ul>	<p><i>If not PBLs trained</i></p> <ul style="list-style-type: none"> <li>• 5 rescue breaths</li> <li>• CPR 30:2</li> </ul> <p><i>If PBLs trained</i></p> <ul style="list-style-type: none"> <li>• 5 rescue breaths</li> <li>• CPR 15:2</li> </ul>



# Roll of Dispatchers



- Dispatchers should use standard procedures to recognise cardiac arrest
- Dispatchers should give every caller CPR instructions as soon as cardiac arrest is recognised
- Call first, and during the conversation the dispatcher can help to check the breathing
- As soon as an AED is with the patient, the dispatcher instructs to activate the AED and follow the AED's instructions
- Where First Responder systems are in place, the dispatchers should send registered First Responders and an AED to the victim's location















# Pads anterolateral or anteroposterior

- Stick the electrodes on the bare chest of the person as shown
- AED-Boxes should be available unlocked 24/365.
- Place AEDs in public, in locations with a higher chance of cardiac arrest
- Emergency Services should register AEDs, and link them to First Responder systems



# Step-wise BLS

SEQUENCE / ACTION	TECHNICAL DESCRIPTION
<b>SAFETY</b> 	<ul style="list-style-type: none"> <li>Make sure that you, the victim and bystanders are safe</li> </ul>
<b>RESPONSE</b> Check for a response 	<ul style="list-style-type: none"> <li>Shake the victim gently by the shoulders and ask loudly: <i>"Are you all right?"</i></li> </ul>
<b>ALERT EMERGENCY SERVICES</b> 	<ul style="list-style-type: none"> <li>If victim is unresponsive, ask a helper to call the emergency medical services or call them yourself</li> <li>Stay with the victim if possible</li> <li>Activate the speaker function or hands-free option on the telephone so that you can start CPR whilst talking to the dispatcher</li> </ul>
<b>AIRWAY</b> Open the airway 	<ul style="list-style-type: none"> <li>If there is no response, position the victim on their back</li> <li>With your hand on the forehead and your fingertips under the point of the chin, gently tilt the victim's head backwards, lifting the chin to open the airway</li> </ul>
<b>BREATHING</b> Look, listen and feel for breathing 	<ul style="list-style-type: none"> <li>Look, listen and feel for breathing for no more than 10 seconds</li> <li>A victim who is barely breathing, or taking infrequent, slow and noisy gasps, is not breathing normally</li> </ul>
<b>SEND FOR AED</b> Send someone to get an AED 	<ul style="list-style-type: none"> <li>Send someone to find and bring back an AED, if available</li> <li>If you are on your own, fetch an AED only if you can get and apply it within one minute; otherwise, start CPR immediately</li> </ul>
<b>CIRCULATION</b> Start chest compressions 	<ul style="list-style-type: none"> <li>Kneel by the side of the victim</li> <li>Place the heel of one hand in the centre of the victim's chest - this is the lower half of the victim's breastbone (sternum)</li> <li>Place the heel of your other hand on top of the first hand and interlock your fingers</li> <li>Keep your arms straight</li> <li>Position yourself vertically above the victim's chest and press down on the sternum at least 5 cm (but not more than 6 cm)</li> <li>After each compression, release all the pressure on the chest without losing contact between your hand and the chest</li> <li>Repeat at a rate of 100-120 min<sup>-1</sup></li> </ul>
<b>COMPRESSION-ONLY CPR</b> 	<ul style="list-style-type: none"> <li>If you are untrained, or unable to give rescue breaths, give chest-compression-only CPR (continuous compressions at a rate of 100-120 min<sup>-1</sup>)</li> </ul>

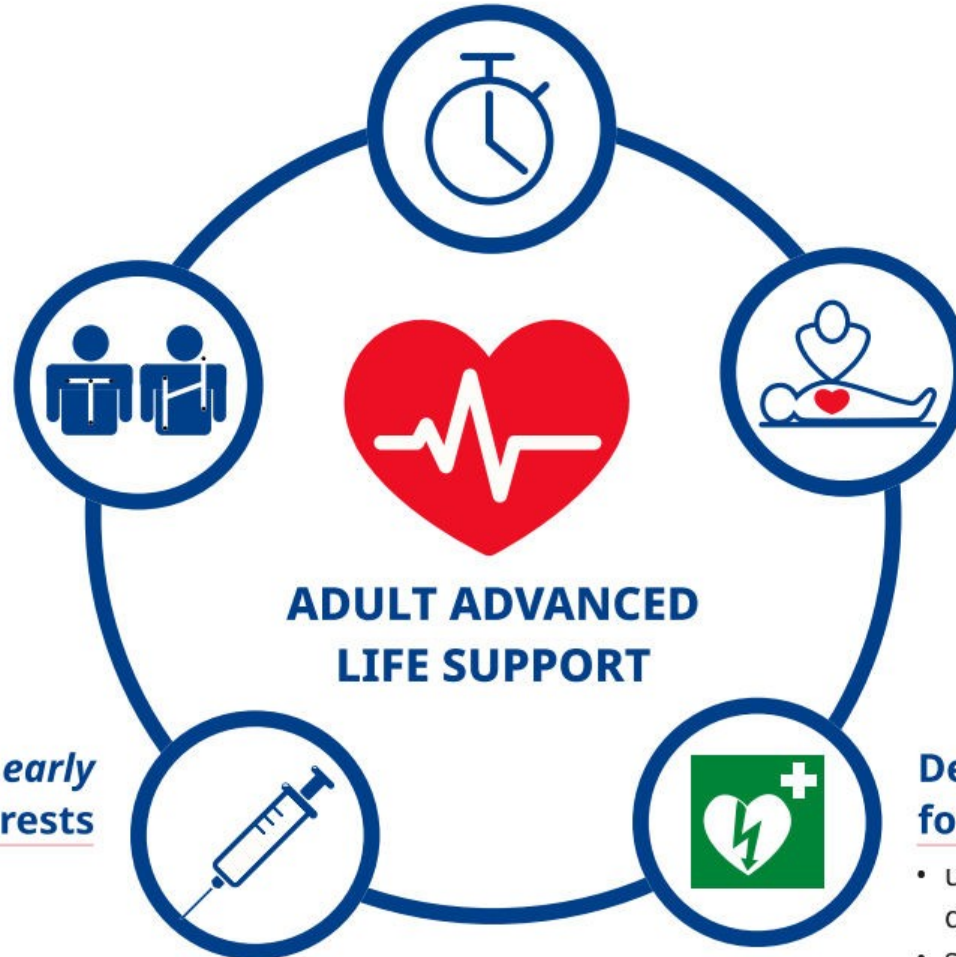
<b>COMBINE RESCUE BREATHING WITH CHEST COMPRESSIONS</b> 	<ul style="list-style-type: none"> <li>If you are trained to do so, after 30 compressions, open the airway again, using head tilt and chin lift</li> <li>Pinch the soft part of the nose closed, using your index finger and thumb of your hand on the forehead</li> <li>Allow the victim's mouth to open, but maintain chin lift</li> <li>Take a normal breath and place your lips around the victim's mouth, making sure that you have an airtight seal</li> <li>Blow steadily into the mouth whilst watching for the chest to rise, taking about 1 second as in normal breathing. This is an effective rescue breath</li> <li>Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air comes out</li> <li>Take another normal breath and blow into the victim's mouth once more to achieve a total of two rescue breaths</li> <li>Do not interrupt compressions by more than 10 seconds to deliver the two breaths, even if one or both are not effective</li> <li>Then return your hands without delay to the correct position on the sternum and give a further 30 chest compressions</li> <li>Continue with chest compressions and rescue breaths in a 30:2 ratio</li> </ul>
<b>WHEN AED ARRIVES</b> Switch on the AED and attach the electrode pads 	<ul style="list-style-type: none"> <li>As soon as the AED arrives, switch it on and attach the electrode pads to the victim's bare chest</li> <li>If more than one rescuer is present, CPR should be continued whilst the electrode pads are being attached to the chest</li> </ul>
<b>FOLLOW THE SPOKEN/ VISUAL DIRECTIONS</b>	<ul style="list-style-type: none"> <li>Follow the spoken and visual directions given by the AED</li> <li>If a shock is advised, ensure that neither you nor anyone else is touching the victim</li> <li>Push the shock button as directed</li> <li>Then immediately resume CPR as directed by the AED</li> </ul>
<b>IF NO SHOCK IS ADVISED</b> Continue CPR 	<ul style="list-style-type: none"> <li>If no shock is advised, immediately resume CPR and continue as directed by the AED</li> </ul>
<b>IF NO AED IS AVAILABLE</b> Continue CPR 	<ul style="list-style-type: none"> <li>If no AED is available, or whilst waiting for one to arrive, continue CPR</li> <li>Do not interrupt resuscitation until:               <ul style="list-style-type: none"> <li>A healthcare professional tells you to stop OR</li> <li>The victim is definitely waking up, moving, opening eyes, and breathing normally OR</li> <li>You become exhausted</li> </ul> </li> <li>It is rare for CPR alone to restart the heart. Unless you are certain that the victim has recovered, continue CPR</li> <li>Signs that the victim has recovered               <ul style="list-style-type: none"> <li>Waking-up</li> <li>Moving</li> <li>Opening eyes</li> <li>Breathing normally</li> </ul> </li> </ul>

# Key Messages – adult ALS

Start advanced life support *early*

- every second counts!

Identify and treat reversible  
causes *without delay*



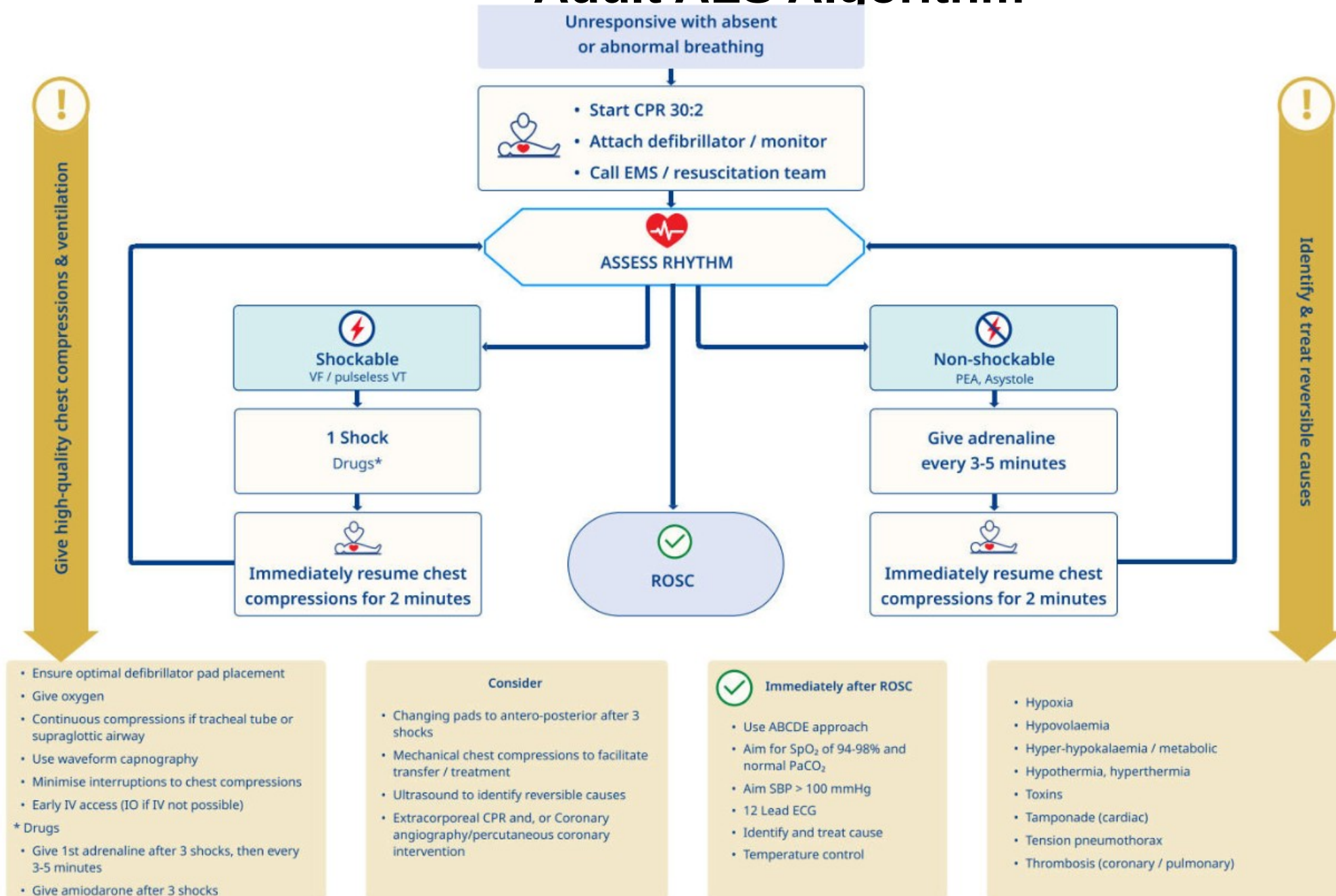
Ensure *effective* ventilation  
and high-quality chest compressions

Give IV adrenaline *early*  
for non-shockable cardiac arrests

Defibrillate *early*  
for shockable rhythms

- use *correct* antero-lateral defibrillator pad placement
- switch to antero-posterior pads if 3 shocks are ineffective

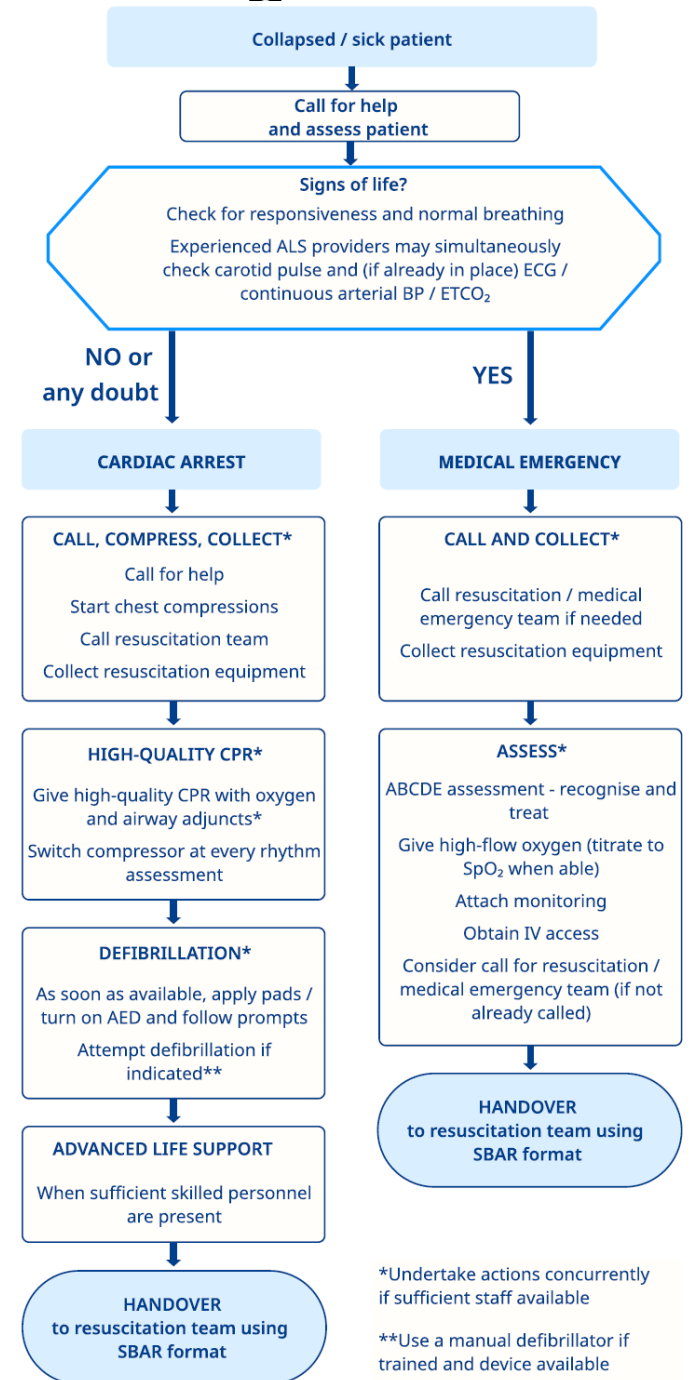
# Adult ALS Algorithm



# In-Hospital Resuscitation Algorithm

## Highlights - adult ALS

- Non-Trauma OHCA - Consider transport to a Cardiac Arrest Centre.
- Date-supported, performance-orientated debriefings improve CPR Quality and Patient Outcome.
- Consciousness during resuscitation (without ROSC) – give Sedatives or Analgesics in low doses.
- Antero-posteriore pad-position for vector change after 3 shocks with refractory shockable rhythms.
- Tracheale Intubation with Video Laryngoscope only by helpers with high success rates (two attempts >95 %) and Kapnography.
- When i.v. access not in 2 attempts ⇒ i.o. access.
- Intensive Monitoring (ICU, OR) ↓ SBP<50mmHg ⇒ CPR; Adrenaline 100µg, Target = DBP ≥30mm Hg + EtCO<sub>2</sub> ≥25mm Hg (3,3 kPa).
- Extra-corporal Resuscitation (ECPR) for selected IHCA + OHCA.
- Uncontrolled organ donation without ROSC when programme exists



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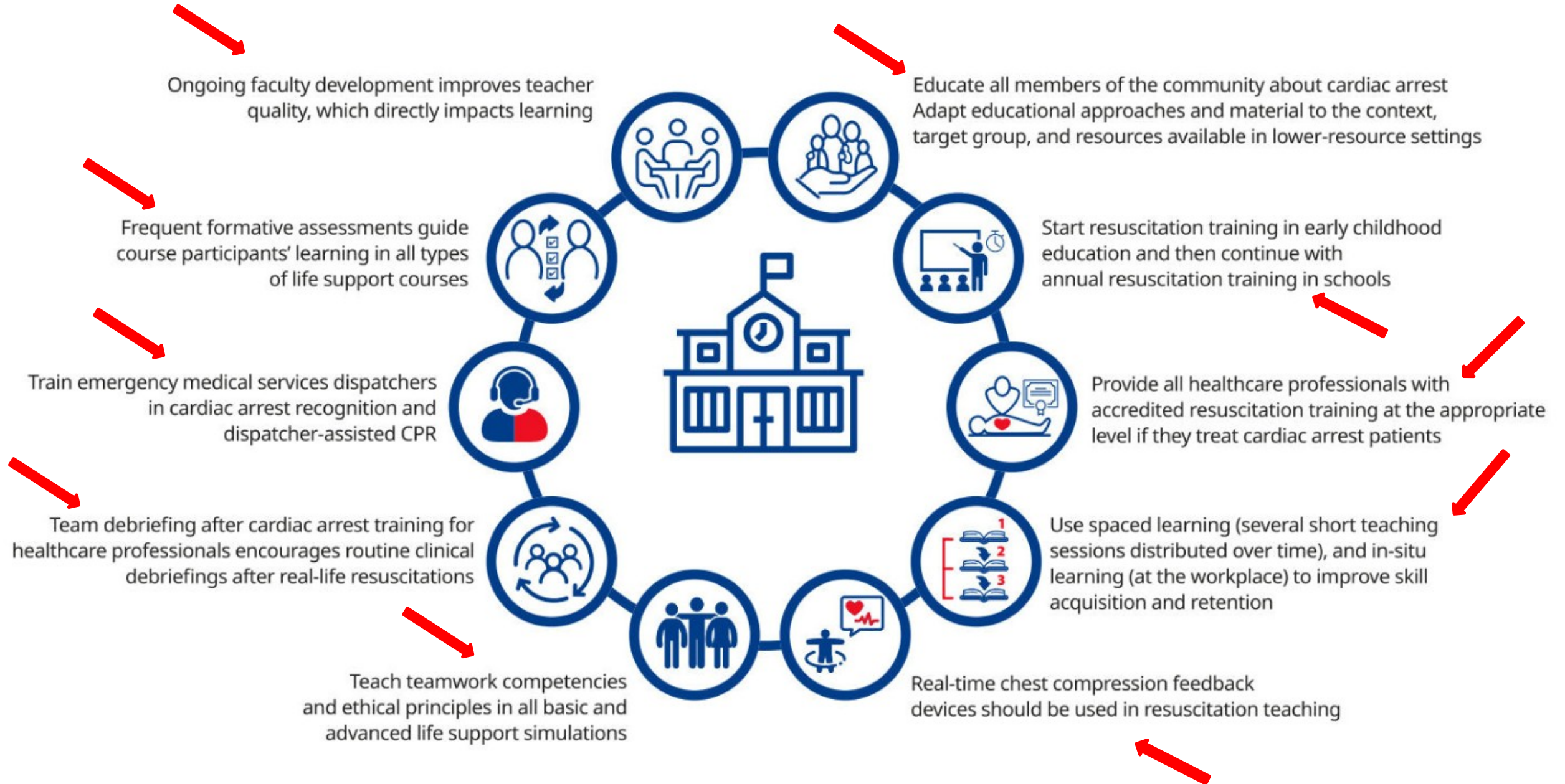
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# Key Messages – Education for Resuscitation



# Teaching high-quality CPR

*“Use equipment that gives real-time feedback for reanimation, to improve the learning and accuracy of thorax compressions.”*



Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

## Resuscitation Plus

journal homepage: [www.elsevier.com/locate/resuscitation-plus](http://www.elsevier.com/locate/resuscitation-plus)



### Review

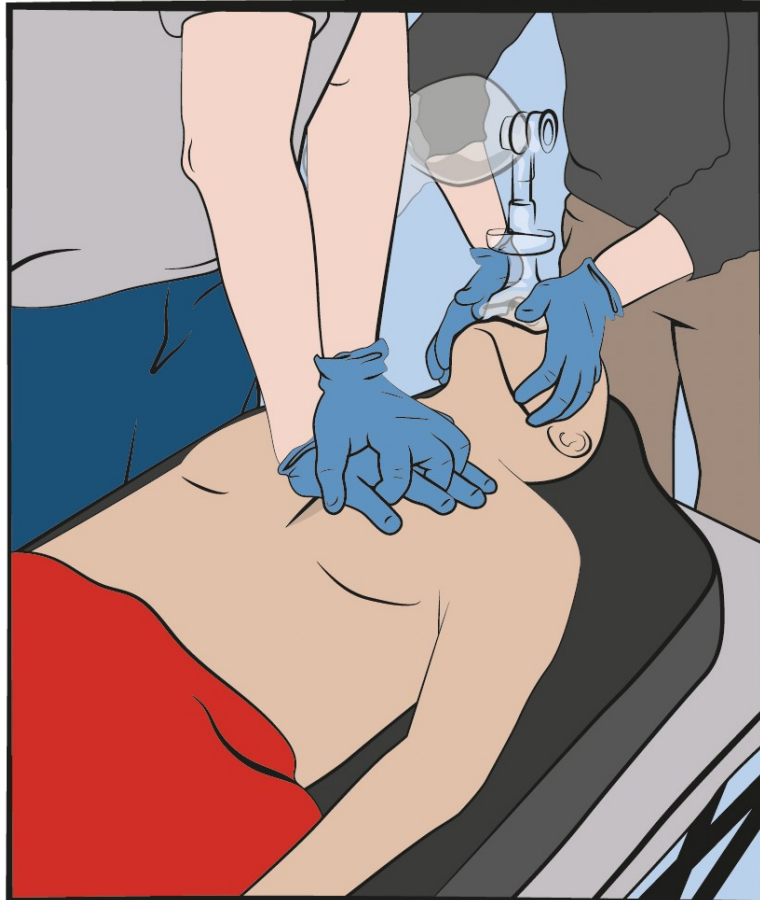
## Use of CPR feedback devices in resuscitation training: A systematic review and meta-analysis of randomized controlled trials



*Yiqun Lin<sup>a,\*</sup>, Andrew Lockey<sup>b,c</sup>, Aaron Donoghue<sup>d</sup>, Robert Greif<sup>e,f</sup>,  
Andrea Cortegiani<sup>g,h</sup>, Barbara Farquharson<sup>i</sup>, Fahad Javaid Siddiqui<sup>j</sup>, Arna Banerjee<sup>k</sup>,  
Tasuku Matsuyama<sup>l</sup>, Adam Cheng<sup>m,n</sup>,  
on behalf of the Education Implementation Team Task Force of the International Liaison  
Committee on Resuscitation ILCOR<sup>1</sup>*

# Ventilation

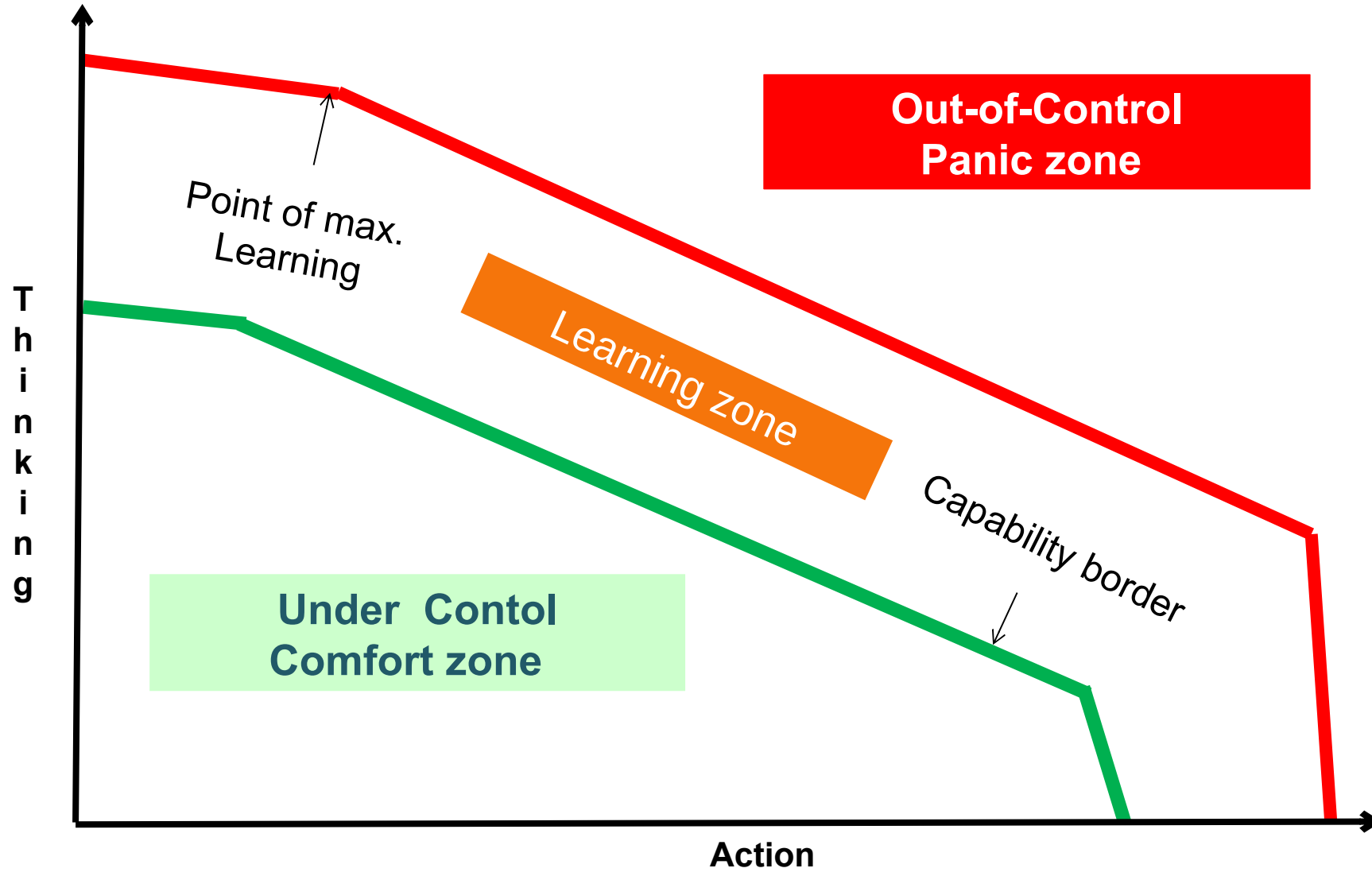
*“Teach ventilation with the Two-Person Method, when Bag-Valve-Mask ventilation is performed.”*



# Teamwork

***“Include teaching Teamwork Competencies in BLS and ALS simulations and courses***

# CPR-Lesson = Challenge



## Debriefing in ALS Courses

*“Consider introducing a short team debriefing after the scenarios for medical personnel, to encourage routine clinical debriefings after real reanimations.”*



# Debriefing in ALS Courses

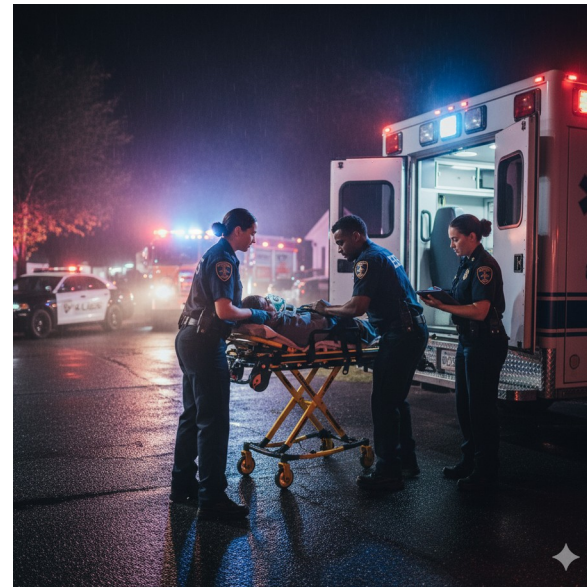
***“Use Debriefing Scripts, to support the discussion.”***

- T Theme**  
What have you experienced? Which points should be discussed, to improve the treatment of the patient?
- A Analysis**  
What worked well or posed problems? How can we continue to provide good treatment, or improve?
- L Learning points**  
What can the team and the organisation learn?  
Summary
- K Kernel items**  
What improvements can we implement?  
Who will do it?



# Tailored CPR training for specific helpers

***“Customise the CPR training to the Function, the specific Environment, and the specific Patient group.”***

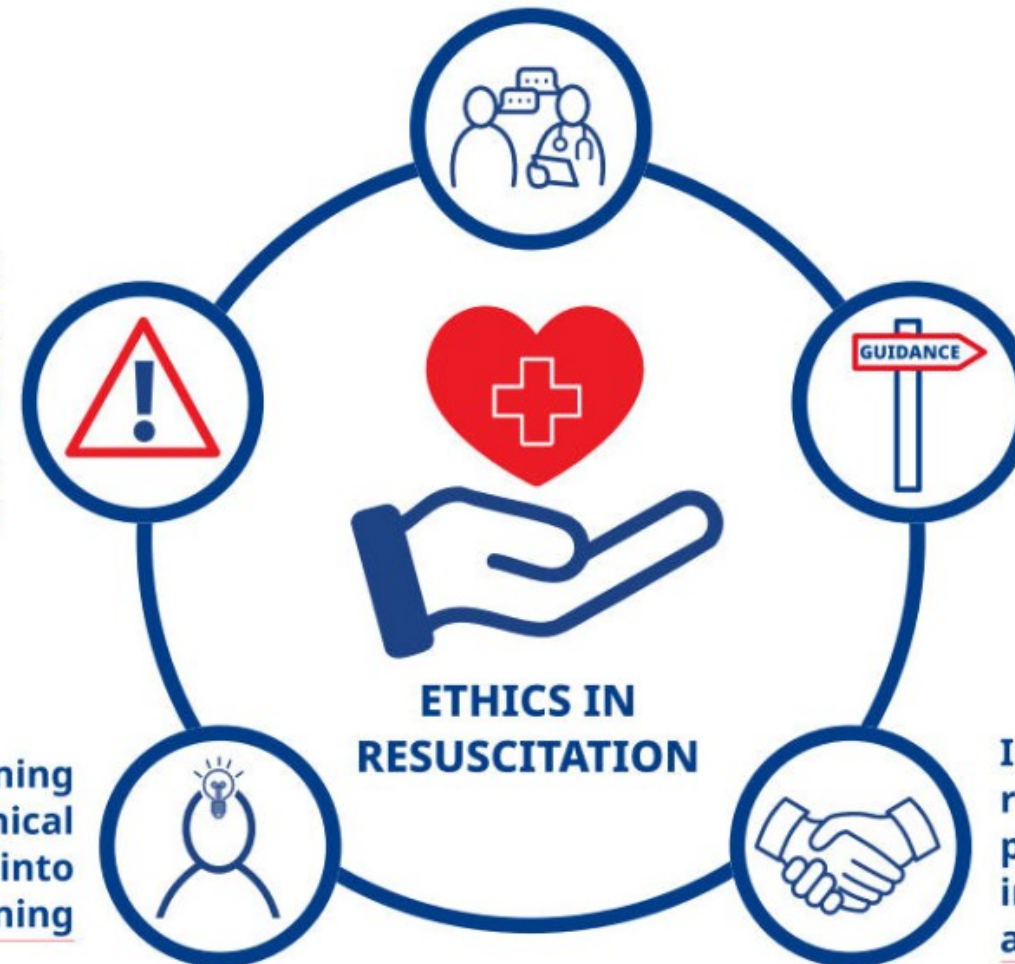


# Key Messages – Ethics in Reanimation

Support patients in understanding and sharing their values and preferences as part of advance care planning with integrated do-not-attempt-CPR decisions

Termination of resuscitation should be made using a holistic approach considering the combined picture of the situation, all prognostic factors, and patient preferences

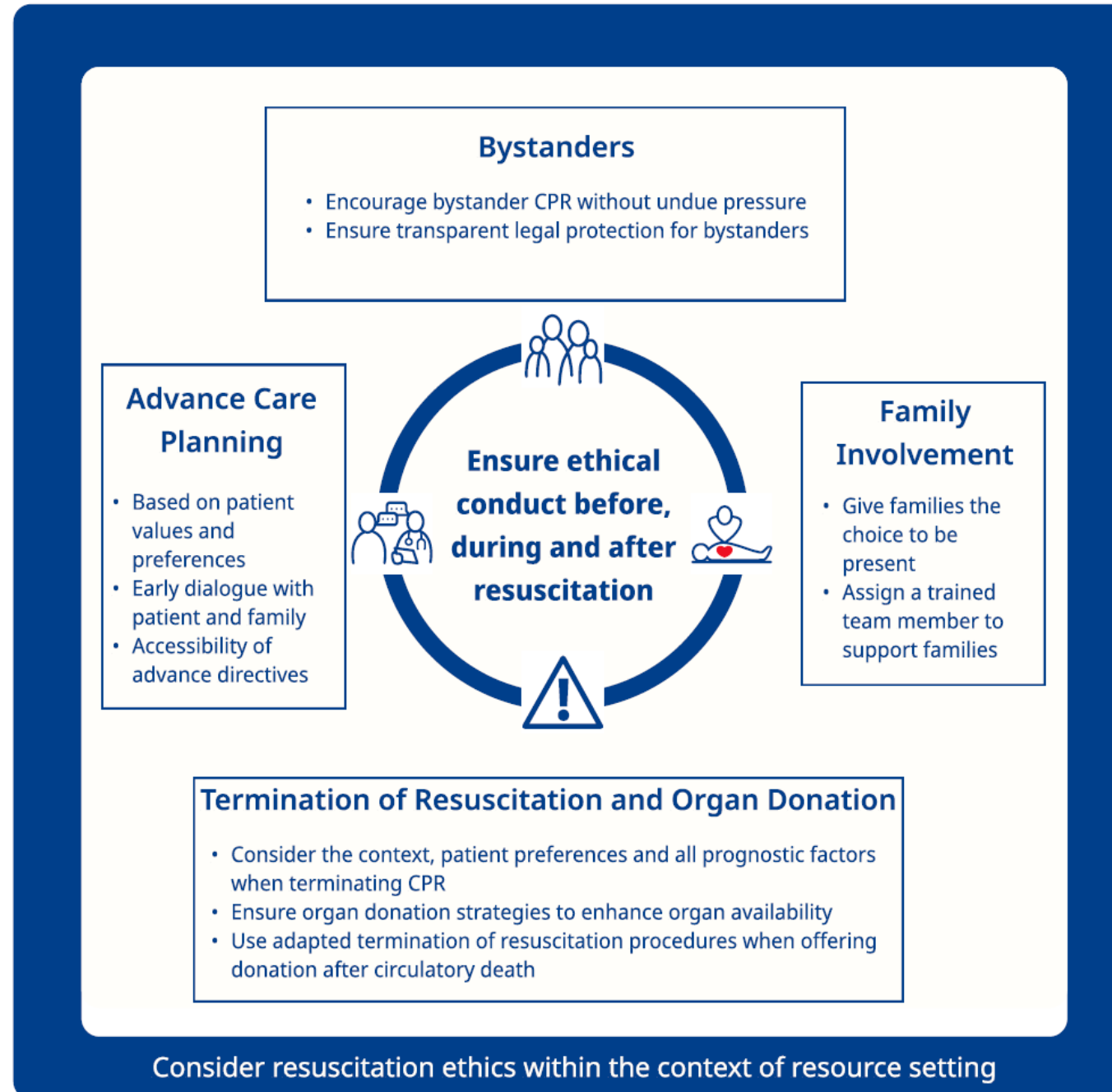
Incorporate ethical reasoning and communication of ethical decision-making into resuscitation training



Provide ethical guidance, measures to facilitate psychological support, and public education initiatives to mitigate moral distress and psychological burden to families, bystanders, and first responders

Inform the public about emergency research regulations and involve patients and members of the public in the design, conduct, and dissemination of research

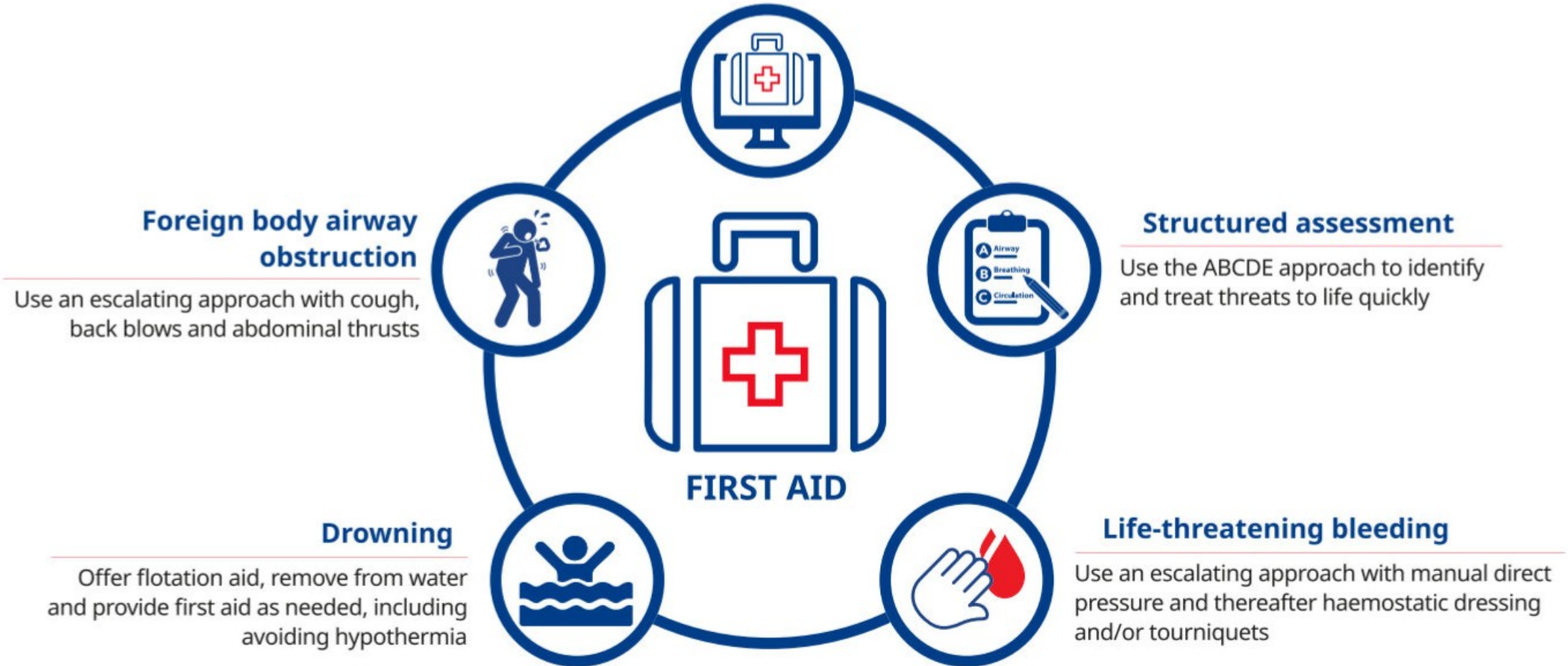
# Ethical Considerations before, during, and after Resuscitation



# Key Messages – Erste Hilfe

## First aid courses

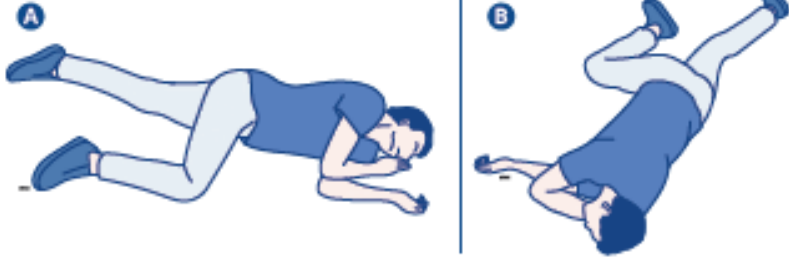
Tailor first aid courses to empower equity and focus on participants and settings



# First Aid – Ways to Save Someone’s Life

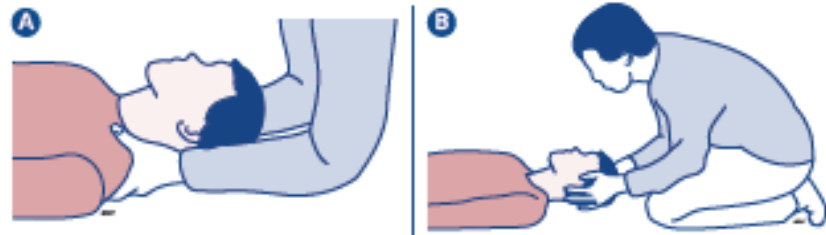
## Maintain an open airway in a person with impaired consciousness

Place them in the recovery position (A or B)



## Minimise movement if you suspect cervical spine injury

Use the trapezius (A) or head squeeze (B) technique to minimise movement in an unconscious person.



## Offer help for suicidal thoughts



## Act in case of opioid overdose

**Signs:** slow/irregular/no breathing, extremely drowsy or unresponsive, very small pupils

1. Not responsive and not breathing? Start CPR and call emergency medical services
2. Administer naloxone (follow package instructions)

## Cool for heat stroke

1. Call emergency medical services
2. Passive cooling:
  - Move to a cooler location
  - Remove excess clothing
  - Measure core temperature
3. Active cooling:
  - Immerse their whole body in cool/cold water until core temperature <math>< 39^{\circ}\text{C}</math>, neurological symptoms resolve, or for 15 min

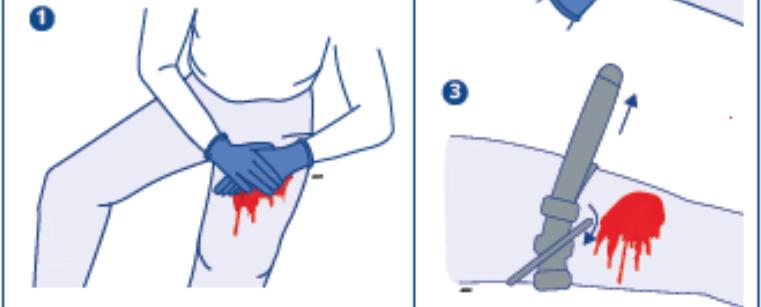


## Treat choking



## Stop life-threatening bleeding

1. Apply pressure with hands
2. Apply dressing and press
3. Apply tourniquet if needed



## Act in case of drowning

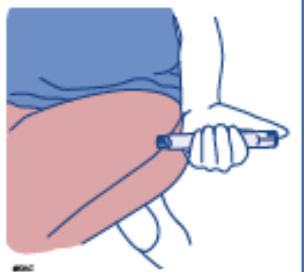
- Call emergency medical services
- Do not enter the water if you are not trained
- Provide a flotation device



## Recognise and treat anaphylaxis

**Signs:** difficulty breathing, airway swelling, stridor

1. Administer adrenaline in outer thigh
2. Call emergency medical services
3. Have the person sit or lie down
4. Repeat adrenaline after 5 minutes if needed



# Key Messages – PLS

## Early recognition is crucial

Use quick-look tools like the BBB-tool of the Paediatric Assessment Triangle to recognise critical illness

## Use three steps to save a child:

### Check - Call - CPR

Call for help as soon as you identify an unconscious child

## Systems

Systems should aim to link all parts of the chain of survival and establish clear protocols for life-threatening conditions in children

## ABCDE

Use a structured ABCDE approach to treat any child who appears critically ill or injured

## Post-discharge care

Use structured post-discharge care considering patient and family needs as standard of patient care

## Paediatric advanced life support

Follow the PALS algorithm while considering and treating relevant reversible causes of cardiac arrest and modify approach in special circumstances

## Prognostication

No single modality can be used in isolation for prognostication with high accuracy

## Team approach

Activate additional resources early and establish a team with clearly defined roles

## Family-centred approach

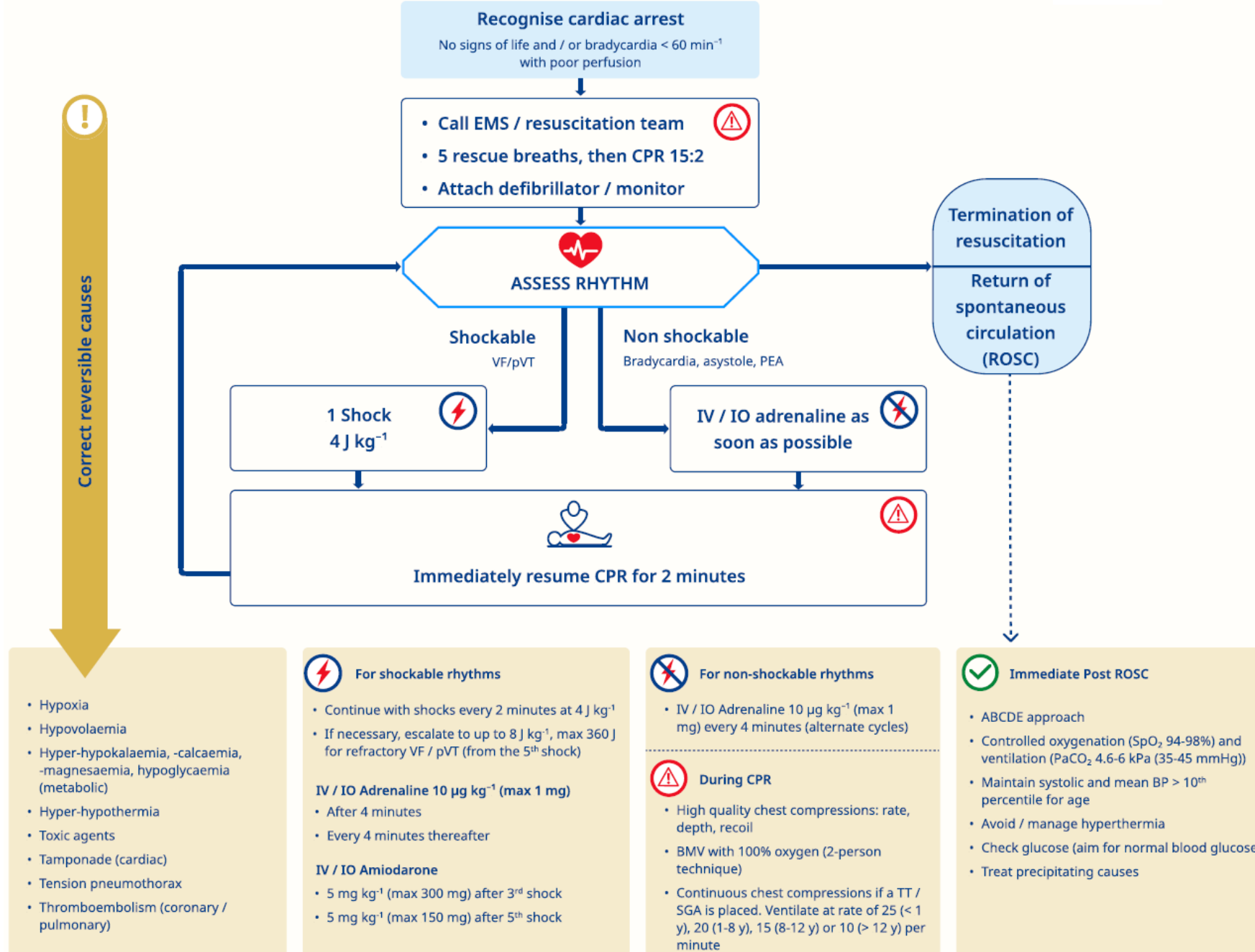
Involve parents/caregivers at all stages of care  
Communicate with honesty and empathy while considering the needs of the family

## Post-resuscitation care

Initiate post-resuscitation care immediately after ROSC  
Implement individualised goals and care bundles



# Paediatric Advanced Life Support Algorithm



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