

ANEXOS

Probable enfermedad cardíaca	82%
• En especial cardiopatía isquémica /síndrome coronario agudo (SCA)	
Enfermedades internas no cardíacas	8,6%
• Enfermedad pulmonar	4,3
• Patología cerebrovascular	2,2
• Cáncer	0,9
• Hemorragia digestiva	0,3
• Obstétricas/Pediátricas	0,2
• Embolismo pulmonar (TEP)	0,2
• Epilepsia	0,2
• Diabetes	0,1
• Patología renal	0,1
Situaciones externas no cardíacas	9%
• Traumatismos	3,1
• Asfixia	2,2
• Sobredosis de fármacos	1,9
• Otras formas de suicidio	0,9
• Ahogamiento	0,5
• Otras causas externas	0,2
• Descargas eléctricas/rayos	0,1

Anexo 1. Causas primarias de PCR en el ámbito pre-hospitalario ⁸



Anexo 2. Pasos de la cadena de la supervivencia¹⁰

SEQUENCE /	Technical description
Action	
SAFETY	
Make sure you, the victim and any bystanders are safe	
RESPONSE	
Check the victim for a response	<p>Gently shake his shoulders and ask loudly: "Are you all right?"</p> <p>If he responds leave him in the position in which you find him, provided there is no further danger; try to find out what is wrong with him and get help if needed; reassess him regularly</p>
	
AIRWAY	
Open the airway	<p>Turn the victim onto his back if necessary</p> <p>Place your hand on his forehead and gently tilt his head back; with your fingertips under the point of the victim's chin, lift the chin to open the airway</p>
	
BREATHING	
Look, listen and feel for normal breathing	<p>In the first few minutes after cardiac arrest, a victim may be barely breathing, or taking infrequent, slow and noisy gasps.</p> <p>Do not confuse this with normal breathing. Look, listen and feel for no more than 10 seconds to determine whether the victim is breathing normally.</p> <p>If you have any doubt whether breathing is normal, act as if it is they are not breathing normally and prepare to start CPR</p>
	
UNRESPONSIVE AND NOT BREATHING NORMALLY	
Alert emergency services	<p>Ask a helper to call the emergency services (112) if possible otherwise call them yourself</p> <p>Stay with the victim when making the call if possible</p>
	
SEND FOR AED	
Send someone to get AED	<p>Send someone to find and bring an AED if available.</p> <p>If you are on your own, do not leave the victim, start CPR</p>
	

Anexo 3. Secuencia de acciones paso a paso para la realización de SVB/DEA por un reanimador entrenado para tratar un adulto víctima de parada cardíaca, según la ERC. ¹²

CIRCULATION

Start chest compressions



Kneel by the side of the victim

Place the heel of one hand in the centre of the victim's chest; (which is the lower half of the victim's breastbone (sternum))



Place the heel of your other hand on top of the first hand

Interlock the fingers of your hands and ensure that pressure is not applied over the victim's ribs

Keep your arms straight

Do not apply any pressure over the upper abdomen or the bottom end of the bony sternum (breastbone)



Position yourself vertically above the victim's chest and press down on the sternum at least 5 cm but not more than 6 cm.

After each compression, release all the pressure on the chest without losing contact between your hands and the sternum

Repeat at a rate of 100-120 min⁻¹

IF TRAINED AND ABLE

Combine chest compressions with rescue breaths



After 30 compressions open the airway again using head tilt and chin lift

Pinch the soft part of the nose closed, using the index finger and thumb of your hand on the forehead






Allow the mouth to open, but maintain chin lift

Take a normal breath and place your lips around his mouth, making sure that you have a good seal

Blow steadily into the mouth while watching for the chest to rise, taking about 1 second as in normal breathing; this is an effective rescue breath

Maintaining head tilt and chin lift, take your mouth away from the victim and watch for the chest to fall as air comes out

Take another normal breath and blow into the victim's mouth once more to achieve a total of two effective rescue breaths. Do not interrupt compressions by more than 10 seconds to deliver two breaths. Then return your hands without delay to the correct position on the sternum and give a further 30 chest compressions

<p>IF UNTRAINED OR UNABLE TO DO RESCUE BREATHS</p> <p>Continue compression only CPR</p>		<p>Continue with chest compressions and rescue breaths in a ratio of 30:2</p> <hr/> <p>Give chest compressions only CPR (continuous compressions at a rate of 100-120 min⁻¹)</p>
<p>WHEN AED ARRIVES</p> <p>Switch on the AED and attach the electrode pads</p>		<p>As soon as the AED arrives:</p> <p>Switch on the AED and attach the electrode pads on the victim's bare chest</p> <p>If more than one rescuer is present, CPR should be continued while electrode pads are being attached to the chest</p>
<p>Follow the spoken/visual directions</p>		<p>Ensure that nobody is touching the victim while the AED is analysing the rhythm</p>
<p>If a shock is indicated, deliver shock</p>		<p>Ensure that nobody is touching the victim</p> <p>Push shock button as directed (fully automatic AEDs will deliver the shock automatically)</p> <p>Immediately restart CPR 30:2</p> <p>Continue as directed by the voice / visual prompts</p>
<p>If no shock is indicated, continue CPR</p>		<p>Immediately resume CPR. Continue as directed by the voice/visual prompts</p>

Anexo 3 (continuación).

**IF NO AED IS
AVAILABLE CONTINUE
CPR**

Continue CPR



Do not interrupt resuscitation until:

- a health professional tells you to stop
- the victim is definitely waking "up", moving, opening eyes and breathing normally
- you become exhausted

**IF UNRESPONSIVE BUT
BREATHING
NORMALLY**

If you are certain the victim is breathing normally but is still unresponsive, place in the recovery position (see First aid chapter).



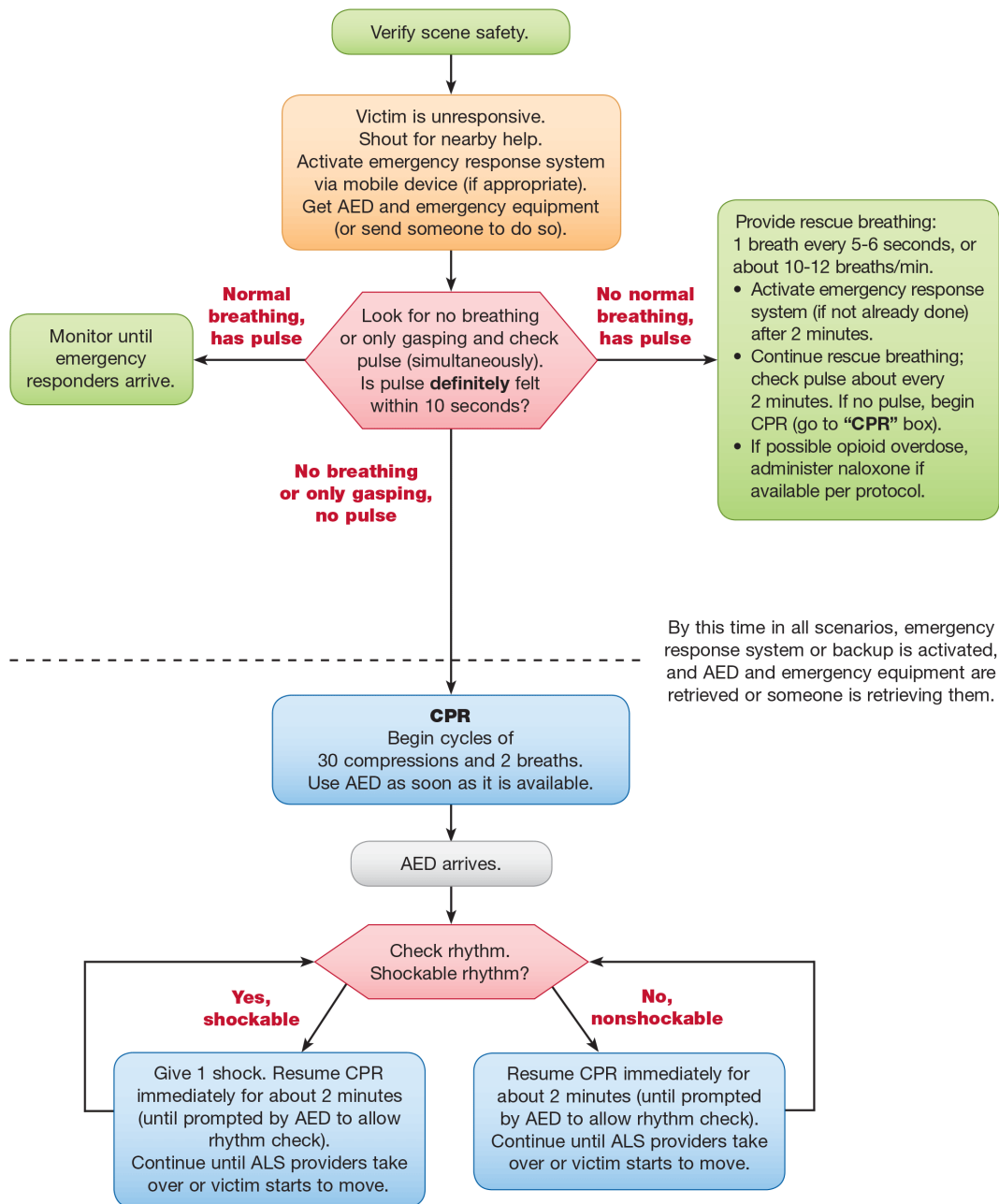
It is rare for CPR alone to restart the heart. Unless you are certain the person has recovered continue CPR

Signs the victim has recovered

- waking up
- moving
- opens eyes
- normal breathing

Be prepared to restart CPR immediately if patient deteriorates

Anexo 3 (continuación).



Anexo 4. Algoritmo de soporte vital básico para profesionales sanitarios según la AHA⁴.

CLASS (STRENGTH) OF RECOMMENDATION		LEVEL (QUALITY) OF EVIDENCE‡	
CLASS I (STRONG) Benefit >>> Risk		LEVEL A	
Suggested phrases for writing recommendations: <ul style="list-style-type: none"> ■ Is recommended ■ Is indicated/useful/effective/beneficial ■ Should be performed/administered/other ■ Comparative-Effectiveness Phrases†: <ul style="list-style-type: none"> ○ Treatment/strategy A is recommended/indicated in preference to treatment B ○ Treatment A should be chosen over treatment B 		<ul style="list-style-type: none"> ■ High-quality evidence‡ from more than 1 RCT ■ Meta-analyses of high-quality RCTs ■ One or more RCTs corroborated by high-quality registry studies 	
CLASS IIa (MODERATE) Benefit >> Risk		LEVEL B-R (Randomized)	
Suggested phrases for writing recommendations: <ul style="list-style-type: none"> ■ Is reasonable ■ Can be useful/effective/beneficial ■ Comparative-Effectiveness Phrases†: <ul style="list-style-type: none"> ○ Treatment/strategy A is probably recommended/indicated in preference to treatment B ○ It is reasonable to choose treatment A over treatment B 		<ul style="list-style-type: none"> ■ Moderate-quality evidence‡ from 1 or more RCTs ■ Meta-analyses of moderate-quality RCTs 	
CLASS IIb (WEAK) Benefit ≥ Risk		LEVEL B-NR (Nonrandomized)	
Suggested phrases for writing recommendations: <ul style="list-style-type: none"> ■ May/might be reasonable ■ May/might be considered ■ Usefulness/effectiveness is unknown/unclear/uncertain or not well established 		<ul style="list-style-type: none"> ■ Moderate-quality evidence‡ from 1 or more well-designed, well-executed nonrandomized studies, observational studies, or registry studies ■ Meta-analyses of such studies 	
CLASS III: No Benefit (MODERATE) Benefit = Risk (Generally, LOE A or B use only)		LEVEL C-LD (Limited Data)	
Suggested phrases for writing recommendations: <ul style="list-style-type: none"> ■ Is not recommended ■ Is not indicated/useful/effective/beneficial ■ Should not be performed/administered/other 		<ul style="list-style-type: none"> ■ Randomized or nonrandomized observational or registry studies with limitations of design or execution ■ Meta-analyses of such studies ■ Physiological or mechanistic studies in human subjects 	
CLASS III: Harm (STRONG) Risk > Benefit		LEVEL C-EO (Expert Opinion)	
Suggested phrases for writing recommendations: <ul style="list-style-type: none"> ■ Potentially harmful ■ Causes harm ■ Associated with excess morbidity/mortality ■ Should not be performed/administered/other 		Consensus of expert opinion based on clinical experience	

COR and LOE are determined independently (any COR may be paired with any LOE).

A recommendation with LOE C does not imply that the recommendation is weak. Many important clinical questions addressed in guidelines do not lend themselves to clinical trials. Although RCTs are unavailable, there may be a very clear clinical consensus that a particular test or therapy is useful or effective.

* The outcome or result of the intervention should be specified (an improved clinical outcome or increased diagnostic accuracy or incremental prognostic information).

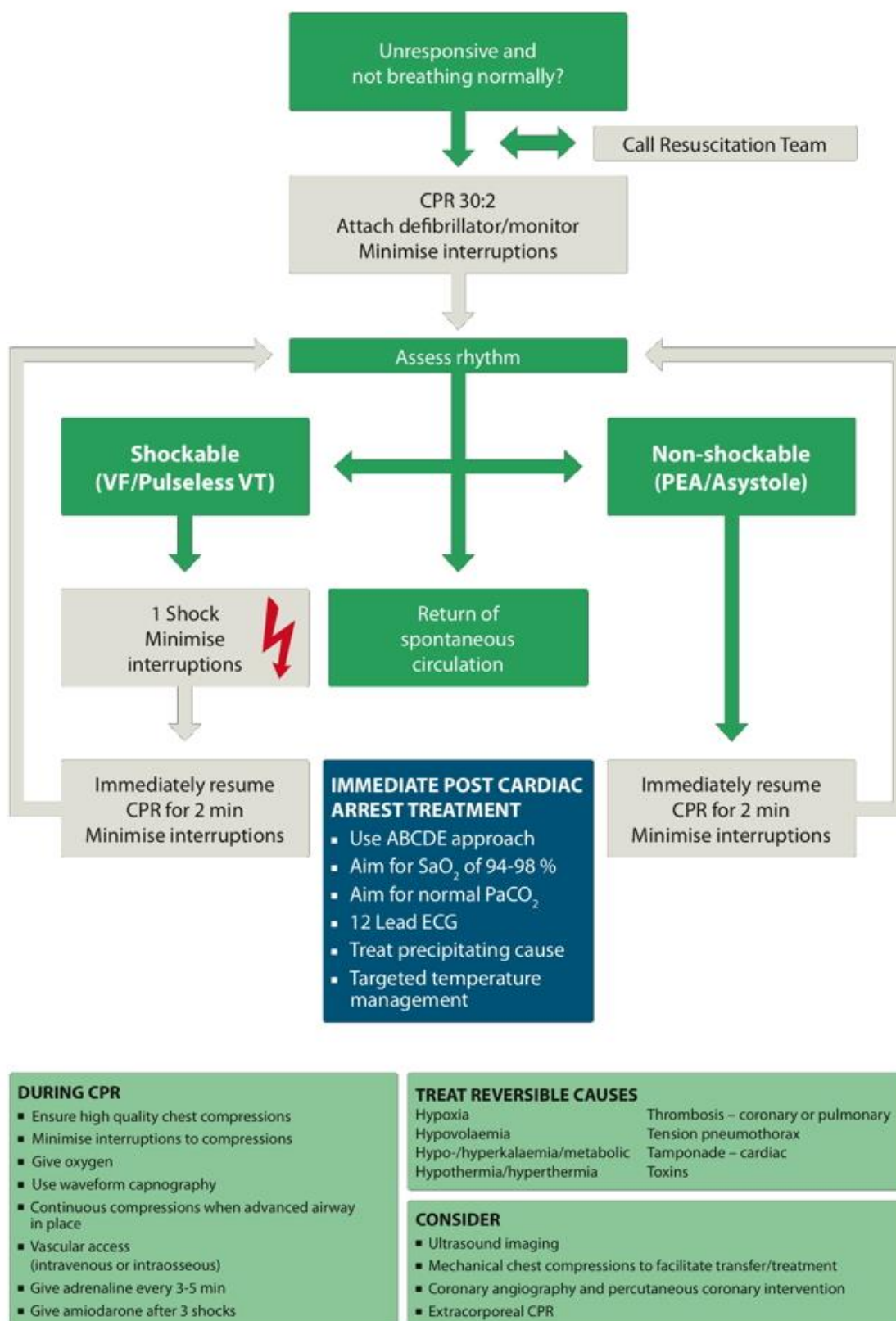
† For comparative-effectiveness recommendations (COR I and IIa; LOE A and B only), studies that support the use of comparator verbs should involve direct comparisons of the treatments or strategies being evaluated.

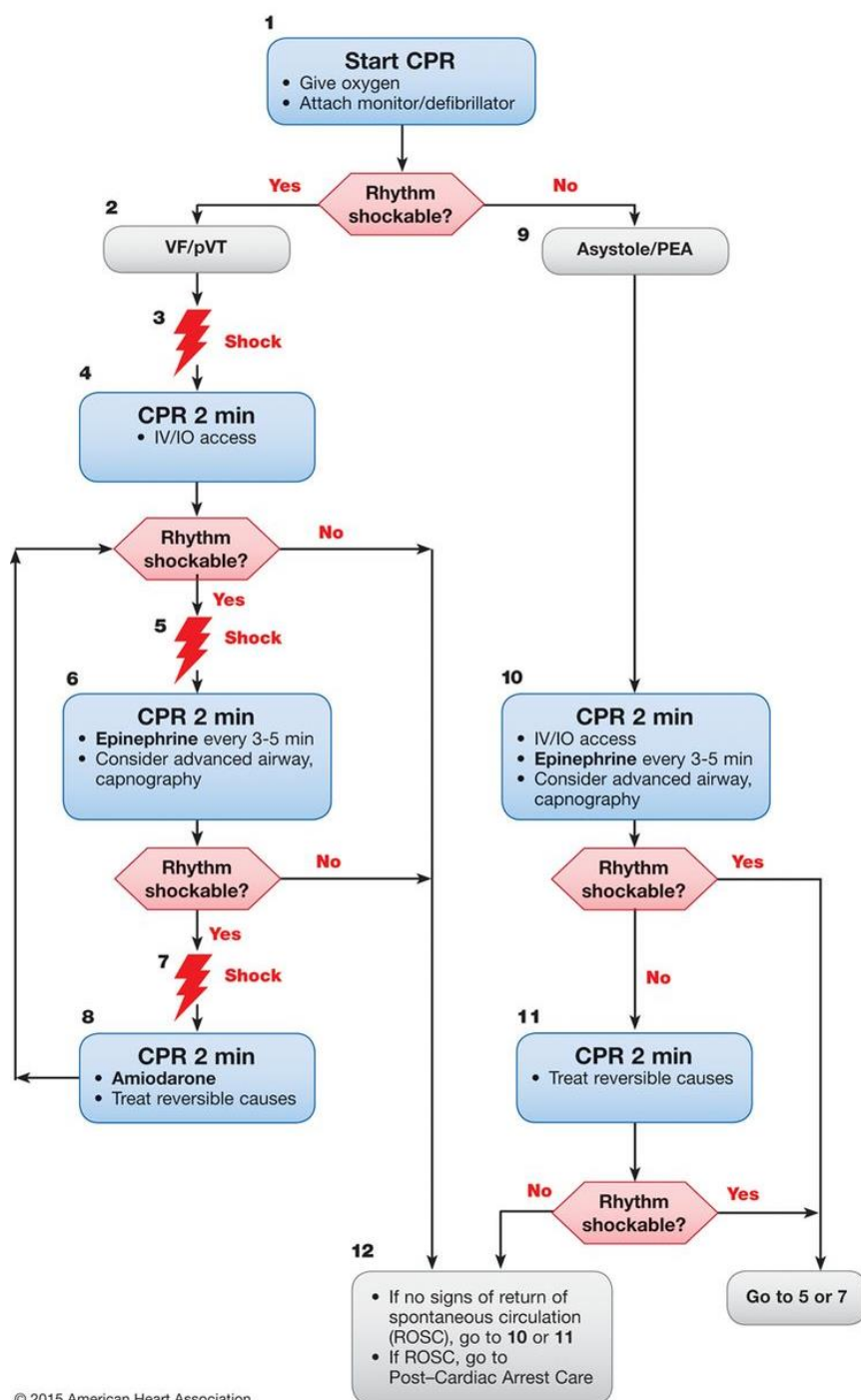
‡ The method of assessing quality is evolving, including the application of standardized, widely used, and preferably validated evidence grading tools; and for systematic reviews, the incorporation of an Evidence Review Committee.

COR indicates Class of Recommendation; EO, expert opinion; LD, limited data; LOE, Level of Evidence; NR, nonrandomized; R, randomized; and RCT, randomized controlled trial.

Anexo 5. Clases de recomendación y niveles de evidencia¹³.

Advanced Life Support





CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
 - If PETCO₂ <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
 - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

Return of Spontaneous Circulation (ROSC)

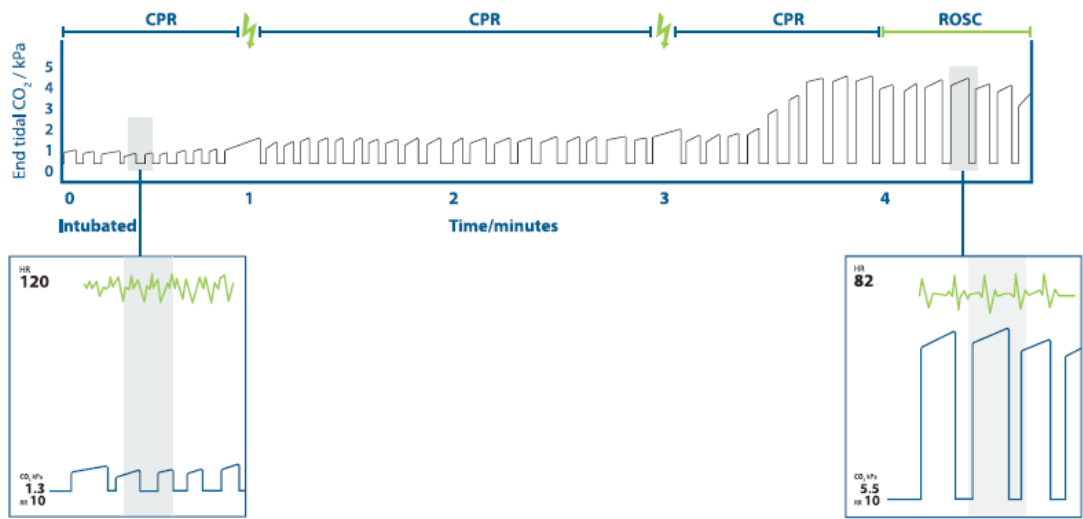
- Pulse and blood pressure
- Abrupt sustained increase in PETCO₂ (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

Grado de recomendación	Significado
A	Extremadamente recomendable (buena evidencia de que la medida es eficaz y los beneficios superan ampliamente a los perjuicios).
B	Recomendable (al menos moderada evidencia de que la medida es eficaz y los beneficios superan a los perjuicios).
C	Ni recomendable ni desaconsejable (al menos moderada evidencia de que la medida es eficaz, pero los beneficios son muy similares a los perjuicios y no puede justificarse una recomendación general).
D	Desaconsejable (al menos moderada evidencia de que la medida es ineficaz o de que los perjuicios superan a los beneficios).
I	Evidencia insuficiente, de mala calidad o contradictoria, y el balance entre beneficios y perjuicios no puede ser determinado.

Anexo 8. Significado de los grados de recomendación ²⁴

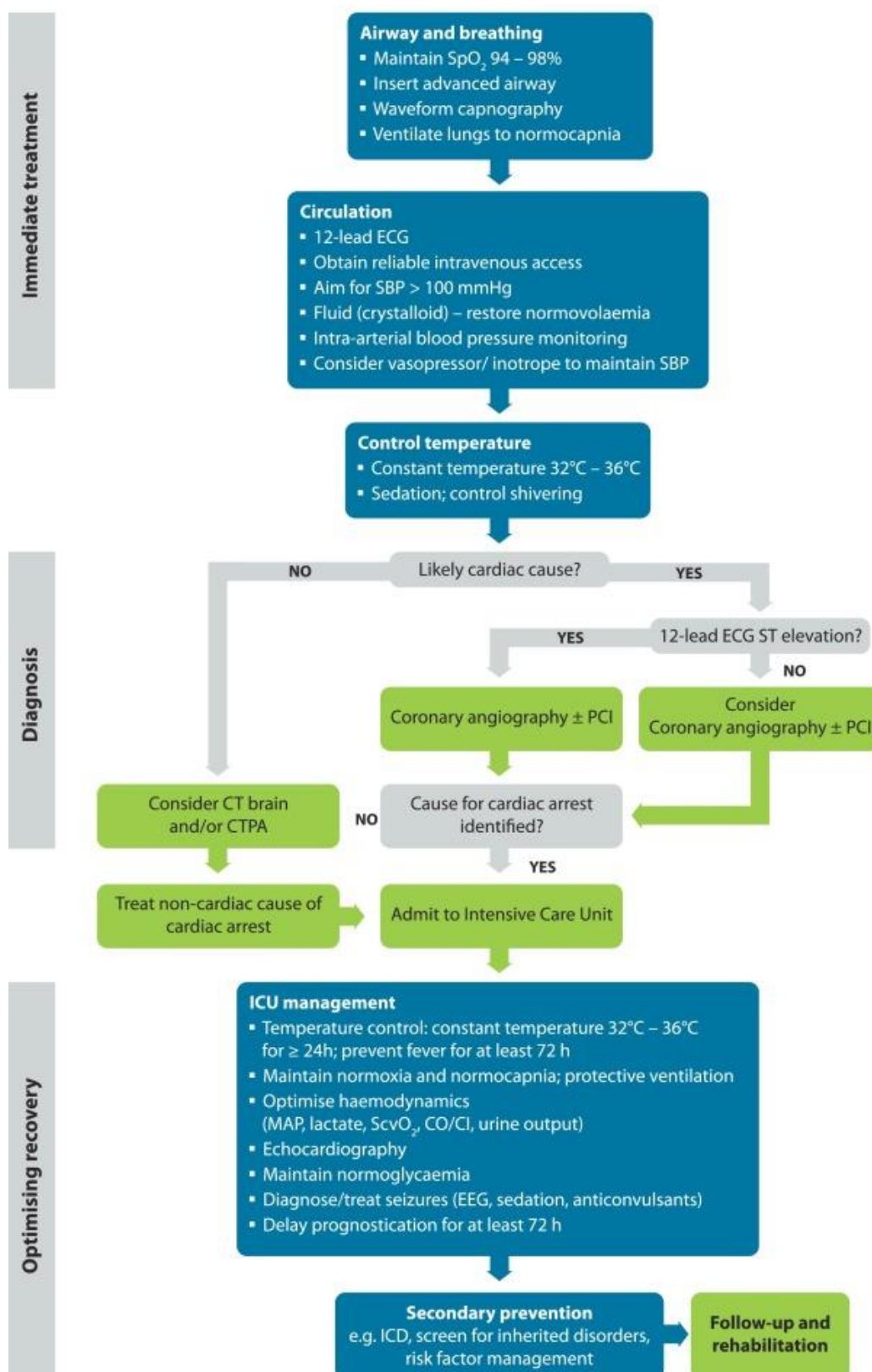


Anexo 9 . Cambios de la capnografía en forma de onda durante la PCR, desde la intubación hasta la RCE ²².





Técnicas no invasivas	Técnicas invasivas
<i>Mantas y colchones:</i>	<i>Infusión de fluidos fríos intravenosos</i>
Sistemas de aire	<i>Sistemas de circulación extracorpórea:</i>
Sistemas de agua circulante	Hemofiltración
<i>Sistemas de almohadillas de hidrogel</i>	<i>Bypass cardiopulmonar/femorocarotídeo</i>
<i>Bolsas de hielo</i>	<i>Sistemas endovasculares</i>
<i>Cascos y gorros con hielos Inmersión en agua fría</i>	<i>Lavados nasal, gástrico, rectal</i>
<i>Uso de toallas empapadas</i>	<i>Lavados con intercambio peritoneal fríos</i>

Anexo 10. Métodos de aplicación de la hipotermia tras la parada cardiaca ²⁹.

Return of spontaneous circulation and comatose



Anexo 11. Algoritmo de manejo del retorno a la circulación espontánea comatoso de la ERC ²⁸.

Action	Technical description	
SUSPECT CHOKING		
Be alert to choking particularly if victim is eating		
ENCOURAGE TO COUGH		
Instruct victim to cough		
GIVE BACK BLOWS		<p>If the victim shows signs of severe airway obstruction and is conscious apply five back blows</p> <p>Stand to the side and slightly behind the victim</p> <p>Support the chest with one hand and lean the victim well forwards so that when the obstructing object is dislodged it comes out of the mouth rather than goes further down the airway ;</p> <p>Give five sharp blows between the shoulder blades with the heel of your other hand.</p>
If cough becomes ineffective give up to 5 back blows		
GIVE ABDOMINAL THRUSTS		<p>If five back blows fail to relieve the airway obstruction, give up to five abdominal thrusts as follows:</p> <p>Stand behind the victim and put both arms round the upper part of the abdomen;</p> <p>Lean the victim forwards;</p> <p>Clench your fist and place it between the umbilicus (navel) and the ribcage ;</p> <p>Grasp this hand with your other hand and pull sharply inwards and upwards ;</p> <p>Repeat up to five times .</p> <p>If the obstruction is still not relieved, continue alternating five back blows with five abdominal thrusts .</p>
If back blows are ineffective give up to 5 abdominal thrusts		

Anexo 12. Secuencia de acciones paso a paso para el tratamiento de un adulto víctima de obstrucción de la vía aérea por cuerpo extraño, según la guía de la ERC ¹².

START CPR

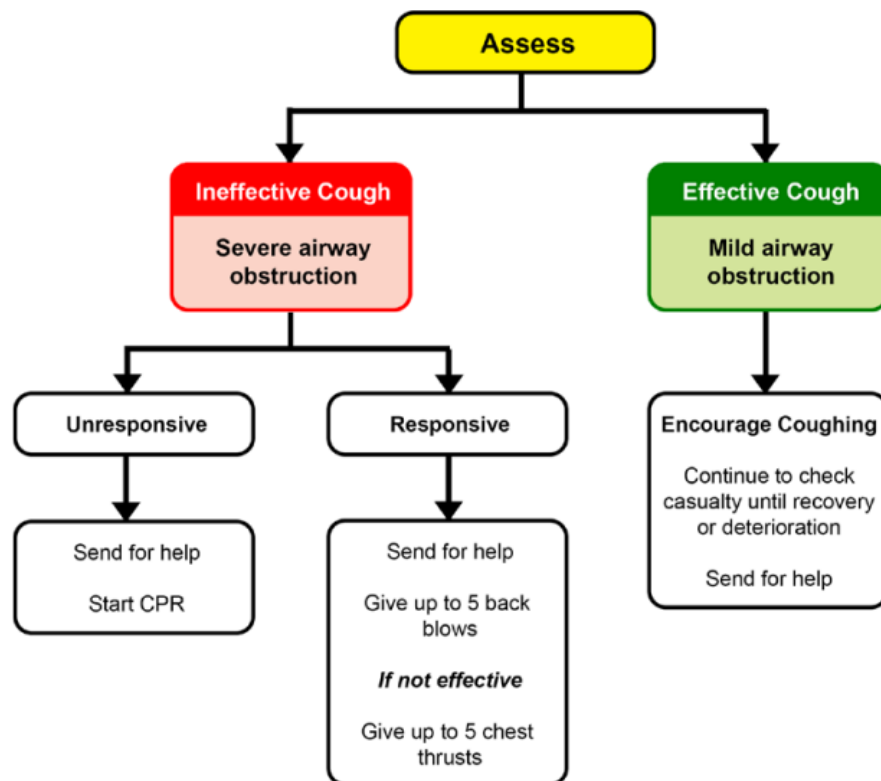
Start CPR if the victim becomes unresponsive



If the victim at any time becomes unresponsive:

- support the victim carefully to the ground;
- immediately activate the ambulance service;
- begin CPR with chest compressions.

Anexo 12 (continuación).



Anexo 13. Tratamiento de OVACE, según la guía de la ANZCOR⁵⁴.

